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NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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August 15, 1984

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USNRC

MEMORANDUM FOR: Chairman Palladino
Commissioner Roberts
Commissioner Asselstine
Commissioner Bernthal
Commissioner Zech

'84 AGO 15 P3:40

FROM: *B.H.* Ben B. Hayes, Director
Office of Investigations

OFFICE OF NUCLEAR
DOCKETING & SERVICE
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SERVED AUG 16 1984

SUBJECT: THREE MILE ISLAND NUCLEAR GENERATING STATION UNIT 2/
ALLEGED FALSIFICATION OF LEAK RATE SURVEILLANCE TEST
DATA (1-83-010)

Enclosed is a Report of Investigation pertaining to the captioned subject. This report differs from other Reports of Investigation in that it does not set forth the facts and evidence obtained as a result of a completed investigation, but sets forth the information accumulated by the NRC since May 1979. The report also documents the significant events that have impacted on the outcome of this particular case. Although OI initiated its investigation in June 1983, the then ongoing Grand Jury investigation as well as numerous other legal difficulties precluded OI from conducting a complete investigation of this matter.

The evidence that was developed during this investigation, as well as statements made by individual operators in 1980, preliminary technical analysis, and the Statement of Fact made to the Federal district court by the United States Attorney's Office as a result of the plea agreement between the Department of Justice (DOJ) and Metropolitan Edison (Met Ed) established that there was a leakage problem in the primary system at TMI-2. This provided a motivation for operators to falsify the reactor coolant system leak rate surveillance test data. Testimony disclosed that site management was aware of leakage problems at TMI-2 and the difficulties being encountered in obtaining leak rate surveillance test results within technical specification limits. The evidence also established that leak rate surveillance tests were falsified at TMI-2 in that at least four operators admitted to both the NRC and DOJ that they deliberately falsified leak rate test results at TMI-2.

Subsequent to Met Ed pleading guilty to one count and nolo contendere to six counts named in the indictment, handed down by the Federal Grand Jury, the Commission directed OI not to duplicate issues adjudicated by the Federal district court. Thus, an additional investigation will be initiated to examine individual operator actions and will be documented by a separate Report of Investigation. It is anticipated that this investigation will include the interview of all individuals who were licensed at TMI-2 during the time period in question in an effort to determine the extent of their involvement in leak rate falsification and the environment in which it occurred.

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Chairman Palladino, et al.

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August 15, 1984

This report is provided for your information and any action you deem appropriate.

Neither this report nor memorandum may be released outside of the NRC without the permission of the Director, OI. Internal access and dissemination must be on a need and right to know basis.

Enclosure:
As stated

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INVESTIGATIONS FIELD OFFICE, REGION I
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REPORT OF INVESTIGATION

TITLE: THREE MILE ISLAND NUCLEAR GENERATING STATION UNIT 2/ALLEGED
FALSIFICATION OF LEAK RATE TEST DATA

SUPPLEMENTAL: Docket Number 50-320

CASE NUMBER: 1-83-010

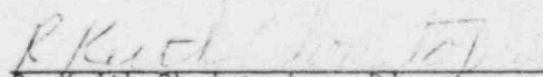
DATE: August 15, 1984

REPORTING OFFICE: Office of Investigations
Field Office, Region I

STATUS: CLOSED

PERIOD OF INVESTIGATION: June 27, 1983 through February 28, 1984


REPORTING INVESTIGATOR:


R. Keith Christopher, Director
Office of Investigations Field Office, Region I

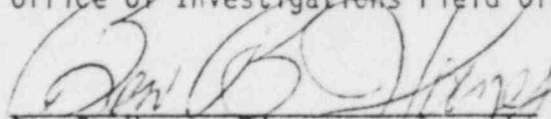
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SYNOPSIS

On June 27, 1983, the Office of Investigations (OI) initiated an investigation at the request of the Nuclear Regulatory Commission into the so-called "Hartman Allegations." Specifically, OI was requested to investigate Hartman's allegations (which were first made in 1979) that plant operations personnel at the Three Mile Island Unit 2 (TMI 2) Nuclear Generating Station were purposely manipulating certain plant systems during the performance of reactor coolant system (RCS) leak rate surveillance tests in order to adjust the RCS inventory in such a way as to obtain acceptable leak rate test results.

An investigation conducted in 1980 by NRC Region I, Office of Inspection and Enforcement, was referred to the Department of Justice (DOJ) after four operators at TMI 2 admitted falsifying RCS leak rate tests and preliminary technical analysis performed by Region I confirmed that water and hydrogen had been added to the RCS make-up tank during the performance of the tests.

From the outset, the then ongoing Grand Jury investigation by DOJ on this same issue as well as numerous other legal difficulties prevented the OI investigators from interviewing key witnesses in the investigation and to date has precluded OI review of much of the existing documentary and technical evidence. As a result, the OI investigation was limited to interviews of auxiliary operators, technicians and various members of the plant supervisory and engineering staff. These interviews did not result in the development of additional evidence of leak rate falsification although several of the supervisory personnel expressed their awareness that problems were being experienced in obtaining good leak rates at TMI 2. Finally, in a letter dated December 14, 1983 from D. Lowell JENSON, Associate Attorney General, U.S. Department of Justice, to the Chairman, U.S. Nuclear Regulatory Commission, it was requested that the Commission stay any further investigation of the HARTMAN allegations until the conclusion of the DOJ criminal proceedings.

Subsequent to an indictment of Metropolitan Edison Company in November 1983, the defendant (Metropolitan Edison), pursuant to a plea agreement with the U.S. Government, pled guilty to one count and nolo contendere to six counts of the indictment handed down by the Grand Jury.

During a closed Commission meeting on March 23, 1984, the Commission directed that OI not duplicate matters resolved in the criminal prosecution. While other ancillary investigations regarding individual operator actions may be forthcoming as a result of the Hartman allegations, the central issue of leak rate falsification at TMI 2 has been adjudicated in criminal proceedings.

Given these events, this report sets forth the information available to the NRC regarding HARTMAN's allegation concerning falsification of leak rate test data rather than reporting a full OI investigation.

BASIS FOR INVESTIGATION

On June 27, 1983, an investigation into suspected falsification of Reactor Coolant System (RCS) leak rate test data at Three Mile Island Unit 2 (TMI 2) was initiated at the direction of the Nuclear Regulatory Commission. The investigation was initiated as a result of allegations made in 1979 and 1980 by a former licensed control room operator at TMI 2 who alleged that operators were falsifying leak rate tests by adding water and/or hydrogen to the RCS make-up tank during the performance of the tests.

APPLICABLE REGULATIONS

A. REGULATORY BASIS FOR REACTOR COOLANT PRESSURE BOUNDARY LEAKAGE DETECTION

The regulatory basis and requirements for detecting and measuring Reactor Coolant System Leakage is derived from General Design Criterion 30 "Quality of Reactor Coolant Pressure Boundary" of Appendix A to 10 CFR Part 50, "General Design Criteria for Nuclear Power Plants." Specifically Criterion 30 states:

"Components which are part of the Reactor Coolant Pressure boundary shall be designed, fabricated, erected, and tested to the highest quality standards practical. Means shall be provided for detecting and to the extent practical, identifying the location of the source of reactor coolant leakage."

In addition 10 CFR Part 50.36 (Technical Specifications) established regulatory requirements for the licensee to promulgate technical specifications. 10 CFR Part 50.36 subsection (A) states:

"Each applicant for a license authorizing operation of a production or utilization facility shall include in his application proposed technical specifications in accordance with the requirements of this section. A summary statement of the basis or reasons for such specifications, other than those covering administrative controls, shall also be included in the application, but shall not become part of the technical specifications."

TMI 2 Technical Specification 3.4.6.2 (Leakage), sets forth the limiting conditions for operations for RCS leakage in order to satisfy the regulatory requirements for measuring and detecting reactor coolant system leakage. The specification states that if the total RCS leak rate exceeds 10 gpm (gallons per minute) the reactor shall be placed in hot shutdown within 24 hours of detection and if unidentified RCS leakage exceeds one gpm the reactor shall be placed in hot shutdown within 24 hours of detection.

TMI 2 Surveillance Procedure 2301-301-1.1, (RC System Leak Rate), implements testing procedures for the forementioned technical specifications regarding RCS leakage and requires that the surveillance procedure be performed "at least once every 72 hours during steady state operations."

"Avoid addition and removal of water from the reactor coolant and make-up systems during this test. The following operations should not be conducted during this test:

- a. Make-up or chemical addition to the make-up system.
- b. Sampling of the RCS or make-up system.
- c. Venting or draining of the RCS or make-up system.
- d. Changing purification demineralizers or make-up filters in service.
- e. Boration or deboration."

Paragraph 6.3 of the Surveillance Procedure states:

"If the changes to the RCS inventory must be made during the performance of this test, they must be accounted for using Data Sheet 1303-1.1.3. Operations such as adding water to the make-up tank or sampling the RCS may be accounted for in this manner."

Paragraphs 6.4.1 and 6.4.2 of this surveillance procedure further state:

"6.4 - If the net RCS leakage is excessive as defined by the acceptance criteria in Section 7, proceed as follows:

6.4.1 - Perform another determination of the RCS leak rate.

6.4.2 - Insure that no unaccounted for operator action has occurred

that would change the RCS inventory. (See section 3.1 for a listing of possibilities). If such an action has occurred, it invalidates the measurement. Enter this in the "Remarks" section of the data sheet, clearly describing the action that invalidated the measurement."

B. REGULATORY CRITERIA CONCERNING THE MAINTENANCE OF RECORDS

10 CFR Part 50.71 (Maintenance of Records, Making of Reports) subsection (A) states:

"Each licensee and each holder of a construction permit shall maintain such records and make such reports, in connection with the licensed activity, as may be required by the conditions of the license or permit or by the rules, regulations, and orders of the Commission in effectuating the purpose of the Act, including Section 105 of the act.

In furtherance of the requirement, subsection (c) of 10 CFR Part 50.71 states:

"Records which are required by the regulations in this part, by license condition, or by technical specification, shall be maintained for the period specified by the appropriate regulation, license condition, or technical specification. If a retention period is not otherwise specified, such recording shall be maintained until the Commission authorizes their disposition.

TMI 2 Technical Specification 6.10.0 entitled (Record Retention), specifically Section 6.5.4, implements the above regulatory requirement requiring that the licensee retain all surveillance tests, including RCS leakage for a period of five years.

The licensee's Administrative Procedure (AP), 1010, (Technical Specification for Surveillance Programs), Exhibit (6), Section 6.5 requires that the licensee identify problems encountered during surveillance testing

and test results not meeting test acceptance criteria such as RCS leak rate tests by making entries relating to such problems on an exception and deficiency list.

Section 3.317 of the licensee's Administrative Procedure 1012, (Shift Relief and Log Entries), requires that the licensee maintain operating logs relating to the performance of surveillance tests, such as RCS Leak Rate test, including the starting and completion times of the test.

DETAILS

BACKGROUND

Subsequent to the March 28, 1979 accident and prior to the initiation of the OI investigation, Harold HARTMAN, a licensed Control Room Operator (CRO) at TMI 2 until April 1979, was interviewed by various NRC Staff members on five occasions between May 22, 1979 and March 26, 1980. These interviews are identified as follows:

<u>Date of Interview</u>	<u>HARTMAN Interviews Conducted By NRC Office of Inspection and Enforcement (I&E)</u>	<u>Format of Interview Results</u>
May 22, 1979	TMI Investigation Team	Verbatim Transcript
Sept. 12, 1979	NRC TMI Special Inquiry Group	Partial transcript based on notes and tape
Oct. 29, 1979	NRC TMI Special Inquiry Group	Verbatim Transcript
March 22, 1980	I&E Region I Staff	Memorandum
March 26, 1980	I&E Region I Staff	Verbatim Transcript and sworn statement

A review of these transcripts determined that HARTMAN first brought his allegations to the attention of the NRC during the May 22, 1979 interview with the accident investigation team and he reiterated his allegations in varying degrees of specificity during the following four interviews. The first three interviews were conducted prior to HARTMAN's allegations becoming public although no additional inquiry was done at that time. The remaining two interviews (March 22, 1980 and March 26, 1980) were conducted when NRC Management learned of the allegations and that the allegations were going to be made public. During this investigation, the five interviews were reviewed by OI and the pertinent excerpts from these interviews pertaining to the falsification of leak rate surveillance tests at TMI 2 were extracted.¹

1. Exhibit I

INVESTIGATOR'S NOTE: The complete transcripts and/or reports of interviews of these five meetings with HARTMAN are available in their entirety as attachments to a memorandum dated June 6, 1983 from Thomas T. MARTIN, Director, Division of Engineering and Technical Programs, Region I to Herzel H. PLAINE, General Counsel, Office of the General Counsel (hereinafter the Martin Report). The memorandum and its enclosures will be discussed in detail later in this report.

The HARTMAN allegations were first made public in a television program entitled "What's Happening in America" which aired on March 24, 1979. According to the transcripts of the program,² HARTMAN made the following comments concerning the falsification of RCS leak rate tests at TMI 2:

Hal HARTMAN - The primary leak rate was every three days we had to determine RCS inventory, basically, and we determined it for a one hour period: how much water we put into the system versus how much water we detected coming out. If the difference was more than a gallon per minute the Nuclear Regulatory Commission has a technical specification that said the greater than one gallon per minute unidentified leakage was unacceptable. During the later days, we had leaking safety valves and we had a tough time getting a leak rate. We had a tough time getting the computer to print out less than one gallon a minute. We had a tough time getting the hand calculation to come out less than one gallon a minute. There were certain things we could do to get it to come out less than one gallon per minute.

Interviewer, Reporter - What did you do?

Hal HARTMAN - There are certain things like something simple like adding hydrogen to the make-up tank. It's a gas that prevents oxidation to the cooling pipes.

Interviewer, Reporter - Did you ever fix the statistics?

Hal HARTMAN - I didn't do it very often. I did it only if I was watched very closely and was told I had to have one by 6 a.m. in the morning. It was a dire situation I avoided it. Normally, when I was assigned a task in giving a leak rate, they would just say get a good one, you know, I'll try again later.

Interviewer, Reporter - Why did you do it?

Hal HARTMAN - I had to get it done. I was told to do it. Get a good one.

Interviewer, Reporter - You knew it was a violation of the NRC regulation?

Hal HARTMAN - Yes.

Interviewer, Reporter - Did you ever have discussions with other people at the plant about this?

Hal HARTMAN - Yes, my shift supervisor, Bernie SMITH.

As a result of the public airing of HARTMAN'S allegations on March 24, 1980, NRC Region I initiated an investigation. That investigation proceeded until April 10, 1980 when the TMI 2 CROs declined to participate in further interviews. Efforts to obtain subpoenas for the operators were underway when on April 28, 1980, investigative jurisdiction was relinquished to the United States Department of Justice (DOJ). The only additional investigation performed until June 27, 1983, was technical analysis of various data at DOJ's request as part of the Grand Jury investigation. This technical analysis is not yet available to OI.

Included with this report is the "Martin Report" setting forth the summary, findings and conclusions reached by Region I as a result of its limited probe into the HARTMAN allegations.³ Attached to the "Martin Report" are the

3. Exhibit 3

documented interviews conducted at the time and the technical analysis performed by Region I which formulated the basis for their findings.

As set forth in the "Martin Report", subsequent to the receipt of HARTMAN's allegations, the remaining 15 licensed reactor operators at TMI 2 were the focus of preliminary screening interviews. With the exception of HARTMAN, none of the licensed operators either admitted falsifying RCS leak rate test data or admitted being pressured or directed by their supervisors to get "good" leak rates. The interviewees acknowledged that "bad" leak rate test results were thrown away with the acknowledgement and approval of their immediate supervisors, (Shift Foremen and Shift Supervisors).⁴

INVESTIGATOR'S NOTE: A "bad" leak rate test result was a term used to refer to those leak rate test results that exceeded technical specification limits while a "good" leak rate was one in which the result was within technical specification limits.

Subsequent to the screening interviews, further in-depth interviews were conducted with seven of the 15 operators, until the operators as a group declined to continue to participate in the interviews. Three operators, (Joseph CONGDON, John BLESSING, and Mark COLEMAN) admitted adding hydrogen to the RCS make-up tank during the performance of leak rate surveillance tests for the purpose of manipulating leak rate test results. These three operators stated that these actions were known to and accepted by their immediate supervisors⁵. The remaining four operators (Earl HEMMILIA, Hugh MCGOVERN, Raymond BOOHER, and Martin COOPER) denied being involved in the falsification of leak rate surveillance tests. These operators did acknowledge that they felt varying degrees of pressure from their shift supervisors and shift foremen to get good leak rates but denied that they were directed to falsify leak rate test records. All of the operators reiterated that it was a routine practice to discard "bad" test results and that this practice was common knowledge to the Shift Supervisors and Shift Foremen⁶.

4. Exhibit A-11 to the Martin Report

5. Exhibits A-14, A-15 and A-16 to the Martin Report

6. Exhibits A-12, A-13, A-17 and A-18

Contrary to the above, HARTMAN alleged that on numerous occasions he had personally witnessed Raymond BOOHER manipulate leak rate test results. In addition, NRC technical analysis identified a number of leak rate tests performed by Raymond BOOHER during which either hydrogen or water unaccountably were added to the RCS inventory during the course of the test. However, during his NRC interview in 1980, BOOHER would not confirm or deny these allegations as they pertained to the manipulation of leak rate tests through the addition of water to the make-up tank. BOOHER is currently a licensed Senior Reactor Operator at the Waterford 3 Nuclear Generating Station.

In addition, Region I interviewed four supervisory individuals from the Unit 2 Operations Department. The interviewees included James FLOYD, Operations Superintendent, Shift Supervisors Brian MEHLER and Bernard SMITH, and Shift Foreman Kenneth HOYT. All four individuals denied being involved in or aware of the falsification of leak rate tests at TMI 2 through the unaccounted addition of hydrogen or water to the RCS make-up tank during the performance of the leak rate test. All four supervisors denied pressuring any of the operators to do anything improper as it pertained to the performance of the leak rate tests. Two of the supervisors (MEHLER and SMITH) stated they were aware that a hydrogen addition to the make-up tank during the performance of a leak rate test could affect the leak rate test results. All four supervisors also exhibited an awareness that "bad" leak rate test results were discarded⁷. It was at this juncture in the investigation that the case jurisdiction was relinquished to DOJ, and no further investigative interviews were undertaken by the NRC.

As set forth in the "Martin Report", the Region I investigation was conducted over a three week period from March 22, 1980 to April 10, 1980. The "Martin Report" documents all NRC investigative efforts conducted during that time period or until case jurisdiction was transferred to DOJ. In May 1980 a Federal Grand Jury was impaneled, however, it was dismissed in November 1981 without handing down an indictment. The next Grand Jury to hear TMI leak rate falsification testimony was impaneled in March 1983, and resulted in the subsequent indictment of Metropolitan Edison. No NRC investigation was conducted from April 10, 1980 to June 27, 1983, when the Commission directed the

7. Exhibits A-7, A-8, A-9 and A-10 to the Martin Report

newly established Office of Investigations to formally reopen the investigation.

The Martin Report provides documentation of technical analysis of the RCS make-up tank, level charts, and analysis of the instrumentation systems performed during the NRC probe⁸. These documents indicate that a hydrogen addition at or near the end of a leak rate test provided optimum improvement in the leak rate test results and the effect of the hydrogen addition could be negated if the addition was made early in the test. Of the approximately 165 leak rate tests examined by NRC Region I, ten instances were identified during which water additions had been made during the course of the leak rate test with a resultant effect of lowering the test results to below technical specification limits. Three (3) instances were identified in the Region I technical analysis during which hydrogen additions to the make-up tank effected the leak rate test results. The review of the leak rate test results did not surface any results in the official records that exceeded technical specification limits supporting operator testimony that all "bad" leak rate test results were discarded.

INVESTIGATOR'S NOTE: Improved methods of analyzing and understanding the leak rate test data were developed during the NRC technical assist to the Grand Jury investigating this issue. This improved capability would undoubtedly result in a more correct identification and assessment of questionable leak rate tests by individual operators. This information has not yet been made available to OI due to the technical staff's understanding of the constraints imposed on them concerning the release of Grand Jury information.

8. Exhibits C-1 and C-8 to the Martin Report

DETAILS OF OI INVESTIGATION

During a meeting with OI Officials on June 28, 1983, the First Assistant U.S. Attorney for the Middle District of Pennsylvania interposed no objections to the initiation of the OI investigation. At that time he advised that the majority of the prospective witnesses OI wished to interview were represented by legal counsel.

In a sworn statement given to OI investigators on July 26, 1983⁹, HARTMAN reiterated his allegations that operators at TMI 2 falsified RCS leak rate surveillance tests through the unaccounted addition of hydrogen and/or water to the RCS make-up tank during the performance of leak rate tests. He stated that he had witnessed another operator (Raymond BOOHER) add water to the make-up tank for the express purpose of manipulating the test results. He stated that while he was not specifically directed by his supervisors to manipulate the leak rate tests, he was directed by his supervisors to discard unsatisfactory test results. HARTMAN stated that Bernard SMITH, a Shift Supervisor, and Kenneth HOYT, a Shift Foreman, were aware of this practice. He also stated he was confident that other shift foremen and shift supervisors were aware of the practice of discarding test results. HARTMAN said he did not know if either James FLOYD, the Operations Superintendent, or Gary MILLER, the Plant Superintendent, were aware of this practice. He also reaffirmed earlier statements attributed to him that there was a lot of pressure on operators to get good leak rates in order to remain in power operation. HARTMAN concluded by stating that he had learned of no new information or evidence regarding this issue since he terminated his employment in 1980. As such, he provided no new significant information not already documented in his earlier five interviews with the NRC.

On July 10, 1983, Mr. Smith B. GEPHART with the law firm of Killian and GEPHART, was requested to make his clients available for interview concerning the alleged falsification of leak rate test data at TMI 2. GEPHART advised that his firm, in conjunction with the firm of LeBouf, Lamb, Leiby and MacRae,

9. Exhibit 4

represented 45 present and former employees of General Public Utilities Nuclear (GPUN) and Metropolitan Edison Co., all of whom OI wished to interview. He advised that in view of the ongoing Grand Jury investigation regarding this matter, he and his associates had advised their clients not to submit to interviews with the NRC.

At OI's request, subpoenas were issued to 47 prospective witnesses in the OI Unit 2 leak rate investigation compelling them to provide testimony to NRC investigators; however, on September 15, 1983, attorneys for the witnesses filed a "Motion to Quash Subpoenas" before the NRC¹⁰. By order dated September 21, 1983¹¹, the Commission denied the Motion to Quash but directed the NRC to revise certain subpoenas to make them returnable in the judicial district where the individual witnesses resided. Pursuant to the Commission order, the appropriate subpoenas were reissued.

Subsequent to the Commission order, attorneys representing the witnesses submitted a letter dated September 26, 1983 to the NRC Office of General Counsel¹² advising that the majority of their clients would not comply with their subpoenas in the absence of a court order. The same letter also identified several witnesses who intended to comply with the subpoenas.

In November 1983, the Government petitioned the U.S. District Court for the Middle District of Pennsylvania to enforce the subpoenas issued on September 1, 1983, for 26 individuals residing in the judicial district for the Middle District of Pennsylvania. In a memorandum issued by the court on December 2, 1983¹³, the individuals were ordered to comply with the subpoenas issued by the NRC. Consequently in a letter, dated December 14, 1983¹⁴, to the Chairman, Nuclear Regulatory Commission, the Associate Attorney General for DOJ requested that the NRC stay any further administrative proceedings related to the operation of TMI 2 until the conclusion of the criminal trial.

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10. Exhibit 5
 11. Exhibit 6
 12. Exhibit 7
 13. Exhibit 8
 14. Exhibit 9

As stated previously, the majority of witnesses considered key to this investigation were not available to OI for interview due to the ongoing litigation over enforceability of the subpoenas. Notwithstanding this impediment, 34 additional witnesses were interviewed by OI while the subpoenas were being litigated in Federal Court. These interviews consisted of auxiliary operators, computer operators, plant engineers, the Unit 2 plant superintendent, and various other plant technicians and supervisors who were members of the plant operating review committee (PORC).

Twelve individuals, who were auxiliary operators (AOs) during the time period in question (April 1978 to March 1979), were randomly selected for screening interviews. These selections were made in a manner to ensure that individuals assigned to all six operating shifts were interviewed. The interviewees provided sworn statements¹⁵ in which they denied having any knowledge relative to the falsification of leak rate test data thru either the unaccounted addition of hydrogen or water to the RCS make-up tank during the course of leak rate surveillance tests. The AOs stated that while they routinely made hydrogen additions to the make-up tank at the direction of the reactor operators or shift supervisors, they would have been unaware as to whether or not a leak rate test was being run during the time of the hydrogen addition.

INVESTIGATOR'S NOTE: For several months during the time period in question, hydrogen additions could not be made automatically from the control room requiring an AO to manually add hydrogen to the make-up tank at the direction of the CRO.

Five additional individuals assigned to perform various computer maintenance and programming functions of the plant computers were interviewed and denied being aware of the operators attempting to manipulate RCS leak rate test results. They also denied attempting to improperly manipulate the computer program used to perform the leak rate test at the direction of management. One of the individuals, (William FELS) stated that he had been made aware after the March 1979 accident that operators were discarding leak rate tests, however, he provided no amplifying information.¹⁶

15. Exhibits 10 thru 21

16. Exhibits 22 thru 26

Fourteen individuals assigned to various mid-level management and technical support positions during the time period in question, were also interviewed. In sworn testimony, written statements and reports of interviews, eleven of these individuals¹⁷ denied having any knowledge of/or involvement in the falsification of leak rate test data and denied being aware of any individual operator or plant supervisor who was involved in any manipulation of leak rate test results. None of these individuals purported to have ever actually performed a leak rate test or to being aware of the actual mechanisms involved in the performance of the test. Additionally, the interviewees denied being in a position such that they would have been aware that TMI 2 was experiencing difficulty in obtaining "good" leak rates. The remaining three interviewees (Thomas HAWKINS, Ivan PORTER and George KUNDER) acknowledged being aware that TMI 2 was experiencing problems in obtaining good leak rates due largely to the difficulties encountered in maintaining plant parameters in a significantly stable state to perform the test; however, these individuals denied being aware that operators were manipulating leak rate test results and denied being aware of any statement, actions, or other evidence that would indicate that plant supervisory personnel were involved in or condoned such activity¹⁸.

Since several of these interviewees were members of the PORC, particular emphasis was placed on developing information concerning the development of and actions taken with respect to licensee event report (LER) 78-62/11T, dated October 19, 1978¹⁹. The LER is significant because it was the first time the licensee documented problems with obtaining acceptable leak rate surveillance tests at TMI 2. The LER, which was subjected to review by the PORC, called attention to problems with the technical specification interpretation and also identified that errors in the leak rate surveillance procedure caused unidentified leakage to be greater than that which was actually occurring. More significantly, it was determined that the LER was initiated only after the NRC Resident Inspector, Donald HAVERKAMP, observed several leak rate tests with results exceeding technical specification limits lying on the shift

17. Exhibits 27 thru 37
18. Exhibits 38 thru 40
19. Exhibit 41

supervisors desk in the Unit 2 control room. According to HAVERKAMP²⁰, he immediately took up the issue with Mr. James SEELINGER, the Unit 2 Plant Superintendent and Acting Superintendent for Technical Support at the time. In addition, HAVERKAMP recalled at that time, discussing the leak rate tests with the shift supervisors and control room operators. HAVERKAMP learned from these operators that the plant had been unable to get a good leak rate for two days but did not shut down the plant because it was their interpretation (the operators and shift supervisors) that the plant was only required to get a good leak rate once every three days, and therefore, the Action Statement as required by TMI 2 technical specifications was never invoked. Interviews of witnesses who were members of the PORC determined that when the incident was reviewed by the PORC, a determination was made that each time the leak rate surveillance test result was in excess of the technical specification limits, the Action Statements required by the technical specifications should have been invoked. Additionally, the LER stated that the operators had been instructed in the proper interpretation of the technical specifications although this has not been supported by the testimony given to date.

The LER in question also stated that the plant had reduced the unidentified leakage to within technical specification limits at 0735 on October 18, 1983. The investigation determined that this statement was made based on the performance of a leak rate test performed from 0736 to 0836 on October 18, 1983. Further inquiry also determined that this particular surveillance test was not among those recorded in the plant records. The test result in question was retrieved from the GPU litigation file and a subsequent review determined that the unidentified leak rate of 1.2939 gallons per minute (GPM) still exceeded the technical specification limits for unidentified leakage of 1 GPM. A handwritten notation on the test approved the test result as being within technical specification limits by rounding the result down to 1 GPM. The author of the notation is reported to be James FLOYD. The practice of rounding off the test results was initially approved by HAVERKAMP; however, this approval was subsequently reversed and the licensee terminated the practice.

20. Exhibit 2
21. Exhibit 44

Other licensee management personnel interviewed included Joseph LOGAN, the Unit 2 Plant Superintendent from December 1978 to December 1979. LOGAN reported directly to Mr. Gary MILLER, the Station Superintendent. In a sworn statement²², LOGAN recalled that he attended Plan of the Day (POD) meetings that included various plant supervisors (but not MILLER) during which various aspects of plant operations were discussed. LOGAN said there were discussions pertaining to the performance of leak rate tests and mainly the difficulty being encountered in obtaining consistent test results. LOGAN said these discussions centered on the fact that despite periodic difficulties in obtaining an unidentified leak rate of less than 1 GPM, there was no confirmatory data to indicate or prove that an unidentified leakage problem existed. LOGAN stated that while he did not believe the plant had a leakage problem, it was obvious to him as well as others that there was a problem with the leak rate test surveillance program and that resolution of the problem was not aggressively pursued. LOGAN said that he did not personally recall discussing this problem with either MILLER or John HERBEIN, the Vice President of Generation. LOGAN denied any knowledge that operators were manipulating leak rate tests and said no other manager or other plant supervisory personnel indicated to him that they knew operators were manipulating leak rate test results. LOGAN said that while there was pressure on operators to get good leak rates, particularly from the shift supervisors, he denied being aware of operators actually being directed or pressured by supervisors to falsify the leak rate test results. LOGAN did conjecture that if the operators were in fact manipulating the test results, either the shift foremen or shift supervisors should have been aware of it. LOGAN said he did not know who authorized operators to throw away unacceptable leak rate test results but all of the test results should have been submitted irregardless of whether they were considered valid or invalid.

Mr. Lawrence L. LAWYER who is currently employed by the NRC, stated that during the time period in question, he was employed by Metropolitan Edison as the Manager of Generation Operations reporting directly to HERBEIN. In sworn testimony²³ he denied being either aware of or involved in the falsification of leak rate test data at TMI 2. Additionally, he denied being a party to any discussions with either MILLER, HERBEIN or other corporate officials

22. Exhibit 44

23. Exhibit 45

in which problems with the leak rate test program were discussed. He also claimed that he did not know if either MILLER or HERBEIN were aware that operators were falsifying leak rate tests. MILLER and HERBEIN were interviewed during the OI investigation of leak rate test falsification at TMI 1 and denied knowledge of or complicity in the falsification of leak rate tests at either TMI 1 or TMI 2²⁴. As previously stated, further investigative efforts ceased at this juncture pursuant to the December 14, 1984, request from DOJ.

In November 1983, the Federal Grand Jury handed down an 11 count indictment²⁵ against Metropolitan Edison Co. (Met Ed) charging violations of Title 42 of the U.S. Code. Pursuant to a plea agreement entered on February 29, 1984²⁶, the U.S. Attorney for the Middle District of Pennsylvania and Met Ed, the defendant pled guilty to count 2 of the indictment which charged Met Ed with knowingly using an inaccurate and meaningless procedure in an effort to generate results which appeared to establish that reactor coolant system leakage was within allowable limits. Met Ed also pled nolo contendere to six other counts in the indictment. The Government moved for dismissal of the remaining four counts. In conjunction with the plea agreement, a statement of fact²⁷ was submitted by the Government setting forth portions of evidence it would offer in support of the charges to which Met Ed entered pleas. Met Ed also submitted a statement to the court²⁸ in support of the plea agreement.

Subsequent to the courts acceptance of the defendant's plea and with the concurrence of the DOJ, 12 additional present and former licensee employees were interviewed. These interviews consisted, among others, of six present and former dual licensed shift supervisors and shift foremen, the former Operations Superintendent (James FLOYD), and the former Supervisor of Technical Support (James SEELINGER)²⁹.

24. See Exhibits 102 and 106 to OI Report of Investigation 1-83-028, dated April 16, 1984

25. Exhibit 46

26. Exhibit 47

27. Exhibit 48

28. Exhibit 49

29. See Exhibits 1-12 to OI Supplement Report No. 1-83-028 dated April 26, 1984

These interviews focused on the OI investigation concerning the possible falsification of leak rate test data at TMI Unit 1; however, during these interviews, the witnesses were generally queried relative to their knowledge of, or involvement in the leak rate falsification at TMI 2. None of the witnesses admitted knowledge of or complicity in the falsification of leak rate test data at TMI 2. The witnesses generally acknowledged that Unit 2 was experiencing problems in obtaining acceptable leak rate test results and the majority of the witnesses (Shift Supervisors William ZEWE, Bernard SMITH, Gregory HITZ, Joseph CHWASTYK, Kenneth BRYAN, Operations Superintendent James FLOYD, and Superintendent of Technical Support, James SEELINGER) admitted knowing that invalid leak rate test results were routinely being discarded by operators prior to the accident.

STATUS

In a decision issued on June 25, 1984, the District Court for the Middle District of Pennsylvania denied a petition by the NRC to release the Grand Jury testimony relating to the TMI 2 leak rate investigation. Additional investigation is pending including the interview of individual operators. This effort will be documented in a separate investigative report.

EXHIBITS

1. Excerpts from Previous NRC Staff Interviews of Harold HARTMAN/Various Dates
2. Transcript of TV Program "What's Happening America"/Undated
3. Memorandum from T. T. MARTIN to H. E. PLAINE with Region I Report and Attachments/6-6-83 (Attached Separately)
4. Sworn Statement of Harold HARTMAN/7-26-83
5. Motion to Quash Subpoenas/9-15-83
6. Commission Order Denying Motion to Quash/9-21-83
7. Letter from Leboeuf, Lamb, Leiby and MacRae/9-26-83
8. Memorandum from Federal District Court for the Middle District of PA/12/2/83
9. Letter from DOJ to Chairman, NRC/12-14-83
10. Sworn Statement of Henry KOHL/8-3-83
11. Sworn Statement of William WENTLING/8-3-83
12. Sworn Statement of Richard KLEINFELTER/8-3-83
13. Sworn Statement of George CVIGIC/8-3-83
14. Sworn Statement of J. K. LIONARONI/8-3-83
15. Sworn Statement of Joseph STUPAK/8-3-83
16. Sworn Statement of Ember A. CURRY/8-3-83
17. Sworn Statement of David B. WILSON/8-3-83
18. Sworn Statement of Dennis A. BUCHTER/8-3-83
19. Sworn Statement of Michael D. DEMMY/8-3-83
20. Sworn Statement of Jerome M. BOYD/8-3-83
21. Sworn Statement of Randy H. LIGHTNER/8-3-83
22. Report of Interview of Robert EICH/8-25-83
23. Sworn Statement of William D. HERMAN/8-17-83
24. Sworn Statement of Richard GEIGER/8-17-83
25. Sworn Testimony of William FELS/3-26-84
26. Sworn Testimony of Robert BEEMAN/9-29-83
27. Report of Interview of John HILBISH/10-9-83
28. Report of Interview of Merrill SHAFFER/11-16-83
29. Sworn Statement of Richard DUBIEL/8-25-83
30. Sworn Statement of Richard ZECHMAN/8-25-83

31. Sworn Statement of Dwayne B. JENKINS/8-17-83
32. Sworn Testimony of John BRUMMER/10-17-83
33. Sworn Testimony of Jack W. GARRISON/9-28-83
34. Sworn Testimony of Richard W. BENSEL/9-28-83
35. Sworn Testimony of Ronald P. WARREN/9-29-83
36. Report of Interview of Nelson BENNETT/10-24-83
37. Report of Interview with James STAIR/8-5-83
38. Sworn Testimony of Ivan PORTER/9-23-83
39. Sworn Testimony of George KUNDER/9-28-83
40. Report of Interview with Thomas HAWKINS/11-16-83
41. Licensee Event Report 78-62/IT/10-19-78
42. Report of Interview with Donald HAVERKAMP/9-14-83
43. TMI-2 Leak Rate Test/10-18-78
44. Sworn Statement of Joseph LOGAN/11-18-83
45. Sworn Testimony of Lawrence LAWYER/11-10-83
46. DOJ Indictment
47. Plea Agreement Between U. S. Government and Metropolitan Edison
48. Statement of Fact Submitted by U. S. Government
49. Statement of Fact Submitted by Metropolitan Edison

EXHIBIT 1

EXCERPTS FROM PREVIOUS NRC STAFF INTERVIEWS OF
HAROLD HARTMAN/VARIOUS DATES

EXCERPTS OF RESULTS OF NRC INTERVIEWS OF HAROLD HARTMAN CONCERNING FALSIFICATION OF LEAK RATE TESTS

Between June 27, 1983 and July 15, 1983 the results of the cited NRC interviews were reviewed in order to extract pertinent information and facts regarding HARTMAN's allegation concerning the falsification of leak rate test data. This review surfaced the following excerpts attributed to HARTMAN concerning the falsification of leak rate test data.

(1) (NRC I&E TMI Investigation Team Interview Transcript dated May 22, 1979)

FASANO: Now, my understanding the electromotive, the electromatic, was the main cause of leakage prior to the event. Now this is a little different so...

MARSH: Well, this is my understanding.

FASANO: I understand...I just wondered where he gets his information.

CRO: I can look at the computer. They have an analog value of the temperature at the outlets of these valves.

FASANO: These would be the thermocouples?

CRO: Right. The thermocouples downstream. The electromatic relief valve was the lowest of the three and it had been for three months. The other two would kind of weep down and they would sometimes maybe every once in a while you'd see them above 200 degrees, but most of the time they stayed between 150 and maybe 180 which before they started leaking they were always down around 100, 105. I know for a fact a leak rate is required every 3 days. That leak rate had to be fudged every time we got, just about every time that we got it, we had to do something to make it right. We don't have to maybe go look at something. It was just a bad situation. I didn't like it.

CRESWELL: Let me ask you this. Who did you inform?

CRO: This would be Dick Hoyt knew about it. I know Bernie Smith knew about it, and every other shift supervisor and shift foreman and control room operator that operated the plant in the previous three months had to know about it.

(2) NRC TMI SPECIAL INQUIRY GROUP REPORT OF INTERVIEW DATED SEPTEMBER 12, 1979. "Hartman doesn't think operators got squeezed from above except from supervisor pressure - Let's go we have this plant to startup - let's get moving (supervisor said).

They knew pressurizer code safeties were leaking on the 20th and Hartman doesn't want to say we fudged it or anything like that but we did. We fudged it. You can punch anything in the computer, you can type it out in the same format and you can do a hand calculation you can do anything like that, I can remember doing it once. I didn't like to do it but you know it was a do or die situation. You get it, we needed it. A lot of times he would do it and say he just couldn't get one and for the most part that's the way I handled it, I don't even know if I ever did fudge it for a fact. They came on a computer printout, what you could do and it wasn't in a procedure anywhere and it wasn't necessarily tapping and entering the wrong date, trying to do a particular parameter to be one thing did not purposely put another number in there was things like opening a valve that would admit gas to the makeup tank (putting as on closed tank) should not have any indication, should change level in the makeup tank but it did all the time getting leak rates (all 5 shifts) there valves leak bad and they are just ridding over the one gallon per minute set point and you as a supervisor and a mechanically oriented person being around nuclear power for all these years know that safety leaks they never get better they always get worse and here the series is coming up you want to go into commercial operation, you want to make lots of money for GPU ad Met Ed, why don't you fix them and I've asked this several times and can't remember the specific answer to that fact except it was probably angled we want to go commercial.

Maximum NRC limit on valves was 1 gallon per minute identified. If they didn't get a good one out of the computer they just crumbled that one up and threw it in the waste can and ran another one (if over a gallon) would analyze

the data, this chance maybe we are a too much a transient, have a good one and that is what they do.

(3) NRC TMI SPECIAL INQUIRY GROUP INTERVIEW TRANSCRIPT DATED OCTOBER 29, 1979.

Q. Were you, as a reactor operator, familiar with the specs for the plant?

A. I was familiar with them, yes. I could generally tell you if there was a tech spec on a certain item. I couldn't recite it word for word, but I know where I could go to find that information.

Q. Were you familiar with the tech spec or operating procedure associated with the tail pipe from the PORV and safety valves?

A. Yes.

Q. If you knew that a situation existed where the plant in that area was not within the tech specs operating procedures, how would you go about apprising management of this or what would you do to get it corrected?

A. Well, what I would do is just I would, talk to my shift foreman, and if I didn't really get any satisfaction out of him I would go to the shift supervisor and tell him, you know, I think we've got a problem.

Q. Did you ever do that with regard to that particular temperature?

A. That particular problem I was -- I never wrote anything down except I -- volumes of water that had to be exchanged, I thought that was testimony enough that we did have a problem.

Q. Well, were you --

A. But --

Q. Go ahead.

A. But I did talk to Bernie Smith and Dick Hoyt about this problem, about the leakage out of the valves, and they just said, "Get a good leak rate." And whenever I did it I passed it off as often as I could. And I would say, "I couldn't get a good one all night," and keep doing it that way. They had three days to get a good one, and sometime during the day or during the night a good one would come up, and then it would have to go for three more days until they would get a good one.

Q. Was there anyone else you could have gone to with this concern?

A. I probably didn't go to anybody because I thought that this was such an obvious problem that the people that I could have gone to were already notified.

(4) I&E REGION I STAFF MEMORANDUM OF INTERVIEW OF MARCH 22, 1980 (Information Excerpted from notes of interview.

The OIE TMI Investigation determined the unidentified leak rate as calculated by the licensee frequently approached the 1 gpm limit. Technical Specifications require the Reactor Coolant System water inventory balance to be run once per 72 hours, during steady state operations. The computer could calculate a leak rate about once per hour. Normal data scatter might cause some of the results to exceed the leak rate limit. The CRO stated calculated values exceeding the limit were considered "bad" data and the computer was just instructed to repeat the calculation. If a "good" leak rate was computed, the clock was re-zeroed and they had 72 hours to get another "good" leak rate.

The CRO stated he was never directed to forge data, but felt he was under a great deal of peer pressure (shift to shift competition) to get "good" leak rates.

The CRO stated each shift had its little trick to get good results and his shift increased Makeup Tank pressure. The increased pressure didn't change indicated level and the CRO didn't know why it sometimes seemed to work, but he was convinced that it did.

The CRO stated he knew for a fact that demineralized water was added to the system at least once, to make the leak rate appear acceptable, but was unable to name names or times.

The CRO interpreted a supervisor's statement to "Get a good leak rate," to mean to fudge the test results. He appeared genuinely surprised when it was suggested another interpretation might have been to make sure the plant was stable and to get an accurate result.

(5) I&E REGION I STAFF INTERVIEW TRANSCRIPT AND SWORN STATEMENT DATED MARCH 26, 1980.

CHRISTOPHER: Okay. Hal do you personally feel or do you know any of the operators who felt that you were either professionally or through pressure from management being forced to fudge calculations in order to get correct records, do you feel that there was upward management pressure in order to obtain these?

HARTMAN: I'm not sure I understand. What level was upper management?

CHRISTOPHER: Well to me management would be from my Shift Supervisor on...

CHRISTOPHER: In other words did Dick Hoyt, did he imply to you or directly say to you if you did not come up with a good reading that you were going to have a problem or did you feel that there was going to be a problem?

HARTMAN: No he knew me better than that, cause he knew, I knew when I was right and when I was wrong and so he never pressured me into anything like that.

CHRISTOPHER: Did you get this kind of pressure from any of the other management personnel?

HARTMAN: No not really, I mean you know there's several times in the leak rate procedure where they'd say get a good one, you know, I guess we'll talk about that leak rate later but you know there's one of them, I don't know what

would of happened if I, you know if I wouldn't of gotten a good one but like I said before I didn't like to do them, I'd do them all night and if I got a good one I'd sign it but you know I'd fudge it as seldom as possible, as I didn't like to do it, I don't know what would of happened if I'd have said Bernie I just can't get another one, I can't a get a good one, he says well I know I don't know, what would of happened if they would of come down to the line work, you know I wouldn't do it again.

CHRISTOPHER: Hal you just said you fudge it as little as possible, can you give us, be a little more specific in terms of what you mean, in terms of when you fudged it and how you fudged it and what prompted you to fudge it, fudge these records?

HARTMAN: Well I guess it was more, you know peer pressure than anything, you know everybody brags that there shift gets leak rates all the time, you know well how do they do it and you rack your brains out trying to figure it out, you know, how you can, how they can come up with a leak rate and you can't come close and you just, you know, then you start to devious processing, you try your little ways.

CHRISTOPHER: Just to be clear do you differentiate management pressure from peer pressure or to you are they synonymous?

HARTMAN: I think there pretty much synonymous because as far as I can remember all the Shift Supervisors thought their shift was the best, you know and it's that way in any power plant and so from the Shift Supervisor down there's, that's the peer group that I'm talking about really, you know, how come you can get a good leak rate and I can't, my guy's are just better than yours, you know but...

CHRISTOPHER: Do you think that is a great problem in the operation of the plant or do you think that it is inherent in any type of situation where your talking three distant shifts doing the same job?

HARTMAN: I think it's an operations problem, we obviously couldn't get one and somehow we did get them, I don't think there was a leak rate gotten

legally in, at least I know prior to three months to the accident, it wasn't a good one I don't think.

CHRISTOPHER: And you based that on what, Hal, pardon me but I'm not a technical expert so you'll have to give a little more to help me.

HARTMAN: Yeah I used, I had a little thing I did was just add a little nitrogen to the makeup tank or hydrogen to the makeup tank and it was enough to send the level, the level instrument a little screwy and it would indicate slightly higher than, slightly higher than, or maybe not indicate on the chart but to the computer it would show that it was a little higher level in there than there was before and then of course if you don't have that makeup tank level lost, then you haven't leaked out as much water and the thing would, might print good.

MARTIN: Hal let's get into the technical area, which leak rate tech spec requirement are we referring to that was difficult to pass?

HARTMAN: That was the 1 gallon per minute unidentified leakage.

MARTIN: Okay, we had talked about the safety valve leakage being bad, how does a safety valve leakage have an effect on this unidentified leakage rate, since, if I remember correctly safety valve leakage would be included in RCDT level changes?

HARTMAN: Well I remember a couple of months before the accident that they had, we had been trying to get a good leak rates from the existing computer program. They tried making a model of the drain tank in the computer, taking a voltage from the level transmitter on the tank itself, they made a model and converted it to a signal usable by the computer, so that now we didn't have to go down and punch in the voltage, normally we'd have to go down and read the voltage coming out of that transmitter, come back up punch the leak rate in, punch the voltage in and then wait an hour, when it punched out go down and get the voltage again, come back up and then the computer would take it away and that's how the drain tank leak rate was figured by the computer. Then, like I said later they went and they just picked, they made a way to pick

those voltages identically the same time as they pick all the other parameters at the beginning of the hour and that I think they tried and as long as, they still didn't come out because I remember we were having the problem before, very slightly before the safety valve started to leak bad and we still couldn't get them with that and then I think after we went commercial they tried another particular program, i don't know what changes that did, in fact I'm not even sure they really implemented that program, I can't tell you that for a fact, the new program had been implemented. I know I tried various times doing, doing a leak rate by the hand calculation and I can't remember if it came out or if it didn't, I think it came out but just barely, so it could have been in the computer program, it could have been actual leakage, I don't really know but nonetheless nobody did anything to find out.

MARTIN: Hal how frequently was the RCS inventory test run?

HARTMAN: Well it was supposed to be run every three days but since the reliability of the computer, in other words sometimes it would print good and sometimes it would print bad, they never let you go up to the last hour or last day even to try to get another good one so actually it was part of the control routine, it would just punch a leak rate until you got one and sometimes it might run four, five a night, sometimes it wouldn't come out at all.

MARTIN: How were the unacceptable result handled, the computer prints out an unacceptable result, what do you do with it?

HARTMAN: Oh you had to throw that away, file that in file 13 and you just didn't leave those things laying around.

MARTIN: File 13 is the trash can?

HARTMAN: Trash can, right.

MARTIN: Who would do that Hal?

HARTMAN: Oh I would or I'd just rip it up and say here is another bad one or the second one I'd get just to show that there's what we get, throw it in the Shift Supervisor, Shift Foreman's office and they would do it.

MARTIN: What was the rationale for crumbling these things up, it could of been good leak rate?

HARTMAN: I don't know, I really couldn't tell you except that I think that they got pinned on this 1 gallon per minute thing, you know, it just can't be greater than 1 gallon per minute, if they got anything greater than that, then they said no that's no good, they can't use it and then they would throw it away and I guess somebody, somebody made mentioned one time that the NRC found an old leak rate that was like, you know, 10 gallons per minute unidentified, found why, you know started asking questions and then so after that they said we got to keep these things, you know, it away, you can't leave these lying around...

MARTIN: Hal can you tell me how the data was fudged, now you indicated that one of your tricks that you knew about was to increase the hydrogen over pressure in the makeup tank?

HARTMAN: You could, I remember one way that you could do it would be to increase the voltage reading to the drain tank.

MARTIN: When you say increase the voltage reading this what you told the computer the voltage reading was.

HARTMAN: Right you'd give the voltage reading just a little bit higher, that means you collected a little more water, or the computer thinks it collected a little more water than you actually have and then the other thing was that you would just turn on a charge makeup pump, or not a makeup pump a water waste transfer pump and just every so often you hold the makeup valve into the makeup tank, just hold that open for a few seconds, maybe once every five minutes during the test and you leak in just enough water that would kind of hold the makeup tank level up as long as the computer only saw time 0 and

times 60 so that you can add water in that time and then we'd never tell the computer that we added water.

CHRISTOPHER: Hal these are things that you and other operators would do?

HARTMAN: Yeah I've seen them done.

CHRISTOPHER: Was this done with knowledge of the Supervisors and the Shift Foreman?

HARTMAN: I don't know if they knew or not, tell you the truth, I really don't know.

MARTIN: Hal can you tell us who actually tried some of these tricks, now you indicated that you did?

HARTMAN: Yeah I did, no I'd rather not say because you know they might still be up there.

MARTIN: Okay, would it be during that last three months before the event, is that the time period we're looking at?

HARTMAN: Yeah I'd say because we had an awful time.

MARTIN: If the supervisors were not aware of this and there only pressure was hey we got to get a good one, why did you guys do it?

HARTMAN: I don't know, except that if we didn't get a good one they'd be down on our backs and they used to tell us get a good one, so to me get a good one means, get a good one, you know, by hook or crook.

CHRISTOPHER: Hal, who specifically told you to get a good one?

HARTMAN: Well my Shift Supervisor.

CHRISTOPHER: Which would be?

HARTMAN: I think Bernie Smith was the one most of the time.

CHRISTOPHER: Bernie Smith, when he said get a good one, did he say get a good one at any cost, I don't care what you have to do to get a good one, to me get a "good one" can mean several things, I'm just trying to qualify that phrase, get a good one.

HARTMAN: I don't want to say what he meant by that statement but I'll tell you how I took it knowing Bernie Smith, get one by hook or crook.

CHRISTOPHER: Okay.

HARTMAN: I know they knew it was going on, I don't know that they thought just on my shift that we were getting them good and legal like but I know they had to know these things were going on, otherwise they wouldn't of been working on the computer programs and stuff like that.

MARTIN: Hal in reviewing the transcript of Ira Rosen's report, there is a statement he says that you said "I didn't do it very often, I did it only when I was watched very closely and was told I had to have on by 6 in the morning" when you say I didn't do it very often, what are you referring to?

HARTMAN: Did I ever fix the statistics, well that was again, that was in context with this hydrogen into the makeup tank.

MARTIN: And when you say, you know...

HARTMAN: I wasn't watched very closely, what I meant was that I'd never do it during the day shift you know when there was a lot of people around, that's it, you know and I even kind of hide it from Shift Foreman, Shift Supervisor so that they didn't see me, generally that was no problem.

MARTIN: What did you feel would happen to you if you hadn't done that?

HARTMAN: I don't know, I just, I guess I would of felt like a dummy because they say well how come all these other guys can get them and you can't, you

know, then I would come back and I'd say well you know I don't want to fudge them and I'd keep telling them, I says I'm tired of wrestling with these, with these leak rates, I don't want to, we have got a problem here, why don't you do something about it.

CHRISTOPHER: Who did you tell that to-

HARTMAN: Oh Bernie or Dick Hoyt, that's as far as I can go, and even possibly in conversation with the Shift Supervisor, Shift Supervisor of Operations.

CHRISTOPHER: What did they respond to you and what did they say to you when you complained to them about these leak rates?

HARTMAN: Specific comments I can't remember.

CHRISTOPHER: Would you know if any action was taken because of your complaints?

HARTMAN: Well I think they did look into the fact that the computer program might be off, you know, I know that they did some work in that area...

MARTIN: What about the leak rate problem, was the communicated to anybody?

HARTMAN: Oh yeah, Brian and Dick Hoyt they had to know, I told them you know, how are we going to get one, it always come out bad.

Subsequent to the completion of the transcribed interview of March 26, 1980, a sworn statement was obtained from Hartman concerning several specific aspects of the interview. An excerpt from that statement which is relevant to this investigation is as follows:

Second, the reporter states that I said "That part of this system was deliberately tampered with and I was the one who did it." This statement implies I was in the control room and I deliberately tampered with the system. I was not in the control on the night of the accident or in the days preceding the accident and I never deliberately tampered with any

system. Mr. Martin has asked me to clarify what I meant when Mr. Rosen asked me if I ever fixed the statistics for the Reactor Coolant System inventory. I was quoted as saying "I didn't do it very often." I did in fact say that and what I was referring to was the ways to get a good leak rate by adding hydrogen to the makeup tank, mistaking the RCDT millivolts, and adding water to the makeup tanks. I, as were all operators, under a great strain to get good leak rates. Each operator had his own technique for getting acceptable results. The pressure to get good leak rates was the result of inner shift pressure because each shift thought they were the best and no shift wanted to be the one to force the unit off the line.

EXHIBIT 2

TRANSCRIPT OF TV PROGRAM "WHAT'S HAPPENING
AMERICA"/UNDATED

March 28, 1980 -

Shana Alexander - Two senior operators working inside the Unit 2 control room at Three Mile Island suddenly saw the central control panel light up. Within a few hours, a series of mechanical failures and human errors had led to the worst accident in the history of nuclear power. That was a year ago. Reporter Ira Rosen began his investigation the very next day. He discovered that safety requirements at Three Mile Island had been altered to keep up production and profits. Tonight, one of the men who ran the reactor tells us how that was accomplished.

Hal Hartman - I wanted to make sure that the plant would respond the way I was taught and that the way that my understanding of things would allow it to, uh, but everyday I went in it just got worse and worse. Uh, I told my wife over a year ago I thought it was an accident waiting to happen.

Male Voice - That opinion doesn't come from any back-of-the-shop apprentice but from a senior control room operator here at Three Mile Island. In the first televised interview with one of those who operated the control panels, Hal Hartman said that 6 months before the accident he had been warning his supervisors that pipes would break, operating procedures were being violated and essential safety equipment would fail, and the plant went through a sudden change in voltage output known as a transient, and, for his safety concerns, Hartman was harrassed and told that he had better shut up or be fired.

Hal Hartman - Everything went wrong. It was a lemon. Unit 2 was a lemon.

Male Voice - Did you ever have any fear in operating the plant?

Hal Hartman - Everyday I went in I was afraid. I was very apprehensive about operating the plant, especially in the later days. Uh, later days I mean the last year or so. Just didn't know what was going to happen while I was on shift. Unit 1, it's a Mercedes Benz. That unit was, is fantastic. Unit 2 is a '59 Rambler. It was just, you know, two sides of the coin. Unit 2 is the tail.

Male Voice - Just how important are these safety systems that Hartman is concerned with? In the movie "The China Syndrome," Jack Lemmon plays a role similar in responsibility to Hartman's, and he explains.

Lemmon - In anything that man ever does there's an element of risk, right? Well, that's why we have what we call "defense-in-depth." Now, that means backup systems to backup systems to backup systems. You were there. Even with a faulty relay, even with a stuck valve, that system works.

Male Voice - Sounds good in the movies, but these safety systems could have prevented the accident -- had they been functioning properly. Hartman says a part of this system was deliberately tampered with, and he also says he was the one who did it.

Hal Hartman - The primary leak rate was every three days we had to determine RCS inventory, basically, and we'd determine it for a one-hour period: how much water we put into the system versus how much water we detected coming out. If the difference was more than a gallon per minute, uh, the Nuclear Regulatory Commission has a technical specification that said that greater than one gallon per minute unidentified leakage was unacceptable. During the later days, we had leaking safety valves,

and we had a tough time getting a leak rate. We had a tough time getting the computer to print out less than one gallon a minute. We had a tough time getting a hand calculation to come out less than one gallon a minute. There were certain things we could do to make it less than one gallon per minute.

Male Voice - What did you do?

Hal Hartman - Um, there are certain things like something simple like adding hydrogen to the make-up tank. It's a gas that prevents oxydation in the coolant pipes.

Male Voice - Did you ever fix the statistics?

Hal Hartman - I didn't do it very often. I did it only if I was watched very closely and was told that I had to have one by six in the morning. It was a dire situ -- I avoided it. Normally, when I was assigned the task of getting a leak rate, I would just say I couldn't get a good one, you know, I'll try again later.

Male Voice - Why did you do it?

Hal Hartman - We had to get it done. I was told to do it. Get a good one.

Male Voice - And you knew it was a violation of the NRC regulation.

Hal Hartman - Uh huh.

Male Voice - Did you ever have discussions with other people at the plant about this?

Hal Hartman - Yeh, my shift supervisor, Bernie Smith.

Male Voice - We spoke to Smith out the a Middletown restaurant and asked him if Hartman had told him about the plant design and operation problems.

Male Voice - Did he ever express these to you.

B. Smith - Yes, he did, yes, uh huh.

Male Voice - And were they justified?

B. Smith - Yes, they were, uh huh.

Male Voice - How come nothing ever got done on those?

B. Smith - Well, you say nothing got done. That's not really true, okay. In other words, you're always working on better design, you know, and fix design deficiencies you have.

Male Voice - Hartman's complaints are not just with the design deficiencies there. He claims that at the most critical period of the reactor's life, when it reaches its heat producing strength, operators inside the control room tampered with that data.

Hal Hartman - I remember this one particular incident, uh, I was making the startup and I went critical less than a half a percent from where we should have gone, and, when we went critical, I immediately took the rods and inserted the rods. As soon as I inserted the rods, the shift supervisor told me, "What are you doing?" I said we went critical at 28%. My estimated critical position was 68, my minus a half percent position was 32%. I went critical 4% too early, and, to me, there's something wrong.

Male Voice - In testimony given to the Nuclear Regulatory Commission investigators, Hartman stated that he was told to continue the plant startup, even though this would violate the procedures. He told the NRC investigators, "They redid the numbers and somehow they fudged them."

And why did they do it?

Hal Hartman - They wanted to make money. They had to get that plant to 15% power, and they couldn't do it with the rods at 1% shutdown position.

Male Voice - How important is that? Nuclear critic Bob Pollard of the Union of Concerned Scientists explains.

Bob Pollard - I think those are further examples of the practice that's prevalent in many utilities operating nuclear plants. They will ignore problems to the point where the operators become accustomed to them. In the case of estimated critical positions, this is an important aspect of operating the plant safely to try and predict exactly when the reactor will go critical. If they are then falsifying those records, it reflects an attitude of being more interested in operating the plant, rather than being interested in the safety of the public.

Male Voice - Dudley Thompson of the Inspection and Enforcement Division of the Nuclear Regulatory Commission said that if Hartman's story is true it could mean heavy fines on Metropolitan Edison. Already the company has been fined \$155,000 for safety violations found after the accident. But Smith said Hartman's design concerns weren't serious, and a company vice president, pictured here with President Carter during last year's accident, agrees.

GPU V.P. - I would say that the TMI Unit 2, uh, has design concepts that are somewhat in advance of the design of Unit 1 in terms of the control room and in terms of the secondary plant installation. TMI Unit 1 has operated very well for us. I think if we're able to recover TMI Unit 2 we'll find that it has the capability to operate in a similar vein.

Male Voice - Why didn't the Inspection and Enforcement Division discover some of the findings that we have found?

GPU V.P. - I don't know the answer to that without knowing those findings, those people, whether they were interviewed. I just don't know.

Male Voice - One reason Bradford doesn't know was that the findings in the investigators' report never reached his office. An investigator told us it seemed to have disappeared. As a result of other similar cases, federal committees have questioned whether the NRC can effectively regulate nuclear energy, and Bradford even wonders whether nuclear energy is safe.

Bradford - Well, that always comes down to the question of what you mean by safe. If your, uh, standard is compared to driving a car, yes. Uh, if your standard is can I give you absolute assurance that an accident as serious as Three Mile Island won't happen someplace in the country in the next year, the answer is no.

Male Voice - Six federal and state committees have studied the accident at Three Mile Island, and they all have agreed that the plants need to be redesigned and operated more safely, but the changes proposed by these committees raise serious issues which are very sensitive to representatives of the nuclear industry.

Male Voice - The Kemeny Commission also raised a number of questions relating to the design of the plant. Uh, they cited such things as confusing panels on the control room. EPRI, in fact, has printed a report on this. Uh, they also cited a number of difficulties with the polisher machine. Uh, are these justified? And are these indigenous in the whole industry?

Male Voice - Can we stop please.

Male Voice - No, just, you know, answer the question.

Male Voice - I'm sorry, I'm not going to answer that. That question... (fade out).

Male Voice - When he calmed down, here was his explanation.

Male Voice - Industry is studying modifications to control rooms. The results of those studies have not yet been completed, and some modifications might, in fact, be made.

Male Voice - I see. And how much would those cost?

Male Voice - The, uh, NRC has estimated that if all the changes to power plants that necessitated from the Three Mile Island Accident would run approximately \$25 million per power plant.

Male voice - To save money, the plant supervisors ignored Hartman's safety concerns. Ironically, others say justifiably the utility now has the highest repair bill in the history of the nuclear program. But rather than being heralded as a prophet, things went bad for Hartman after the accident. He was forced to resign, according to reliable sources, when a company psychologist said he was too high strung to work in a security area, even though he had been working in one for six years.

Hal Hartman - I later called Dr. Cohen and asked him, I said "I thought that you said that I was okay when I left your office, that you would recommend me for a position," and he said he would recommend me for a position as long as it didn't involve a security area, and I said something to the effect "Then you think I'm psychotic," and he said, "I think that you can't work in a security area." "So then you are not sure what I am going to do in a security area?" He said, "That's true."

I said, Why?" He said, "Because you expressed symptoms of hypertension and stressful behavior, and you were very critical of your employer."

Male Voice - But Hartman had Navy documents from when he worked as a nuclear submarine operator that showed he performed well under stress. We tried contacting Dr. Choen, but he refused to comment. Metropolitan Edison also refused to comment on the Hartman case. Had Hartman's concerns been heeded, the accident might have been avoided. And besides the monetary loss to the company and the public, there was personal anguish experienced by the workers who absorbed the radiation. One such person is Tom Kaufmann, an auxiliary control room operator at the plant. The amount of radiation he has absorbed since the accident has scared him.

Tom Kaufmann - I know it is a physical possibility that a photon at the right place at the right time could cause genetic changes, and that could cause changes in future generations.

Male Voice - Kaufmann's remark has special significance for Ed Hauser, the chemistry foreman on the island. Hauser received the highest radiation dose from the accident, nearly reaching the NRC yearly limit, in a job he performed in less than one minute. Today, Hauser receives regular medical checkups, but he was, and he still is, scared.

Ed Hauser - I was sort of scared and mad, really, because it's my job partially to know better than what I did, okay. And I should have taken more precautions, but I was, I guess, just too involved in getting the sample to, and, when I found out, we had taken our dosimetry out and had it read, and they brought it back and they told me it was 4.1 Rem, and I thought, gee, you know, I've done it, you know, I've, I knew I'd violated our procedures and everything like that, but I mean it was an

emergency, and everything, but I just sort of felt, you know, that was quite a bit to pick up at one time.

Male Voice - How long was your hair contaminated for?

Ed Hauser - Well, from March 29th on, it was sort of a funny thing because my hair was the last thing to become clean or uncontaminated, and I was waiting for that to happen so that I could get a haircut. You know, my hair was getting quite long, and I imagine it was probably around 6 weeks until it was completely back to normal and background.

Male Voice - Your hair was contaminated for 6 weeks?

Ed Hauser - About 6 weeks.

Male Voice - Besides his hair, he tried various soaps to get the radiation off his fingers, but the detergents failed, and he was desperate.

Male Voice - Did you try any other way of getting the radiation off your finger?

Ed Hauser - Well, that night at the 500 KV substation, before I went home the first time, there was some small pieces of sandpaper there, and I had been rubbing them on my fingertip and trying to get the dose rate down on it.

Male Voice - You were trying to sandpaper your skin off?

Ed Hauser - Yeh, I was sandpapering just the pad off my finger.

Male Voice - And that worked?

Ed Hauser - Well, it worked, but it also, I think, it took away my fingerprint.

Male Voice - Well, now, nearly a year later from all of this, have you had time to reflect on it a bit?

Ed Hauser - Yes, I've looked back on it probably just about every day, and there is always things you would do differently.

Male Voice - The potential danger hasn't ended. Radioactive gas trapped inside the containment building is being vented into the atmosphere, despite strong community protests. Unit 1, the undamaged reactor, is now being prepared for restart sometime later this year, but, according to one control room operator we spoke with, he told us that some of the safety equipment being installed in that reactor is of poor quality. When we told this to an NRC safety expert, he said, "It is unreliable, but the industry just hasn't designed anything better yet." This is Ira Rosen reporting.

Shana Alexander - Do you wonder why Hal Hartman's testimony was not fully explored by the Nuclear Regulatory Commission? Well, so does Connecticut Congressman Toby Moffett, and Moffett is Chairman of the House Subcommittee on Environment, Energy and Natural Resources. As a direct result of reporter Rosen's investigation, the House Committee will hold new hearings soon, and we will keep you posted.

EXHIBIT 3

MEMORANDUM FROM T. T. MARTIN TO H. E. PLAINE WITH REGION REPORT AND
ATTACHMENTS/6-6-83 (ATTACHED SEPARATELY)



*6/8/83
R. Christopher*

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

R. Christopher

U.S. NRC

JUN 06 1983

1983 MAY 30 AM 11:09
OFFICE OF INVESTIGATIONS
FIELD OFFICE, REGION I

MEMORANDUM FOR: Herzel H. E. Plaine, General Counsel, Office of The General Counsel

FROM: Thomas T. Martin, Director, Division of Engineering and Technical Programs, RI

SUBJECT: PROVISION OF HARTMAN ALLEGATION INVESTIGATION SUMMARY TO THE COMMISSION

Attached is my summary of the current status of the Hartman Allegation Investigation for your review. Please determine if rules of ex parte communications would be violated if this summary was provided to the Commissioners. If rules would be violated, please recommend actions which will allow me to satisfy the directions of Chairman Palladino to provide this document. If no rules would be violated, please provide one copy of this document to each Commissioner.

Thomas T. Martin, Director
Division of Engineering and Technical Programs

Attachment: As Stated

- cc w/attachment:
- V. Stello
- J. Cummings
- B. Hayes
- T. Rehm



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

MEMORANDUM FOR: Chairman Nunzio J. Palladino
Commissioner Victor Gilinsky
Commissioner John F. Ahearne
Commissioner Thomas M. Roberts
Commissioner James K. Asselstine

THRU: Herzel H. E. Plaine, General Counsel, Office of The General
Counsel

FROM: Thomas T. Martin, Director, Division of Engineering and
Technical Programs, RI

SUBJECT: HARTMAN ALLEGATION INVESTIGATION SUMMARY

Attachment 1 is my summary of the current status of the Hartman Allegation Investigation requested by Chairman Palladino and other Commissioners at a Commission Meeting on May 24, 1983.

Copies of all records of this investigation, of which I am currently aware exist, have been forwarded to the General Counsel for his review for ex parte considerations and subsequent provision to you. Attachment 3 contains an index to these references. Attachment 2 is a list of investigation team members.

There appears to be some confusion with what I meant on May 24, 1983, when I stated, "I can tell you for a fact that the records were falsified, that much we knew...." That statement summarizes what the investigation team had concluded, by the time the investigation was temporarily suspended; specifically, that as a minimum, certain operators had purposely manipulated plant controls to bias and make inaccurate computer sensed plant parameters, so that the computer calculation of leak rate was biased to lower values, thus producing a false leak rate test record.

You should be aware that prior to providing you these documents, I am not aware of any senior NRC manager or official who had received written conclusions of this investigation.

Thomas T. Martin, Director
Division of Engineering and
Technical Programs

Attachments: As stated

Attachment 1

HARTMAN ALLEGATION
INVESTIGATION SUMMARY

June 3, 1983

1

Thomas T. Martin

DETAILS

1. Persons Contacted

Metropolitan Edison Company

R. Arnold, Vice-President
M. Benson, Engineer
J. Blessing, Control Room Operator
R. Booher, Control Room Operator
J. Chwastyk, Operations Supervisor
M. Coleman, Control Room Operator
J. Congdon, Control Room Operator
M. Cooper, Shift Foreman
C. Faust, Control Room Operator
W. Fels, Engineer
E. Frederick, Control Room Operator (Training)
E. Hemmila, Shift Foreman
T. Hombach, Director of Personnel
K. Hoyt, Shift Foreman
T. Ilistes, Shift Foreman
J. Kidwell, Control Room Operator
G. Kunder, Engineer
H. McGovern, Shift Foreman
B. Mehler, Shift Supervisor
C. Mell, Control Room Operator
A. Miller, Shift Foreman
D. Olson, Control Room Operator
M. Phillipps, Control Room Operator
B. Smith, Shift Supervisor
J. Wilson, Attorney
L. Wright, Control Room Operator

Former Metropolitan Edison Employees

J. Floyd, Operations Supervisor
L. Germer, Control Room Operator
H. Hartman, Control Room Operator

2. Introduction

This investigation of the Harold Hartman allegations was started on March 22, 1980 at the request of NRC:OIE:HQ.

The investigation focused on those Hartman concerns and allegations that were documented in the records of the IE-TMI Accident Investigation and the NRC-TMI Special Inquiry Group, which had not yet been resolved due to the specific focus of those two activities.

The investigation proceeded unimpeded until April 10, 1980, when TMI-2 Control Room Operators refused to participate in further interviews without subpoenas. Efforts were underway to obtain subpoenas when on April 28, 1980, the records and investigation lead were turned over to the Department of Justice (DOJ). The NRC investigation effort was then temporarily halted to await DOJ's findings.

Investigation team efforts since April 1980 have been directed to record analysis, documentation of findings and supporting DOJ.

2. Reactor Coolant System Leakage

a. Allegations

- The Pressurizer Code Safety Valves were leaking for at least three months before the accident. [A1:14, 6 - 15, 18][A2:5][A4:2].
- The computer program for computing Reactor Coolant System Leak Rates was unreliable, frequently yielded unrealistic results, and it became more difficult to get "good leak rates" as the date of the accident approached. [A4:2][A5:21, 3 - 22, 19].
- The Records of Reactor Coolant System Leak Rate Tests, which documented failures to meet acceptance criteria, were thrown away. [A2:3][A5:22, 21 - 23, 22].
- The Operators at TMI-2 were under pressure to get good Leak Rate Test results. [A3:52][A5:18, 1 - 20, 9; 27, 20 - 28, 20].
- The Operators at TMI-2 often "fudged" the Reactor Coolant System Leak Rate Test results by (1) inputting the wrong data to the computer; (2) adding gas to the Makeup Tank; (3) adding water to the Makeup Tank and not inputting the data to the Computer, and (4) leaking water into the Makeup Tank while performing a water transfer operation involving other tanks. [A1:15, 19 - 15, 22][A2:3][A4:2][A5:20, 5 - 27, 1].

b. Findings

- Operation's supervision denied the Pressurizer Safety Valves were leaking excessively or above Technical Specification Limits. [A8:7, 22 - 8, 9].
- One or both Pressurizer Code Safety Valves, not the Pressurizer Electric Motor Operated Relief Valve, were the dominant contributors to Reactor Coolant System "Identified" Leak Rate. [C6:2; 25][C8:42 - 45].
- Neither Reactor Coolant System "Gross" or "Identified" Leak Rates exceeded the Technical Specification Limit for "Identified" Leak Rate of 10 gallons per minute. [C1:16 - 19][C6:3][C8:40 - 45].
- Interviewed Operators were unfamiliar with the basis for the "Unidentified" Reactor Coolant System Leak Rate limit and believed all Leak Rate limits were somehow related to concerns for potential radiation leakage to the atmosphere. [A14:R3].

- Reactor Coolant System Leak Rate Test results produced by the Computer were not believed by the operators or shift supervision, based upon their observations of plant parameters and the apparent random scattering of the computer produced data. [A4:2][A5:21; 3 - 22, 19][A9:5, 1 - 8, 12][A10:10, 3 - 10, 19][A14:R3][A15:R6][A16:R3].
- Both the Computer Program and the Hand Calculation Procedure were inadequate, containing systematic errors which increasingly biased "Unidentified Leak Rate" results to higher values with increasing "Identified Leak Rates", and containing random errors for "Unidentified Leak Rate" results which routinely exceeded the acceptance criteria of one gallon per minute. [C1:3 - 5; 9 - 12][C8:4-13].
- Records of failed Reactor Coolant System Leak Rate Tests were routinely thrown away. [A2:3][A5:22, 21 - 23, 22][A7:8, 18 - 11, 17][A9:18, 21 - 20, 4][A10:6, 17 - 9, 4][A11:5][A12:T2][A13:T2][A14:R2; T2][A15:R2][A16:R2][A17:R1; R2].
- A record of a signed-failed Reactor Coolant System Leak Rate Test was found by a NRC inspector on October 19, 1978.
- In response to the inspector's questions, licensee management recognized a Technical Specification Limiting Condition for Operations had been violated and that a Technical Specification Action Statement should have been entered.
- The licensee submitted a Licensee Event Report (LER 78-62/1P) on October 19, 1978, relating the following:

" . . . A situation considered reportable under technical specification 6.9.1.8.b was discovered at 1000 hours on October 19, 1978, when it was determined that the limiting condition for operation (LCO), action b, for T.S. 3.4.6.2 was not invoked when surveillance procedure, 2301-3D1, data obtained at 1935 on 10-16-78 showed an Unidentified Leakage greater than 1 gpm (2.6 gpm actual unidentified leakage).

This event occurred due to personnel errors in interpreting both the LCO and surveillance performance requirements of T.S. 3.4.6.2.

Unidentified leakage was reduced to T.S. limits at 0735 on 10-18-78. Further details and corrective action will be discussed in the followup report. . . ." [C3]

- The narrative to the LER read as follows:

"At 1000 hrs. on Oct. 19, 1978, while performing Surveillance Procedure 2301-3D1 it was determined that data obtained subsequent to the last recorded acceptable surveillance performance at 1935 on 10-16-78 showed that unidentified leakage during the interim period exceeded the limits specified in Technical Specification (T.S.) 3.4.6.2 and that the required action statement was not invoked. The largest unidentified leakage during this period was 2.6 gpm. This event was caused by misinterpretation of the requirements of the Technical Specifications. Since the actual frequency of performance of the surveillance procedure was greater than that required by the Technical Specifications, it was not clear to the personnel involved as to which set of data taken came within the T.S. requirements and when the time requirements of the action statement were applicable. However, action was being taken to reduce the unidentified leakage to within allowable limits, and this was accomplished at 0735 on October 18, 1978. In addition, it was discovered that errors in inputting data to computer caused indicated unidentified leakage to be greater than actually was occurring. The appropriate personnel will be instructed on the requirements of the applicable sections of the T.S. and the requirements to immediately invoke applicable action statements when the provisions of limiting conditions for operation are not met. Input data for the computer program which calculates unidentified leakage has also been clarified." [C3]

- Licensee records relate that the committed instruction of appropriate personnel in the requirements of applicable sections of the Technical Specifications and the requirements to immediately invoke applicable action statements was completed on or before March 5, 1979. [C3].
- Operators interviewed during this investigation denied they were informed of a requirement to keep failed leak rate test results or a requirement to immediately invoke applicable action statements. [A7:8, 18 - 11, 16][A9:6, 6 - 7, 24; 18, 22 - 20, 4][A10:6, 10 - 10, 19][A11:5][A12:T3][A13:T2][A15:R2][A17:R1][A18:R1].
- At least two Operators believed failed leak rate test records were thrown away to assure NRC inspectors did not see failed test records and require the plant to be shut down. [A5:23, 22 - 24, 5][A16:R2].
- At least three interviewed Operators believed shift supervision expected them to continue trying to get acceptable computer leak rate test results until one was received. [A3:49 - 50][A14:R3][A18:R2].

- All interviewed Operators denied they were ever directed to falsify leak rate test results, but at least four held some opinion that as a last resort, it was expected. [A3:52][A5:18, 1 - 20, 9; 27, 20 - 28, 20; 29, 23 - 30, 7][A6:1][A14:T2][A15:R3][A16:R2; R3].
- All interviewed Supervisors denied pressuring Operators to falsify leak rate test results. [A7:7, 11 - 8, 18][A8:10, 5 - 10, 24][A9:9, 18 - 11, 5][A10:15, 1 - 15, 17].
- At least two Supervisors and four Operators were aware that adding Hydrogen gas to the Makeup Tank during a leak rate test would change indicated Makeup Tank level and would effect the leak rate test calculation. [A2:3][A5:20, 15 - 20, 21][A7:6, 17 - 7, 3; 12, 7 - 13, 3][A10:11, 10 - 12, 15][A14:R3; T2][A15:R1; R4][A17:R3;R4].
- One Operator reported that the addition of Hydrogen gas had an inconsistent effect on leak rate test results, and another Operator reported the desired improvement in leak rate test results could only be obtained if Hydrogen gas was added at or near the end of the test. [A14:T2][A17:R3; R4].
- Examination of Makeup Tank level charts and analysis of the instrument system indicates that Hydrogen gas addition at the end of a test provided the optimum improvement in leak rate test results, and the positive effect could be completely negated if the addition was performed early in the test under conditions of high "Gross" leak rates. [C1:21 - 23; 24 - 26][C8:30 - 39].
- Two interviewed Operators admitted adding Hydrogen gas during the performance of leak rate tests for the purpose of effecting the leak rate test results, but denied they intended to falsify the records. [A15:R5; R6][A16:R1].
- Two other interviewed Operators admitted adding Hydrogen gas during the performance of leak rate tests to "fudge" or to "obtain acceptable test results," respectively. [A1:15, 19 - 16, 2][A2:3][A4:2][A5:26, 1 - 27, 13][A6:1][A14:R3; T2].
- No one interviewed admitted to personally adding water to the Makeup Tank during the performance of a leak rate test for the purpose of falsifying data, and several denied the suggestion directly. [A14:T1][A17:R4].
- Water additions to the Makeup Tank during the performance of a leak rate test, whether inputted to the computer or not, would cause underestimation of leak rate test results due to computer programming and instrument errors. [C1:12].

- Water was added to the TMI-2 Makeup Tank during the performance of leak rate tests, without inputting the data to the computer, at least 11 times between September 18, 1978, and March 28, 1979, resulting in the calculation of an acceptable leak rate test result that would have otherwise failed to meet acceptance criteria. [C1:2; 13 - 16][C8:13 - 17].
- All interviewed supervisors denied any knowledge that Operators might be falsifying leak rate test results. [A7:7, 11 - 7, 13][A8:8, 10 - 9, 6][A9:8, 13 - 9, 11][A10:14, 18 - 14, 22].
- Six interviewed Operators denied knowingly falsifying records, even when confronted with records of leak rate test calculations during which water or hydrogen gas had been added. [A12:T1; T2] [A13:T2] [A15:R4][A16:R1] [A17:R3][A18:R1]
- Some "Unidentified" Reactor Coolant System Leak Rate Test numerical results were rounded down to make them fall within the acceptance criteria. [C7:5]
- The "Unidentified" Reactor Coolant System Leak Rate exceeded the one gallon per minute limit in late December 1978 and in early March 1979, the latter remaining above the limit until the accident. [C1:19][C2:2][C8:46]

c. Conclusions

- One or both Pressurizer Code Safety Valves were leaking prior to the accident, but not at rates in excess of the Technical Specification limits.
- Both the Computer Program and the Hand Calculation Procedure for Reactor Coolant System Leak Rate Tests were inadequate, did yield unbelievable numbers, and did make it more difficult to get good results as the date of the accident approached. Members of licensee management were aware of some errors in the test calculations and the difficulty of getting good leak rates, but failed to take appropriate timely action to resolve Operator concerns.
- Records of failed Reactor Coolant System Leak Rate Tests were thrown away in violation of TMI-2 Technical Specification 6.10.1.d.
- Contrary to the commitment contained in the narrative of LER 78-68/1T, appropriate personnel were not adequately instructed in the requirements of applicable sections of the Technical Specifications or in the requirement to immediately invoke Technical Specification Action Statements when the associated Limiting Condition for Operation is not met.

- Licensee management failed to establish an environment where everyone knew that compliance with procedures and license conditions was a condition of employment.
- Some licensed Operators did add Hydrogen gas to the TMI-2 Makeup Tank, during the performance of Reactor Coolant System Leak Rate Tests, for the purpose of falsifying test results.
- No evidence was found or developed which confirmed or refuted the alleged practice of attempts to falsify leak rate test results by directly inputting the wrong data to the computer typewriter.

4. Estimated Critical Position

a. Allegations

That on one particular occasion, while performing a Reactor Startup, the Reactor went critical prior to reaching the procedurally established lower Control Rod limit for criticality, that a Startup Rate Inhibit Alarm was received, that a source range Startup Rate meter reading of three decades per minute was observed, that the Shift Supervisor directed actions which were in violation of procedures, and that a new Estimated Critical Position was computed and the numbers were somehow "fudged" to make it right. [A1:43,21-48,15] [A4:3] [A5:2,18-13,15][A6:1]

b. Findings

- The only TMI-2 Reactor Startup that matched the alleged shift composition, time of day and time of year occurred on April 23, 1978 with the Reactor Critical at 0158 hours, with a Boron concentration of 1262 parts per million and group 6/7 rods at 26 percent withdrawn. [C9:1][C10:2][C13:5]
- The neutron flux trace for this startup was analyzed, demonstrating a maximum indicated startup rate of about 1.5 decades per minute (DPM), which is below the established source or intermediate range Startup Rate Rod Withdrawal Inhibit Alarm setpoints of 2 and 3 dpm, respectively. [C11:1-2]
- Although requested, no Utility Typer or Alarm Typer Computer Printout Sheets were located for the period April 22-23, 1978 and no record that the Computer or these Typers were inoperable was located. [C12:1-2]
- The neutron flux trace was consistent with the alleged Control Rod operations in that it showed a period of rod withdrawal terminating at a point of maximum startup rate, a short period of rod insertion, and then rod withdrawal and settling out at about 10^{-4} amps in the intermediate range, before finally pulling rods to heatup. [C9:1][C10:TRACE]
- Only one calculation of the Estimated Critical Position for the April 23, 1978 Reactor Startup was located and the calculation used data that was available prior to the startup and could therefore have legitimately been performed prior to the alleged event [C9:1][C13:13-18]

- The Supervisors and the Control Room Operator who participated in the April 23, 1978 Reactor Startup deny any knowledge of criticality outside procedural limits, the alleged sounding of the Startup Rate Rod Withdrawal Inhibit Alarm, the alleged directed violation of procedures and the alleged "fudging" of an Estimated Critical Position calculation. [A7:2,24-4,18][A8:12,10-12,25][A9:11,7-12,24][A18:R2]

c. Conclusions

Although the physical records of the Reactor Startup during the midshift on April 23, 1978 bears strong resemblance to the alleged event; key elements such as the alarms, startup rates, alleged rod position at peak startup rate, recorded entry into mode 2 operations, and the availability of the data supporting the calculation of record challenges the plausibility of the alleged event.

5. Emergency Feedwater Pump Surveillance Tests

a. Allegations

That the surveillance tests performed on the emergency feedwater pumps frequently yielded suction, discharge and flow rate values which did not meet the acceptance criteria. Further, Hartman alleged that each time they were unable to obtain test results which fell within acceptable limits, Inservice Testing Engineers would develop new reference values so that the surveillance test, as it was previously performed, would turn out acceptable. [A1:55,6-56,19][A5:13,17-18,9]

b. Findings

- Operators performing the Motor Driven Feedpump Functional Test and Valve Operability Test procedure S.P. 2303-M 27 A/B, frequently were unable to meet acceptance criteria. [A1:55,6-56,19][A5:13,17-15,11][A8:16,3-19,7][A9:3,23-4,10]
- Prior to August 27, 1978, the instrument used to measure differential pressure during performance of S.P. 2303-M27A/B, did not meet procedural requirements or the requirements of A.S.M.E. Boiler and Pressure Vessel Code, Section XI, Subsection IWP-4111. [C14:1-2][C15:3][C16:4-5]
- The various revisions of Surveillance Procedure 2303-M27A/B contained multiple errors, including: (1) references to non-existent subsections and paragraphs, (2) failure to address testing of valve EF-V2, (3) requirements to isolate both trains of Emergency Feedwater simultaneously, (4) no requirements to record certain critical test instrument readings, (5) requirements to open valves that were never shut, (6) allowed inappropriate delay in declaring equipment inoperable when test acceptance criteria were not met, and (7) attempted to control both independent and dependent variables simultaneously. [C14:1-4][C15:8-11][C16:4]
- Several completed records of S.P. 2303-M27A/B lacked procedurally required information on test instrument identification, test data, or names of individuals performing or approving test results. [C14:1-2][C15:4-5][C16:5]
- Analysis of test results not initially meeting acceptance criteria were conducted and documented, were appropriately dispositioned; and where changes to reference criteria were made, the changes satisfied the requirements of IWP-3111 and 3112. [C15:6-10][C16:5-6][A8:16,3-19,7]

c. Conclusions

- Licensee management did not adequately review and approve the various revisions of Surveillance Procedure S.P. 2303-M27A/B.
- The procedural record-keeping requirements of S.P. 2303-M27A/B were not met on at least three occasions between 9/77 and 3/79.
- When test results did not meet acceptance criteria, proper analysis and corrective actions were taken.
- No objective evidence was found of tampering with the test results or reference values and changes made to reference values met regulatory requirements.

6. Request to Shutdown to Correct Leakage

a. Allegation

That prior to the accident, a specific Shift Supervisor was concerned with high Pressurizer Relief and Safety Valve leakage, requested permission of the Load Dispatcher to shutdown the plant for repairs, and was denied permission. [Rumor during investigation]

b. Findings

- Procedures did exist for requesting permission of the Load Dispatcher for a planned shutdown or reduction in station load. [C17]
- Requests are numbered sequentially, and copies are kept by the Load Dispatcher and the plant. [C17]
- Six records of requests for 1979 were located by the licensee, with the last (79-6) submitted March 6, 1979, for a power reduction to 65% for about one half hour to allow Turbine Valve Testing. The request was never completed and was subsequently cancelled. [C17]
- The Load Dispatcher was contacted and indicated that the last official requested document received for 1979 was 79-5 for the day of February 10, 1979. [C17]
- The subject Shift Supervisor was interviewed, denied he requested a shutdown for excessive Reactor Coolant System leakage, admitted he was concerned with the level the leakage had reached and that he may have orally suggested that action to others. [C19]
- No request for a shutdown to correct Reactor Coolant System leakage was located. [C19]

c. Conclusion

The Shift Supervisor did not request a Reactor Shutdown from the Load Dispatcher to correct Reactor Coolant System leakage.

7. Forced Resignation

a. Allegation

That Hartman was harrassed and finally forced to resign as a result of voicing his concerns about faulty plant safety equipment and violations of plant operating procedures. [A4:5-6]

b. Findings

- Hartman freely expressed his concerns to his immediate supervisor. [A7:17][A8:23,22-24,6][A9:13,17-15,2][A10:18,4-18,12]
- Hartman denies he was constantly harassed and threatened about losing his job for expressing his concerns as was implied on "What's Happening America." [A6:1][A5:34,3-48,23;49,15-71,6][C18:4,1]
- Hartman's job reportedly was not in jeopardy because he voiced complaints. [A7:13,8-17,21][A8:5,18-6,6;19,12-24,12][A9:15,5-15,14][A10:20,1-20,9]
- Hartman had voluntarily resigned orally on March 30, 1979. [A5:49,15-53,2][A8:4,1-5,6][C18:4,1]

c. Conclusions

No evidence of impropriety in the employment termination of Hartman was identified.

8. Examination of TMI-1 Reactor Coolant Inventory Surveillance Test Results

a. Allegations

None

b. Findings

- Four examples of water additions to the TMI-1 Makeup Tank, during the performance of a Reactor Coolant System Leak Rate Test without computer input, were identified in an analysis of 1200 test records for the period April 26, 1978 to December 31, 1978. The dates of these incidents and the personnel involved showed no consistent pattern. [C19]

c. Conclusions

None

INVESTIGATION TEAM MEMBERS

Thomas T. Martin

R. Keith Christopher

John R. Sinclair

Donald C. Kirkpatrick

Walter A. Rekito

Donald R. Haverkamp

David H. Gamble

Anthony N. Fasano

Jin Wook Chung

INTERVIEWS

- A-1. Transcript of IE TMI Investigation Interview of Harold Hartman, 5/22/79
- A-2. Report of NRC TMI Special Inquiry Group Interview of Harold Hartman, 9/12/79
- A-3. Transcript of NRC TMI Special Inquiry Group Interview of Harold Hartman, 10/29/79
- A-4. Partial Transcript of What's Happening America Interview of Harold Hartman, 3/24/80
- A-5. Transcript of Hartman Allegations Investigation Team Interview of Harold Hartman, 3/26/80
- A-6. Signed Statement of Harold Hartman before Hartman Allegations Investigation Team, 3/26/80
- A-7. Transcript of Hartman Allegations Investigation Team Interview of Brian Mehler, 3/27/80
- A-8. Transcript of Hartman Allegations Investigation Team Interview of Jim Floyd, 3/27/80
- A-9. Transcript of Hartman Allegations Investigation Team Interview of Kenneth Hoyt, 3/27/80
- A-10. Transcript of Hartman Allegations Investigation Team Interview of Bernie Smith 3/27/80
- A-11. Results of CRO Screening by Hartman Allegations Investigation Team, 3/27-31/80
- A-12. Report of Hartman Allegations Investigation Team Interview of Hugh McGovern, including 4/10/80 sworn statement and 12/24/78 Reactor Coolant Leakage Test Record
- A-13. Report of Hartman Allegations Investigation Team Interview of Earl Hennila, including 4/10/80 sworn statement and 3/21/79 Reactor Coolant Leakage Test Record
- A-14. Report of Hartman Allegations Investigation Team Interview of Mark Coleman, including 4/10/80 unsigned statement
- A-15. Report of Hartman Allegations Investigation Team Interview of Joseph Congdon, 4/10/80
- A-16. Report of Hartman Allegations Investigation Team Interview of John Blessing, 4/10/80
- A-17. Report of Hartman Allegations Investigation Team Interview of Marty Cooper, 4/10/80
- A-18. Report of Hartman Allegations Investigation Team Interview of Raymond Bocher, 4/10/80
- A-19. Notes of Hartman Allegations Investigation Team initial contact with Harold Har 3/22/80.

BACKGROUND INFORMATION

- B-1. Unit #2 Surveillance Procedure 2301-3D1, Rev. 3, RCS Inventory.
- B-2. Procedure Change Request 2-79-003 to Surveillance Procedure 2301-3D1, Rev. 2.
- B-3. Procedure Change Request 2-78-948 to Surveillance Procedure 2301-3D1, Rev. 2.
- B-4. Unit #2 Surveillance Procedure 2301-3D1, Rev. 2, RCS Inventory.
- B-5. Reactor Coolant Leakage (Computer) Program, Three Mile Island, Unit 2.
- B-6. Unit 2 Surveillance Procedure 2301-M5, Rev. 2, RCP Seal Return Measurement.
- B-7. Unit 2 Surveillance Procedure 2301-S1, Rev. 16, Shift and Daily Checks.
- B-8. Unit 2 Computer Hourly Logs, 12/24/78, 1/13/79, 2/1/79, 2/11-12/79, 2/23/79, 3/18-19/79.
- B-9. Reactor Coolant Leakage Test (Records), SP 2301-3D1, 8/30/78 - 3/28/79.
- B-10. Unit 2 Chemistry Log, 12/21/78 - 4/22/79.
- B-11. TMI 2 Control Room Operator's Log, 1600 Hours 12/20/78 to 2235 Hours 3/28/79.
- B-12. TMI 2 Shift Foreman's Log, 0600 Hours 12/19/78 to 2217 Hours on 3/28/79.
- B-13. TMI 2 Makeup Tank and Level Transmitter Design, Calibration and Modification Data
- B-14. TMI Maintenance Procedure 1430-Y-17, Rev. 4, Differential Pressure Transmitter/ Loop Repair and Calibration.
- B-15. TMI 2 F.S.A.R. Sections pertinent to RCS Leakage Limits and Detection Methods.
- B-16. TMI 2 T.S. Sections pertinent to RCS Leakage Measurement Limits, Remedial Actions, Procedure Compliance and Reporting.
- B-17. TMI 2 Questionable RCS Leakrate Test Reports, Log Entries and MUT Charts, 9/28/78 → 3/28/79, sorted by Water or Gas Additions and Chronologically.
- B-18. TMI 2 Questionable RCS Leakrate Test Reports, Log Entries and MUT Charts, 9/28/78 → 3/28/79, sorted by Shift Personnel.
- B-19. TMI 2 RCS Leakrate Test Reports and Log Entries, 3/22/78 - 12/31/78, Potentially Involving Unrecorded Water Additions or Hydrogen Additions.
- B-20. TMI 2 Reactor Coolant Leakage Test Report, Log Entry and MUT Chart, 3/15/79 Potentially Involving a Jogged Water Addition.
- B-21. TMI 2 Reactor Coolant Leakage Test Report, 3/24/79; An Example of Hand Calculatic Correction for Located (Identified) Leakage.

- B-22. TMI 2 T.S. Sections pertinent to Estimated Critical Position.
- B-23. Procedure Change Request 2-78-757 to Reactivity Balance Procedure 2103-1.9, Rev. 2.
- B-24. Procedure Change Request 2-79-088 to Reactivity Balance Procedure 2103-1.9, Rev. 3.
- B-25. Unit 2 Operating Procedure 2103-1.9, Rev. 4, Reactivity Balance.
- B-26. Unit 2 Operating Procedure 2102-1.2, Rev. 6, Approach to Criticality.
- B-27. Records of TMI Unit 2 Reactor Startup on 4/23/78 during 11-7 shift.
- B-28. Records of TMI Unit 2 Reactivity Calculation Performed 4/22/78 during 3-11 shift.
- B-29. Unit 2 Chemistry Log, 4/18-23/78.
- B-30. Unit 2 Surveillance Procedure 2303-M27A/B, Rev. 5, Motor Driven Emergency Feedpump Functional Test and Valve Operability Test.
- B-31. Unit 2 Surveillance Procedure 2303-M14/A/B/C/D/E, Rev. 9, Emergency Feedwater System Valve Line-up Verification and Operability Test; and Turbine Driven Emergency Feedpump Operability Test.
- B-32. Unit 2 Surveillance Procedure 2303-M27 Records, 9/16/77 - 3/26/79.
- B-33. TMI-2 T.S. Sections pertinent to Emergency Feedwater System Testing.

ANALYSIS & CONCLUSION

- C-1. Investigation Report Feeder by Don Kirkpatrick titled "Reactor Coolant System Leak Rate Review."
- C-2. Analysis of Reactor Building Sump Records to Establish an Upper-bound on Actual Unidentified Leakage by Tim Martin.
- C-3. Investigation Report Feeder by Don Haverkamp titled "RCS Inventory, PORC and Facility Management Actions."
- C-4. Analysis of Water Additions Outside of Leakrate Test Periods by Keith Christopher.
- C-5. Analysis of Pressurizer Relief and Safety Valve Thermocouple Data by Tony Fasano.
- C-6. Investigation Report Feeder by Tony Fasano titled "Comparison of Pressurizer Relief Valve Tail Pipe Temperature to Identified Reactor Coolant Leak Rates."
- C-7. Investigation Report Feeder by Tony Fasano titled "Reactor Coolant System, rcs 1, Records and Systems Review."
- C-8. Investigation Report Feeder by Dr. J. W. Chung titled "Evaluation of Hartman's Allegation Concerning Reactor Coolant System Leak Rate Tests at TMI Unit 2."
- C-9. Analysis of 4/23/78, 11-7 Shift, Reactor Startup Records Associated with Hartman Allegations by Tim Martin.
- C-10. Records of 4/23/78, 11-7 Shift, Reactor Startup, Which Were Reviewed With Participants in Startup.
- C-11. Investigation Report Feeder by Tony Fasano, titled "The April 23, 1978 Estimated Critical Position Issue."
- C-12. Investigation Report Feeder by Tony Fasano, titled "Estimated Critical Position ECP Computer Printout Sheets."
- C-13. Investigation Report Feeder by Dr. J. W. Chung, titled "Evaluation of Hartman's Allegation Concerning Estimated Critical Position During a Reactor Startup at TMI Unit 2 on April 23, 1978."
- C-14. Analysis of Hartman Allegations Concerning Emergency Feedwater Surveillance Testing by Tim Martin.
- C-15. Investigation Report Feeder by Walt Rekito, titled "Inservice Testing of Pumps and Valves."
- C-16. Investigation Report Feeder by Dr. J. W. Chung, titled "Emergency Feedwater Pump Surveillance."
- C-17. Analysis of Hartman Allegations Concerning Requirement for Load Dispatcher Approval of Plant Shutdowns by Keith Christopher.

ANALYSIS & CONCLUSION
(CONTINUED)

- C-18. Analysis of Hartman Allegations Concerning Termination of His Employment at TMI-2 by Keith Christopher.
- C-19. Results of Examination of TMI-1 Reactor Coolant Inventory Surveillance Test Records by Keith Christopher.

DRAFTS OF REPORTS AND INTERVIEWS

- D-1 Draft of discussion on interview with Hugh McGovern.
- D-2 Draft of interview with John Blessing by Christopher.
- D-3 Draft of interview with John Blessing by Christopher and Martin.
- D-4 Draft of interview with Raymond Booher by Cummings, Martin and Christopher.
- D-5 Draft of interview with Raymond Booher by Christopher.
- D-6 Draft of interview with Raymond Booher by Christopher and Martin.
- D-7 Draft of interview with Joseph Congton by Sinclair.
- D-8 Earlier Draft of interview with Joseph Congdon by Sinclair.
- D-9 Prospective list of interviewees.
- D-10 Early draft of Table 9 from investigation feeder report by Kirkpatrick.
- D-11 1980 draft of investigation feeder report on Leak Rate Review by Kirkpatrick.
- D-12 Draft feeder report on allegation concerning estimated critical position written by J. W. Chung.

BACKGROUND INFORMATION - DOCUMENTS INCLUDED FOR REVIEW

Reactor Trip Reports:

- #6, 9/19/78
- #7, 9/20/78
- #8, 9/21/78
- #9, 9/25/78
- #10, 10/5/78
- #11, 10/14/78
- #12, 11/3/78
- #13, 11/7/78
- #14, 12/2/78
- #15, 12/2/78
- #16, 1/15/79 (with additional copies of strip charts for Pressurizer Level and RCS pressure.

Reactor Trip/Overspeed Turbine Trip, 3/6/79

F-2 Shift Foreman/Control Room Log Extractions:

September 1978 extractions:

- Control Room Operator (CRO) Log, pages 196-203
- Shift Foreman (SF) Log, pages 181-194
- CRO Log, pages 198-204, 207-208
- SF Log, pages 199-203, 205-207
- CRO Log, pages 220-226
- SF Log, pages 213-214, 217, 219, 227-237, 239

October 1978 extractions:

- CRO Log, pages 294-305
- SF Log, pages 315, 317, 319, 320-339, 341-343
- CRO Log, pages 265-280
- SF Log, pages 347-349, 351-355
- CRO Log, pages 283-290
- SF Log, pages 367-388

November 1978 extractions:

- CRO Log, pages 311-325
- SF Log, pages 399-419, 421-422
- CR Log, pages 330-333
- SF Log, pages 325-341

December 1978 extractions:

- CRO Log, pages 422-425
- SF Log, pages 100-107
- CRO Log, pages 367-373
- SF Log, pages 4-17
- CRO Log, pages 393-396
- SF Log, pages 51-59

January 1979 extractions:

- CRO Log, pages 455-458
- SF Log, pages 153-161, 163
- CRO Log, pages 445-447
- SF Log, pages 137-142
- SF Log, pages 199-204, 206-207

February 1979 extractions:

- CRO Log, pages 473-477
- SF Log, pages 213-219
- CRO Log, pages 481-484
- SF Log, pages 223-229
- CRO Log, pages 485-489
- SF Log, pages 235-241
- CRO Log, pages 492-494
- SF Log, pages 244-249
- CRO Log, pages 257-263
- CRO Log, pages 477-500
- CRO Log, pages 3-6

March 1979 extractions:

- CRO Log, pages 36-42
- SF Log, pages 313-325

Radwaste Disposal - RC Leakage Recovery Temp. extraction for each month from September 1978 through March 1979. Notes on pages indicate date, time and points.

September 1978 extractions consist of 13 pages
October 1978 extractions consist of 9 pages
November 1978 extractions consist of 5 pages
December 1978 extractions consist of 2 pages
January 1979 extractions cover most of January 15, 1979 and are part
of the special January special trip package
February 1979 extractions consist of 8 pages
March 1979 extractions consist of 5 pages

- F-4 Unit #2 Operating Procedure 2105-1.10, "Computer" 02/14/77
- F-5 System Description (Index No. 17), Reactor Coolant
Make-Up and Purification System, June 1974
- F-6 Licensee Event Report 78-65/99X, November 7, 1978, Reactor Trip with Safety
Injection
- F-7 Emergency Procedure 2202-1.5 Pressurizer System Failure
Engineering Change Memo, Serial No. 4943, 5/10/77

F-9 DRAWINGS:

- The M. W. Kellogg Co. Power Piping, ISO 2-23-2, Rev. 9, Job #N8641 and ISO 2-23-1, Rev. 5, Job # N8641
- Burns and Roe Inc., Dwg. 2632, Rev. 9, Flow Diagram Radwaste Disposal Reactor Coolant Leakage Recovery
- Burns and Roe, Dwg. 2024, Rev. 25, Flow Diagram Reactor Coolant Make-Up and Purification
- Burns and Roe, Dwg. 2026, Rev. 30, Flow Diagram Spent Fuel Cooling and Decay Heat Removal
- Burns and Roe, Dwg. 2403, Rev. 20, Radwaste Disposal Reactor Building Plan E! . 305' - 0"
- Burns and Roe, Dwg. 2632, Rev. 9, Flow Diagram Radwaste Disposal Reactor Coolant Leakage Recovery.

F-10 STRIP CHART EXTRACTIONS for each month from September 1978 through March 1979 - Notes on Charts.

September 1978:

- Reactor Coolant System, RCS, Pressure 2 pages
- Pressurizer Level, 9/11/78 with SF Log extraction attached
- Pressurizer Level 9/11-12/78 extended
- RCS Pressure Chart - 9/11/78 extended
- RCS Wide Range Pressure 9/11/78
- Temperature Average Plot 9/12/78

October 1978:

- RCS Pressure, 7 pages

December 1978:

- RCS pressure, 5 pages, with attached SF Log pages 1, 3-7

January 1979:

- Pressurizer level, January 15, 2 pages
- RCS pressure, wide range, January 15

There are additional strip charts in the January 15, 1979 package.

March 1979:

- Reactor Coolant Drain Pump Out, 16 pages
(Leakage Coolers Flow to RC Drain Header 0-150 gpm)
- RCS pressure extraction from March 6 to March 28, 1979
- RCS pressurizer level extractions from March 6 to March 28, 1979

F-11 COMPUTER PRINTOUT SHEETS

A separate set of computer printout sheets for April 1978 were obtained for review of the ECP allegation of Mr. Hartman.

Computer printout sheets were extracted for the period September 1978 through March 1979. The printout sheets were scanned for tail pipe temperatures, RCS pressures, alarms, and pressurizer levels.

F-12 January 15, 1979, special package for further review contains strip charts, multipoint data, trip report for January 15, 1979 and computer data.

BACKGROUND INFORMATION FROM KIRKPATRICK'S FILES

- K-1 Notes from TMI Computer Surveillance Leak Rate Test Sheets.
- K-2 Notes of Water Additions from CRC Log.
- K-3 Change to Leak Rate Test Procedure dated 3/16/79.
- K-4 TMI 1 Leak Rate Test Procedure 1303-1.1 Rev. 7 dated 05/25/76.
- K-5 Calculator printer strip with program and data from leak rate calculations done in 1980.
- K-6 Copy of RCS Leak Rate Hand Calculation dated 08/19/77.
- K-7 Reactimiter data for Rx Trip of 03/28/79.
- K-8 History of Rx power August 30 to November 30, 1979.
- K-9 RCS Pressure from Narrow Range Strip Chart.
- K-10 Proposed IE Bulletin on Leak Rate Testing (Was not issued).
- K-11 NRC Program Used to Calculate 24 hour Leak Rates.
- K-12 Notes on Discussion with J. Floyd.
- K-13 Hand Calculations and Calculator Notes.
- K-14 Notes on Discussion with B. Smith.

NOTES AND EXCERPTS

- N-1 Notes on discussion with J. Floyd on 3/27/80.
- N-2 Notes on RCS Inventory procedure ST 2301-3D1.
- N-3 Notes on discussion with K. Hoyt on 3/27/80.
- N-4 Notes on discussion with B. Smith on 3/27/80.
- N-5 Notes on errors in Leak Rate Test procedure.
- N-6 Excerpts from transcripts of Hartman interviews.
- N-7 Excerpts from transcripts of Hartman interviews.
- N-8 Excerpts from transcript of Hartman TV interview.
- N-9 Excerpts from Hartman interviews dealing with allegations and concerns.
- N-10 Miscellaneous notes and calculation of effect of the weight of the hydrogen in the MUT on Leak Rate Calculation.
- N-11 Notes relative to leak rate allegations.
- N-12 Notes relative to leak rate allegations.
- N-13 Early list of plant records needed by investigation.
- N-14 Notes on Safety Concern Handling.
- N-15 Notes on Tech Spec requirements.
- N-16 Notes on allegation relative to estimated critical position.
- N-17 Notes on Reactor Coolant Drain Tank Operations.
- N-18 Notes of Preparation for 3/22/80 Interview of Harold Hartman.
- N-19 Memorandum Summarizing Understanding of the Concerns and Allegations of Harold Hartman, 3/24/80.
- N-20 Notes for Conduct of 4/10/80 Interviews.
- N-21 Draft IE Bulletin - Reactor Coolant System Leak Rate Testing in PWRs.
- N-22 Excerpts from NUREG-0680, Supp. No. 1 related to Investigation.
- N-23 Memorandum Summarizing Investigation Effort as of 1/20/81.
- N-24 Excerpts from NUREG-0680, Supp. No. 2 related to Investigation.

EXHIBIT 4

SWORN STATEMENT OF HAROLD HARTMAN/7-26-83

STATEMENT
(typed copy of original)

I, Harold W. Hartman Jr., do hereby make the following voluntary question and answer statement to R. K. Christopher and P. J. Connolly who have identified themselves to me as Investigators with the U. S. Nuclear Regulatory Commission. I make this statement freely with no threat or promises of reward having been made to me.

1. What methods did the operators use to get good leak rates, that to your knowledge, did not conform with regulatory requirements?

Among other methods possible, the methods I know are the following: 1. water addition in small undetectable amounts over the period of test. 2) Adding H₂ to makeup tank during test 3) Switching level transmitters feeding computer test data for water filled tanks 4) entering voltage levels from RCDT to "help" test results 5) rerunning computer leakrate until satisfactory results were obtained.

Note: After computer program was changed a RCDT voltage input was no longer required from the operator.

2. Which of the above methods did you personally witness the operators use to get good leak rates?

#1, 2, #5 I have personally witnessed on a few occasions. I am not aware personally and don't remember if #'s 3 & 4 were done.

3. Was water added to the RCS inventory during the leak rate test for the express purpose of manipulating the leak rate test results?

Yes

4. Which specific operators did you witness add water to the make-up tank in order to manipulate the leak rate test?

Ray Booher because he was on my shift.

5. Did any foreman, supervisor or other management individual direct you or the other operators to manipulate the leak rate test by adding water to the make-up tank during the test and not account for the addition on the computer? If so, who?

No

6. Which supervisory individuals were aware that the leak rate tests were being manipulated and how do you know that they were aware of the practice?

I'm not sure if my supervisors were aware that #'s 1, 2, 3, 4 in Quest #1

were being done to get good results. They did however direct us to throw unsatisfactory results away and try for satisfactory ones.

Bernie Smith: both were aware that this was being done and I feel reason-

Ken Hoyt: ably confident that other individuals at their level were also aware.

7. Are you aware of any upper management personnel and specifically Jim Floyd or Gary Miller that were aware of this practice?

No, as far as I know the highest level of supervision who knew of this practice were Shift Supervisors.

8. Were you and the other operators aware of the warning in the surveillance procedure (2301-3D1) against adding water or hydrogen to the RCS inventory during the test?

Yes, but water or H₂ could be added undetected.

9. Was hydrogen added to the make-up tanks during the leak rate test for the express purpose of manipulating the test results?

As far as I knew, yes.

10. Which operators did you witness adding hydrogen during the test in order to affect the test results?

I did on several occasions by manipulating the electrically operated addition valve in the control room. I really don't remember if I saw anybody do this but several operators, whom I don't remember told me that this was a method that could be used.

11. Who specifically told you or how did you find out that the addition of hydrogen to the make-up tank would affect the leak rate test results?

I really can't remember whom, but I found out from CRO's.

12. Did any supervisory or management individual direct you or the other operators to add hydrogen during the test for the express purpose of manipulating the test results?

No

13. What level of supervisors and specifically who was aware of the practice of adding hydrogen to the make-up tanks in order to affect the test?

I was never aware of any foreman or Supervisor who knew of this practice.

14. Can you describe what you mean by the comment, "there was a lot of pressure on us to get good leak rates"?

Bernie Smith, maybe or maybe not in jest, told me to Get a good leak rate, "type one out if you have to". This comment was spurred by the fact that a "bad" leak rate test was just thrown away and I was to run another. I said something to the effect that I can run these all night and still not have a good result. These tests were required by Tech Specs, to remain in Power operations, every 3 days (72 hrs).

15. Did any supervisor ever specifically direct you or any other operator to falsify leak rate test results?

Other than that already explained in Quest #14, no.

16. Who instructed you or the other operators to throw away "bad leak rate test results"?

Ken Hoyt and Bernie Smith, and other shift foreman and shift supervisors, who were on my shift from time to time, whom I can't specifically remember.

17. Why were the bad test thrown away?

To the best of my recall, they were thrown away because they couldn't be used as good test data. Either my Supervisor, Bernie Smith or Ken Hoyt, (I can't remember if it was them even, but probably it was since most of my time on shift with them) said that they wanted to make sure they were "canned" so that somebody like the NRC didn't find them laying around.

18. Did you or any other operators ever recommend to supervisors that the technical specification action statement should be invoked because of a bad leak rate? If so, whom did you tell?

I don't remember.

19. What affects did the code safety valve leakage have on your ability to get a good leak rate?

Theoretically this leakage shouldn't have affected the unidentified leak rate since the valves drain to the RCDT as identified leakage and this RCDT level is used in the unidentified leak rate calculation. Some how when the valves started to leak, our surveillance procedure was more difficult to get satisfactory results.

20. Did anyone ever discuss the increasing tailpipe temperature as an indication of excessive valve leakage and recommend a plant shutdown to repair the leakage? If so, whom and what was the response?

Yes, probably Bernie Smith, and I discussed this and as I can recall he

said that we will have to shutdown to repair them at a future time, but that it didn't present itself as any violation of Tech specs but only as an operational inconvenience.

21. What is the significance of the TCN change to the leakage calculation that was implemented in February 1979?

I don't know of this change as it occurred while I was on relief shift and in Lynchburg at this time.

22. Did operators instruct the auxiliary operators to add hydrogen to the make-up tanks during the leak rate test when the operators were unable to make the additions themselves from the control room?

I never did personally, and I don't know of anyone who did.

23. Did anyone ever discuss with management the fact that it was impossible to get a negative leak rate and that these negative leak rate test results were totally invalid? If so, what was the response?

I did, although I don't remember the specific conversation, somehow negative leak rates were accepted as valid data. I probably discussed this with Bernie Smith or Ken Hoyt.

24. What was the event that caused the licensee to submit LER 78-62/1P in 10-19-78 regarding the LCO violation for exceeding the unidentified leak rate of 16GPM?

I don't know. I recall the LER but do not remember any specific comments as to how or why it was initiated.

25. The LER states the leakage was reduced to Tech Spec limits on 10-18-78. Do you know if they actually reduced the leakage and how they knew they had met the leakage requirements, particularly in light of the fact that there is no record of a leak test being performed at that time to quantify the corrective action?

No I don't remember specifics about this LER or recovery from the action statement.

26. After the LER was submitted were you ever instructed in the applicable sections of the technical specifications or in the requirement to invoke the action statement when the Limiting Condition for Operation (LCO) is not met?

Yes, but again specific directions are vague in my memory, if non-existent.

27. How many leak rate tests were run during an average shift and were the majority of the tests run on any particular shift? If so, why on that shift?

If a satisfactory result was not obtained perhaps 3 or 4 as an average were run on an 11-7AM shift. The computer was generally in other capacities for I/O during other times. Sometimes late on a 3-11 shift tests were run if we were close to exceeding out time frame. Generally the "mid" shift was the accepted time to run leakrates.

28. Are you aware of a supervisor requesting permission from the load dispatcher to shutdown to repair valve leakage and that request being denied?

No.

29. Was there any specific prohibition against hydrogen additions during the leak rate test?

No.

30. Do you consider hydrogen as a chemical addition?

Yes, it was used to scavenge O_2 under the presence of gamma energy $2H_2 + O_2 \rightarrow 2H_2O$.

31. Did you discuss the hydrogen affect on the leak rate test with any specific operators and if so, who?

Yes, but I don't remember with whom, they told me that if you add H_2 that a possible good leak rate test could be obtained. They never mentioned, as I can recall, where they got this information.

32. Can the auxiliary operators take actions such as a hydrogen addition on their own initiative or do they have to receive instructions from a licensed operator?

It is possible for an AO to add H_2 on his own. I don't recall this having been done. As I can remember I never had an AO make this addition for me for routine purposes or to affect leak rate tests. I don't recall if there was or what was contained in a procedure covering this evolution.

33. How could a manipulation of the identified leak rate affect the unidentified leak rate?

Water which leaks from valve packing or pumps packing can leak out and be measured as unidentified leakage, by the computer however, as long as it was not "Pressure Boundary" leakage and could be collected, and a leak rate determined it was then considered Identified Leakage. This was an input to the computer during routine Leak rate test computations.

34. What in your opinion was the percentage of times that which water or hydrogen was added to the make-up tank to manipulate the leak rate?

To the best of my recall, this was done occasionally, not as a routine on my shift, when a deadline for completion was approaching.

35. How many bad leak rate test results do you feel you personally got that were thrown away?

All bad leak rate tests were thrown away and I probably ran maybe 30-40 tests in the year prior to the accident.

36. Do you recall the instruction to round off the leak rate results by having the computer round down or up to an even number?

I recall the instruction vaguely, specifics are non-existent.

37. There is a note in the log that revised this instruction. Are you aware of who revised the round off order and why it was revised?

I don't recall this specific instruction.

38. Are you aware of operators jogging water into the make-up tank to affect the leak? If so, who, and how often did it occur and in your opinion could these instances be in anyway conclusively identified?

Yes, Ray Booher, myself, again my recollection tells me that this was done only occasionally and not a matter of course. I don't think that Foremen or Supervisors were aware that this was being done. I don't think that conclusive evidence could be shown to support the "water jogging" effect.

39. Are you (sic) personally aware of instances where operators increased the voltage reading to the drain tank in an attempt to indicate that more water had been collected?

No, this is only a way of altering results, I don't know of anyone doing this.

40. Were you ever threatened with any type of punitive action for not getting good leak rates or for not falsifying the leak rate test results.

No, no threats or direct management pressure were involved. Job pride, Shift pride (people assigned to our shift wanted to show they were best).

41. Do you have any personal knowledge of incidents where water was "jogged" into the make-up tank in order to conceal the addition on the strip chart?

I can add nothing further to this see, question 38.

I have read the foregoing question and answer statement consisting of 21 pages. I have made and initialed any corrections and have signed my name in ink in the margin of each page. This statement is the truth to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is true and correct. Executed on July 26, 1983 at 1730.

INTERVIEWEE: Original signed by Harold W. Hartman

Subscribed and sworn to before me this 26th day of July, 1983, at 5:35 PM.

INVESTIGATOR: Original signed by R. K. Christopher 7/26/83

WITNESS: Original signed by P. J. Connolly 7/26/83

EXHIBIT 5

MOTION TO QUASH SUBPOENAS/9-15-83

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of)
)
METROPOLITAN EDISON COMPANY) Dkt. No. 50-289
(Three Mile Island Nuclear) Dkt. No. 50-320
Station, Units 1 and 2))

MOTION TO QUASH SUBPOENAS
AND FOR EXPEDITED CONSIDERATION

Introduction

On or about September 1, 1983, the Regional Administrator, Region I, at the request of the Office of Investigations, issued subpoenas to a number of employees and former employees at the Three Mile Island Nuclear Station. Those subpoenas, all of which were made returnable at a motel room near Harrisburg, Pennsylvania, were issued for the purpose of investigating the alleged falsification of reactor coolant system leak rate test data at TMI-2. The same allegations were referred to the Department of Justice by the Nuclear Regulatory Commission ("the Commission") in 1980 and are at present the subject of inquiry by a Grand Jury of the United States District Court for the Middle District of Pennsylvania.

Under §2.720(f) of the Commission's Rules of Practice, 10 C.F.R. §2.720(f) (1983), the Commission may quash a subpoena that is unreasonable. For the reasons stated in this Motion, the subpoenas issued to Movants (listed in Appendix A) are improper and unreasonable and should be quashed.^{1/}

Argument

I.

THE COMMISSION MAY NOT INVESTIGATE THE HARTMAN ALLEGATIONS AFTER THEIR REFERRAL TO THE DEPARTMENT OF JUSTICE.

The subpoenas demand testimony and documents for an investigation of statements made to Commission inspectors by Harold Hartman, a former control room operator at TMI-2, in interviews following the March 1979 accident at that facility. Mr. Hartman alleged that certain control room operators may have falsified the results of reactor coolant system leak rate tests at TMI-2, in violation of technical specifications and operating procedures.

^{1/} The Commission is advised that Ivan Porter and Jack Garrison, whom we represent, will comply with the subpoenas issued to them. Because the undersigned are not aware of every subpoena issued by the Commission in this investigation, we have listed all present or former employees at TMI whom we represent. Only those persons listed in Appendix A who have been subpoenaed are Movants.

The Commission pursued the Hartman allegations through examination of documents and records and interviewed a number of Hartman's former co-workers. In March 1980, it informed the Department of Justice of the possibility of a referral for criminal prosecution. That referral was made the following month, and the Commission properly brought its own investigation to a halt.

The Department of Justice has been responsible for investigation of the Hartman allegations since April 1980. A Grand Jury convened in May 1980 by the United States District Court for the Middle District of Pennsylvania interrogated a number of the Movants to determine whether Mr. Hartman's charges were true. Although that Grand Jury was discharged in October 1981, before it had completed investigation of the Hartman allegations, the Department of Justice never relinquished control of the matter. Instead, another Grand Jury was convened in November 1981, and given at least some preliminary information concerning the work of the May 1980 Grand Jury. Among other things, the November 1981 Grand Jury was subjected to voir dire examination concerning the veniremen's potential bias or prejudice because of the TMI accident. In March 1983, yet another Grand Jury was empaneled in the Middle District of Pennsylvania for the

primary purpose of probing further into the Hartman allegations and other matters involving reactor coolant system leakage at TMI-1 and TMI-2.

The March 1983 Grand Jury investigation, still pursuant to the Commission's referral, continues. The Grand Jury has heard testimony on the matter from virtually all of the Movants here as well as other individuals. We have been advised that at least certain Movants may be recalled before the March 1983 Grand Jury.

In the circumstances, the subpoenas issued by the Regional Administrator must be quashed. Once an agency has referred a matter to the Department of Justice, thus triggering the criminal process, the agency must cease use of its own investigative authority into the same matter. United States v. LaSalle National Bank, 437 U.S. 298, 312 (1978); see also Garden State National Bank v. United States, 607 F.2d 61 (3d Cir. 1979). This "prophylactic restraint" serves two important policy interests: it safeguards the role of the grand jury as a "principal tool of criminal accusation", and it prevents improper broadening of the Government's opportunities for criminal discovery. LaSalle, 437 U.S. at 312-13.

Both interests are at stake here. The March 1983 Grand Jury is in the midst of an active investigation of

the Hartman allegations and other aspects of reactor coolant system leakage determinations at TMI-1 and TMI-2, the same allegations that the Office of Investigations would now pursue. The grand jury "has always occupied a high place as an instrument of justice in our system of criminal law" United States v. Sells Engineering, Inc., 103 S. Ct. 3133, 3137 (1983). Its process must remain unhampered by the reintrusion of an agency that has relinquished investigatory control of a matter, as the Commission did here over three years ago.

Furthermore, resumption of the Commission's inquiry into allegations with respect to reactor coolant system leakage risks circumvention of the limits on criminal discovery required by fundamental fairness and respect for individual rights. As the LaSalle Court observed, effective use of information obtained in an agency's civil investigation "would inevitably result in criminal discovery." United States v. LaSalle National Bank, 437 U.S. at 312 (emphasis added); see also United States v. Sells Engineering, Inc., 103 S. Ct. at 3138. Virtually all Movants here have been questioned at least once and remain subject to further interrogation about the Hartman allegations by the March 1983 Grand Jury. The Government's criminal discovery should not be impermissibly expanded, and Movants'

rights should not be put at risk, by renewed Commission inquiry on precisely the same subject.

The communication between members of the Commission's Staff and the Department of Justice that has occurred since the Commission's referral of the Hartman allegations demonstrates the wisdom of the LaSalle prophylactic rule. According to a list received in response to a Freedom of Information Act request by Movants' attorneys, staff representatives met with personnel of the Middle District of Pennsylvania United States Attorney's Office on June 28, 1983.^{2/} A letter from R.K. Christopher to James West, the First Assistant United States Attorney responsible for the March 1983 Grand Jury investigation, followed on July 5 and enclosed a "cataloged version of material received from T.T. Martin concerning Hartman." A subsequent memorandum from Mr. Christopher to Mr. Martin discussed "material developed for DOJ [the Department of Justice] in support of Hartman investigation." Further exchanges of information will "inevitably result", contrary

^{2/} A copy of the list of some of documents responsive to the request is attached as Appendix B. The Commission's failure to produce the listed documents themselves and deletion of information on the list prevent detailed discussion here.

to the instruction of LaSalle, if the subpoenas are not quashed.

In recognition of this danger, the Commission properly terminated its investigation of the Hartman allegations in 1980. The Commission's awareness of the limits on its investigative powers after referral of a matter to the Department of Justice was apparent in its 1980 decision. In re Metropolitan Edison Company, 11 N.R.C. 724 (1980).

There the Commission refused to quash subpoenas issued to some of the Movants here only because the Commission then sought to investigate matters "wholly separate and distinct" from those before the 1980 Grand Jury. Id. at 723. The current resurrection of the Hartman allegation investigation, through the Office of Investigations, apparently arises from a letter to Chairman Palladino from Lowell D. Jensen, Assistant Attorney General in charge of the Criminal Division, stating Mr. Jensen's belief that the Commission was free to proceed with its inquiry.^{3/}

^{3/} The Commission has failed to respond in a timely fashion to a Freedom of Information Act request for a copy of this letter. Movants learned of the letter through an account in a newspaper to which the letter was apparently available. Movants are confident that the correspondence demonstrates that the Office of Investigation intends to inquire into the same matters being investigated by the Grand Jury, and that Chairman Palladino requested advice from Mr. Jensen as to whether that was appropriate.

Based on press reports of Mr. Jensen's letter, the position taken by the Criminal Division flatly contradicts the Supreme Court's prophylactic standard defined in LaSalle. Having set the criminal process in motion by its referral to the Department of Justice, the Commission must quash the subpoenas issued to Movants. The Commission need only delay its investigation until the March 1983 Grand Jury completes its inquiry and any further related activity by the Department of Justice has ceased. Deference to the criminal process will protect both the Grand Jury and Movants here, and confine the Government's investigation to its proper sphere.

II.

THE COMMISSION MAY NOT COMPEL THE PRESENCE
OF MOVANTS RESIDING BEYOND THE JURISDICTION
OF THE HARRISBURG COURT.

The Commission has statutory authority to issue subpoenas returnable at any place in the United States and to make nationwide service of process. 42 U.S.C. § 2201(c) (1976). However, its authority does not give it power to compel the presence of a witness whose subpoena is made returnable beyond the limits of the federal judicial district in which the witness is found, resides, or transacts business. 42 U.S.C. § 2281 (1976).

All of the subpoenas issued by the Office of Investigations purport to be returnable in Harrisburg, Pennsylvania. Movants here reside in several different states and several different judicial districts. A number of the Movants reside beyond the jurisdiction of the United States District Court for the Middle District of Pennsylvania. Since the Commission cannot compel their presence in Harrisburg as demanded in the subpoenas through enforcement actions in the Middle District of Pennsylvania, the Commission should quash these subpoenas on grounds of unreasonableness.

In any event, it is plainly unreasonable to require Movants who do not live in the vicinity of Harrisburg to travel there. Many of these Movants are licensed operators at other commercial nuclear facilities or are employed in other, equally important industries. No group of employees in the history of this Nation has been subjected to the necessity to give testimony on as many occasions as have Movants. Some have appeared four times or more to give testimony before various Grand Juries and have testified on numerous other occasions in judicial, legislative, and administrative hearings since the accident. In the circumstances, the Commission, with Regional Offices in several part of the country, should take testimony (if

at all) in reasonable proximity to the place of Movants' residence or employment. The Commission followed this practice during its "information transfer" investigation in 1980, sending its representatives to Florida and Pittsburgh to interview persons then residing in those places. After the number of times these Movants have been required to appear to give testimony, it would be plainly unreasonable to require them to travel for the convenience of the Office of Investigations.

For example, certain Movants are employed at commercial nuclear power plants in California. If required to testify in Harrisburg, each such Movant will be away from his place of employment for at least three days (including one day for travel in each direction). It would be far more appropriate to interview such persons in California, with minimal disruption of their present employment and the safety of the plants where they now work.

Conclusion

For the foregoing reasons, the subpoenas should be quashed. Because the subpoenas are returnable in the near future, expedited consideration of this Motion is requested.

Respectfully submitted,

Harry H. Voigt

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Attorneys for Movants

September 15, 1983

Appendix A

Charles D. Adams
John C. Auger ✓
Robert P. Beeman
Nelson Bennett
Richard W. Bensel
Mark Bezilla
John J. Blessing
Raymond R. Booher
John Brummer
Kenneth P. Bryan
Joseph J. Chwastyk
Mark S. Coleman
William T. Conaway, II
Joseph R. Congdon
Martin V. Cooper
Craig Faust
William Fels
James R. Floyd
Edward R. Frederick
Leonard P. Germer
Carl L. Guthrie
Thomas Hawkins
Earl D. Hemmila
Gregory R. Hitz, Sr.
Kenneth P. Hoyt

Richard S. Hutchison
Theodore F. Illjes
John M. Kidwell
George A. Kunder
Lawrence L. Lawyer
Walter J. Marshall
Hugh A. McGovern
Brian A. Mehler
Charles F. Mell
Adam W. Miller
Thomas Morck
James P. O'Hanlon
Dennis I. Olson
John Perry
Mark D. Phillippe
Merrill R. Shaffer
Frederick J. Scheimann
James L. Seelinger
Richard E. Sieglitz ✓
Bernard G. Smith
George J. Troffer
Ronald Phillip Warren, Sr.
Lynn O. Wright
William H. Zewe

August 23, 1983 memo to Ben B. Hayes Subject: Request for Subpoenas - Investigati
1-83-010 (Three-Mile Island Unit 2/Alleged Falsification of Reactor Coolant System
Leak Rate Tests)

August 5, 1983 memo to R. K. Christopher from T. T. Martin Subject: Material
developed for DOJ in support of Hartman Investigation

" July 13, 1983 memo to William J. Dircks from Nurzio J. Palladino Subject: B&W
Assessment of EDS Nuclear Analysis

July 11, 1983 memo to file from R. K. Christopher Subject: Status of Interviews
Concerning the falsification of leak rate test data at Three Mile Island Unit 2

July 7, 1983 memo to file from Ben B. Hayes Subject: TMI-Hartman

July 5, 1983 note to Pete Baci - Attaching conversation record (w/ Henry Myers
on July 5, 1983 at 2:00 PM)

July 5, 1983 letter to James West from R. K. Christopher Subject: Enclosing
cataloged version of material received from T. T. Martin concerning Hartman.

June 3, 1983 memo to James J. Cummings from Victor Stello, Jr. Subject: Hart-
man Allegations

Conversation Record dated July 6, 1983 3:00 PM } Subject:
Hartman Investigation

Conversation Record dated June 28, 1983 at 11:00 AM {
Subject: Meeting with U.S. Attorney's office

July 7, 1983 letter to Ben B. Hayes from { Subject: Requesting
copies of statements

Draft outline of procedures in conducting investigation.

August 19, 1983 memo to Fred Combs from R. K. Christopher Subject: Hartman Investigation Tapes (Numbers 254 and 255)

June 24, 1983 memo to R. K. Christopher from T. T. Martin Subject: Material developed for DOJ in support of Hartman Investigation

16 Statements

✓
14 B&W Transcripts

6

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of)
)
METROPOLITAN EDISON COMPANY) Dkt. No. 50-289
(Three Mile Island Nuclear) Dkt. No. 50-320
Station, Units 1 and 2))

CERTIFICATE OF SERVICE

I hereby certify that I have served, this 15th day of September, 1983, a copy of the "Motion To Quash Subpoenas And For Expedited Consideration" by first-class mail, postage prepaid and properly addressed to the following persons:

Mr. R.K. Christopher
Office of Investigations
Field Office, Region I
631 Park Avenue
King of Prussia, PA 19406

Jack R. Goldberg, Esq.
Office of the Executive
Legal Director
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Michael Wilcove, Esq.
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Legal Director
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Commission
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Michael F. McBride
MICHAEL F. MCBRIDE

EXHIBIT 6

COMMISSION ORDER DENYING MOTION TO QUASH/9-21-83

U.S. NRC

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNPC

1983 JUL -2 PM 3:18
COMMISSIONERS:

OFFICE OF INVESTIGATIONS
FIELD OFFICE

Michael J. Palladino, Chairman
Victor Gilinsky
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal

'83 SEP 21 12:54

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

SERVED SEP 21 1983

In the Matter of
GENERAL PUBLIC UTILITIES CORP.

(Three Mile Island Nuclear
Station, Unit No. 2)

Docket No. 50-320

MEMORANDUM AND ORDER

CLI-83-24

On September 1, 1983, the NRC Regional Administrator, Region I, at the request of the NRC Office of Investigations, issued subpoenas to forty-seven individuals who had been working at the Three Mile Island, Unit 2 (TMI-2) nuclear facility prior to the accident at that facility on March 28, 1979. The subpoenas called upon each individual to appear and give testimony on specific dates from September 19 through October 4, 1983, concerning his/her knowledge of the facts surrounding the alleged falsification of reactor coolant system leak rate test data at TMI-2.

As explained in more detail below, the Commission has determined that the public health and safety require it to complete its investigation into those allegations without further delay. Since these

individuals indicated through counsel that they would not voluntarily talk to NRC investigators concerning this matter, it was necessary to issue the subpoenas in order to determine the validity of those allegations, whether utility management is implicated by those allegations and whether further action is warranted.

The Commission now has before it a motion to quash the subpoenas on two grounds:¹ (1) that the Commission's referral of this matter to the Department of Justice in 1980 for possible criminal proceedings precludes the Commission from pursuing its own civil investigation during the pendency of the Grand Jury investigation currently under way in the Middle District of Pennsylvania; and (2) that some of the subpoenas are unreasonable in that they require persons residing outside of the Middle District of Pennsylvania to appear in that District. For the reasons discussed below, the Commission has decided to deny the motion to quash, but directs the Regional Administrator to make the subpoenas returnable in the federal judicial district where each individual resides.

I. Background

In May 1979, Mr. Harold Hartman, a TMI-2 control room operator at the time of the accident at TMI-2 in March 1979, alleged that prior to the accident it was common practice for control room personnel to

¹Movant in the motion to quash indicated that two of the forty-seven individuals would comply with their subpoenas.

letter of May 27, 1983, the Commission notified the Department of Justice that it intended to pursue its own investigation.³

The Commission has determined that the public health and safety require that it pursue and complete its own investigation into this matter without waiting further for the Justice Department to complete the criminal investigation. The Commission believes these allegations are sufficiently serious that it must investigate them before they simply become too old to pursue in order to determine whether utility management is implicated by the allegations and whether further civil enforcement action is warranted. The Commission notes in this regard that the allegations relate to the ongoing enforcement proceeding involving Three Mile Island, Unit 1, which has kept that unit shut down since the accident at TMI-2. The Commission believes that relevant portions of the Hartman allegations must be resolved before that proceeding can be completed and a final decision made on whether Unit 1 should be restarted.⁴

³It appears that a misunderstanding may have emanated from the oral communications between the NRC and the Department of Justice concerning whether the Commission was advised at an earlier date that it could proceed with its investigation of the Hartman allegations. As a result, the Department of Justice believed that the NRC understood in October 1981 that there was no objection to its proceeding with its civil investigation. In contrast, the Commission believed that the Department of Justice wished the NRC to continue to delay proceeding with its civil investigation, and the Commission was aware through inquiries from late 1981 through early 1983 that the Department of Justice was continuing its investigation.

⁴The Commission notes that the Appeal Board has reopened that proceeding because of the Hartman allegations. ALAB-738, 17 NRC _____ (August 31, 1983).

4.⁶ The Supreme Court in LaSalle held that the Internal Revenue Service (IRS) could not use a civil tax-investigation summons once the IRS had recommended the case to the Department of Justice for criminal prosecution. The Court adopted this rule as a "prophylactic restraint" to prevent the broadening of the Justice Department's right of criminal litigation discovery and to prevent infringement on the role of the grand jury as a principal tool of criminal accusation.

The Court in LaSalle based its holding on the specific statutory scheme for the IRS. Under that scheme the IRS' civil authority in essence ceases upon referral of a case to the Justice Department.⁷ Thus as a practical matter the IRS would have no authorized purpose for a civil summons after a criminal referral. See SEC v. Dresser Industries, Inc., 628 F.2d 1368, 1378-79 (D.C. Cir. en banc), cert. denied 101 S.Ct. 529 (1980). The NRC's authority to conduct an investigation under the Atomic Energy Act does not cease upon referral of a matter to the Department of Justice, and the Commission therefore does not believe that the rationale of LaSalle applies to the statutory scheme for the NRC.

⁶Movant maintains that the Commission's awareness of this limit was apparent in CLI-80-22, 11 NRC 724 (1980). The Commission in that case denied a motion to quash because the NRC's investigation involved a different matter than that before the grand jury. The Commission did not address the situation where the parallel investigations involved the same matter.

⁷For instance, upon referral the IRS no longer has the authority to compromise even the civil aspects of a fraud case.

necessary to protect the public from violations of the security laws.⁹ The court explained that there is no call for a "prophylactic rule" in the case of an SEC investigation. Unlike the IRS, the SEC's authority to issue subpoenas remains undiminished after commencement of grand jury proceedings, and neither of the policy interests discussed in LaSalle were relevant to the SEC investigation at issue in that case: (1) there was no chance of broadening the Justice Department's right to criminal discovery because until an indictment was returned the grand jury had subpoena powers at least as broad as those of the SEC; and (2) any potential infringement upon the role of the grand jury was too speculative and remote "to justify so extreme an action as denying enforcement of this subpoena."¹⁰ Id. at 1384. This discussion in Dresser applies equally well here.

The court in Dresser further explained why fulfillment of the SEC's responsibilities required that the SEC be able to pursue its investigation even if a criminal proceeding were underway:

⁹The court stated that "the language of the securities laws and the nature of the SEC's civil enforcement responsibilities require that the SEC retain full powers of investigation and civil enforcement action, even after Justice has begun a criminal investigation into the same alleged violations." 628 F.2d at 1379.

¹⁰Dresser argued in this connection that enforcement of the SEC subpoena would undermine the secrecy of the grand jury, and that the SEC could infringe on the role of the grand jury by interpreting and selectively disclosing part of the subpoenaed information to the grand jury through the Justice Department. The court rejected both of these arguments, noting that the fact that a grand jury has subpoenaed documents does not insulate those documents from other investigations and that it would be inappropriate to presume that the SEC would try to prejudice the grand jury. The court also rejected the suggestion that

[Footnote Continued]

investigation even though there was also a Grand Jury investigation underway at the same time.¹¹

The court in its first opinion found that the parallel investigations by the NRC and the Grand Jury were not impermissible, observing that there was "no inherent intertwining of functions between the Grand Jury and NRC as one finds with investigations with the Internal Revenue Service and the Department of Justice." 87 F.R.D. at 584. The court concluded that "[w]here an investigation is being conducted for a lawful purpose and the information sought is relevant to the investigation, to stop such investigation at the threshold of inquiry would render substantially impossible an agency's effective discharge of the duties of investigation." Id.

The court in its second opinion, citing NLRB v. Interstate Dress Carriers, 610 F.2d 99 (3rd Cir. 1979), reiterated that there was nothing inherently improper about parallel civil and criminal proceedings. The court, quoting LaSalle, 437 U.S. at 316, found no evidence that the NRC was not "honestly pursuing the goals of [its statute]." 87 F.R.D. at 588. The court also noted that the NRC and the grand jury in that case were investigating different matters, but even if they were "conducting investigations concerning the same matters ... it would be of little or no consequence...." Id. at 588.

¹¹United States v. McGovern, 87 F.R.D. 582 (1980); United States v. McGovern, 87 F.R.D. 584 (1980); United States v. McGovern, 87 F.R.D. 590 (1980).

B. Whether There Are Special Circumstances In This Case Which Justify Quashing The Subpoenas

The Commission believes that it is clear from the above discussion that the NRC has the legal authority to conduct a civil investigation at the same time that a grand jury is conducting a criminal investigation. This does not end the inquiry, however. The Commission must also address whether there are any special circumstances in this particular case such that proceeding with parallel investigations would demonstrably prejudice substantial rights of the investigated parties.

The court in SEC v. Dresser Industries, Inc., supra, explained that while ordinarily civil and criminal actions can proceed simultaneously, a court may in its discretion stay civil proceedings, postpone civil discovery or impose protective orders or conditions when required in the interests of justice. The court noted that the strongest case for taking such action, "[o]ther than where there is specific evidence of agency bad faith or malicious governmental tactics ... is where a party under indictment for a serious offense is required to defend a civil or administrative action involving the same matter." 628 F.2d at 1375-76. The court explained that in that type of case "[t]he noncriminal proceeding, if not deferred, might undermine the party's Fifth Amendment privilege against self-incrimination, expand rights of criminal discovery beyond the limits of Federal Rule of Criminal Procedure 16(b), expose the basis of the defense to the prosecution in advance of criminal trial, or otherwise prejudice the case." Id. at 1376 (footnote omitted). The court, noting that it might defer noncriminal proceedings in such circumstances if such delay "would not seriously injure the

Appeal Board has recently reopened the proceeding on the Hartman allegations, noting as follows:

"One Grand Jury has expired without action, and another is still sitting, with no prospect of imminent decision. In short, by next year we may be exactly where we are today -- 'square one.'... [T]oo much valuable time has been wasted. Evidence and witnesses' memories are getting stale.... It simply is time to move forward on the Hartman allegations, as our independent responsibility to protect the public health and safety under the Atomic Energy Act requires."

ALAB-738, 17 NRC ___, Slip Op. at 23-25 (August 31, 1983) (footnote omitted).

The recollections of the individuals may be fading with the passage of time, and delaying the NRC's investigation any longer could seriously prejudice the NRC's ability to resolve this matter. The Commission believes that it must act now to resolve this matter, and that the only way to resolve it is to interview all those who may have knowledge concerning Mr. Hartman's allegations. The individuals subpoenaed include the shift supervisors, senior reactor operators, reactor operators and others who might be familiar with leak rate testing at TMI-2 prior to the accident. Unless and until the NRC interviews each of these individuals, it will be unable to resolve this matter.¹² The Commission has therefore decided to deny the motions to quash.

¹²The Commission notes that even interviewing the forty-seven individuals will not conclude the investigation into this matter. There are other individuals, including those in management, who will also have to be interviewed. It is necessary to interview these forty-seven individuals first in order to lay the groundwork for the later interviews.

EXHIBIT 7

LETTER FROM LEBOEUF, LAMB, LEIBY AND MACRAE/9-26-83

cc. Keith
Pete

U.S. NRC

LEBOEUF, LAMB, LEIBY & MACRAE

A PARTNERSHIP INCLUDING PROFESSIONAL CORPORATIONS

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TELECOPIER 202-457-7543

202-457-7511

LEBOEUF, LAMB, LEIBY & MACRAE (UK)
47 BERKELEY SQUARE
LONDON W1X 5DB, ENGLAND

168 MILK STREET
BOSTON, MA 02109

336 FAYETTEVILLE STREET MALL
P.O. BOX 750
RALEIGH, NC 27602

150 STATE STREET
ALBANY, NY 12207

520 MADISON AVENUE
NEW YORK, NY 10022

500 KEARNS BUILDING
136 SOUTH MAIN
SALT LAKE CITY, UT 84101

411 PEQUOT AVENUE
SOUTHPORT, CT 06490

September 26, 1983

Richard P. Levi, Esq.
Office of General Counsel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Commission's Investigative Subpoenas
Concerning Hartman Allegations ---
Docket Nos. 50-289 and 50-320

Dear Mr. Levi:

As I have previously advised you, while we believe that the Commission's issuance of subpoenas during the pendency of the Grand Jury investigation of the Hartman allegations is improper, and a majority of our clients will not obey those subpoenas in the absence of a court order, we have no desire to create artificial impediments to the enforcement process or to cause the unnecessary expenditure of public funds.

Accordingly, I wish to confirm that the following individuals have agreed to comply with the Commission's subpoenas:

Robert P. Beeman
Jack Garrison
Ivan Porter

Richard W. Bensel
George A. Kunder
Ronald P. Warren.

Mr. Porter complied with his subpoena on Friday, September 23. Messrs. Garrison and Kunder will comply with their subpoenas as issued next week. It will be necessary for Region I to issue revised subpoenas for Messrs. Beeman, Bensel, and Warren.

Richard P. Levi, Esq.
September 26, 1983
Page Two

With respect to the remaining 41 individuals upon whom subpoenas were served by mail, you may assume that they will not appear voluntarily, and that it will be necessary to commence an enforcement action in the appropriate United States District Court in order to compel their appearance. It is therefore unnecessary for an NRC investigator to be present at the time and place set forth in subpoenas issued to those persons.

As you know, we represent each of our clients as an individual. It is possible that one or more of them may reconsider his position in light of the Commission's September 21 Memorandum and Order. Should that occur, we will inform you promptly.

Very truly yours,

Harry H. Vargo

cc: Mr. R. Keith Christopher
Smith B. Gephart, Esq.

EXHIBIT 8

MEMORANDUM FROM FEDERAL DISTRICT COURT FOR THE MIDDLE
DISTRICT OF PA/12-2-83

TPM1-file

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA (NRC))
Petitioner)
v.)
JOHN J. BLESSING, et al.,)
Respondents)

Civil Action No. 83-1536

FILED
HARRISBURG, PA.

DEC 2, 1983

DONALD R. BERRY, CLERK
PER.....
DEPUTY CLERK

MEMORANDUM

On September 1, 1983, pursuant to section 161(c) of the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2201(c), the NRC issued subpoenas to twenty-six (26) individuals who are the respondents in this action. On September 16, 1983 they moved before the Commission to quash the administrative subpoenas on the ground that the pending grand jury investigation barred an NRC investigation. They further asserted that subpoenas outside the Middle District of Pennsylvania should be returnable in the judicial district where each individual resides.

By order dated September 21, 1983 the Commission denied the motion to quash but directed the NRC Regional Administrator (1) to revise the subpoenas to make them returnable to the judicial district where the person resides; and (2) to set forth new return items for those subpoenas on which the date expired while the motion to quash was pending. Pursuant to this order and pertinent to this issue, on September 27, 1983 the NRC issued nine revised subpoenas with new return dates. Counsel for each of the

respondents in this action notified the NRC that they would not appear on the date specified in the NRC subpoenas. The United States of America, on behalf of the NRC, has petitioned this court to enforce the twenty-six subpoenas issued pursuant to its authority under the Atomic Energy Act, 42 U.S.C. § 2201(c).

In May 1979, Mr. Harold Hartman, a control room operator at the time of the March 28, 1979 accident at the Three Mile Island Nuclear Plant, Unit 2 (TMI-2), alleged that, before the accident, control room personnel falsified leak rate test data for the reactor cooler system. In March 1980, the NRC began an investigation into the Hartman allegations but stopped its investigation in May 1980 at the request of the United States Department of Justice pending federal grand jury proceedings into these same allegations in the judicial district for the Middle District of Pennsylvania. The NRC resumed its investigation in May 1983 with the consent of the Department of Justice.

Each of the persons subpoenaed in this matter is alleged to be familiar with or responsible for conducting leak rate tests before the accident and each is alleged to either know or have information relevant to a determination of whether the Hartman allegations are true. The resolution of the allegations regarding the falsification of leak rate tests at TMI-2 is critical to the NRC's decision whether TMI-1 should restart. Because the competency and integrity of the licensing management are major issues in the restart proceedings, the NRC has resolved that it cannot make a decision whether to authorize the resumption of operations at TMI-1 until the investigation of relevant portions of the Hartman allegations is concluded. Undoubtedly, the resolution of the Hartman allegations will also have an impact on the resolution of all issues regarding the future of TMI-2.

The respondents raise five defenses for their refusal to comply with the subpoenas. They are as follows:

- (1) that the subpoenas were issued unlawfully under United States v. LaSalle National Bank, 437 U.S. 298 (1977);
- (2) that the subpoenas may not be enforced due to the pendency of criminal proceedings in the Middle District, Criminal number 83-00188;
- (3) that the subpoenas may not be enforced because the testimony will be funneled to the Department of Justice for an improper purpose;
- (4) that the subpoenas may not be enforced because the NRC already has the information that it seeks; and
- (5) that the subpoenas may not be enforced because they were issued in bad faith for political purposes.

The court will address the respondents' contentions seriatim.

The respondents' reliance on United States v. LaSalle National Bank is misplaced. The court, in Securities and Exchange Commission v. Dresser Industries, 628 F.2d 1368 (D.C. Cir.) cert. denied 449 U.S. 993 (1980), pointed out that the LaSalle rule applies solely to the statutory scheme of the Internal Revenue Code in which the civil authority of the IRS ceases for all practical purposes upon referral of the taxpayer's case to Justice. LaSalle was determined not to apply to the securities laws in which the SEC civil enforcement authority continues undiminished after Justice initiates a criminal investigation by the grand jury. Id. at p. 1378. The court in Dresser further acknowledged that the investigative provisions of the securities laws are far broader than section 7602 of the Internal Revenue

Code as interpreted in LaSalle. Id. at 1379. By analogy, the investigative and subpoena provisions authorized to be used by the NRC are far broader than section 7602 of the Internal Revenue Code.

42 U.S.C. § 2201(b) and (c) read as follows:

(b) Standards and Instructions. Establish by rule, regulation, or order, such standards and instructions to govern the possession and use of special nuclear material, source material, and by-product material as the Commission may deem necessary or desirable to promote the common defense and security or to protect health or to minimize danger to life or property;

(c) Studies and investigations. Make such studies and investigations, obtain such information, and hold such meeting and hearing as the Commission may deem necessary or proper to assist it in exercising any authority provided in this Act, or in administration or enforcement of this Act, or any regulation or orders issued thereunder. For such purposes the Commission is authorized to administer oaths and affirmations and by subpoena to require any person to appear and testify or to appear and produce documents, or both, at any designated place...

Given this broad statutory mandate, there is no possibility that in issuing these subpoenas the NRC was exceeding its authority.

Respondents argue that the subpoenas should not be enforced due to the pendency of criminal proceedings within this district. The court in Dresser addressed this issue and held that

The Constitution, therefore, does not ordinarily require a stay of civil proceedings pending the outcome of criminal proceedings (citations omitted). Nevertheless, a court may decide in its discretion to stay civil proceedings, postpone civil discovery or impose protective orders and conditions 'when the interests of justice seem to require such action, sometimes at the request of the prosecution... sometimes at the request of the defense[.]' citations omitted).

Id. at 1375.

The court went on to add,

Other than where there is specific evidence of agency bad faith or malicious governmental tactics the strongest case for deferring civil proceedings until after completion of criminal proceedings is where a party under indictment for a serious offense is required to defend a civil or administrative action involving the same matter. The non-criminal proceeding, if not deferred might undermine the party's fifth amendment privilege against self-incrimination, expand rights of criminal discovery beyond the limits of federal Rule of Criminal Procedure 16(b), expose the basis of the defense to the prosecution in advance of criminal trial, or otherwise prejudice the case. If delay of the non-criminal proceeding would not seriously injure the public interest a court may be justified in deferring it (citations omitted).

Id. at 1376.

It is important to note that the criminal proceeding No. 83-00188 does not involve any of the respondents, but rather Metropolitan Edison Company. The concern about having to defend parallel proceedings expressed in the Dresser opinion is not at issue in this case. While this court recognizes that, at present, an indictment has been returned only against Metropolitan Edison Company, it also recognizes that there may still be an ongoing grand jury investigation of the respondents. Nonetheless, since the respondents here are not defendants under the current indictment, there is no presently addressable issue that a defense might be exposed, that discovery rights might be expanded or that respondents must defend two actions. This court does not see any reason why it should reverse its earlier opinion addressing parallel investigation expressed in United States v. McGovern, 87 F.R.D. 582, 584, 590 (M.D. Pa. 1980).

Respondents further allege that the subpoenas should not be enforced because they are being used for an improper purpose, i.e. to funnel information to the Department of Justice. In United States v. Powell, 379 U.S. 48, 57-58 (1964), the Court held that the standard for enforcement of a civil

subpoena during the pendency of criminal investigations in cases involving agencies other than IRS is whether a good faith civil investigative purpose to be shown. The tests to be used in determining good faith are as follows:

(a) The investigation must be for a legitimate purpose. The government has established a prima facie case that the investigation into the validity of the Hartman allegations is required in order for the Commission to determine whether TMI-1 should be allowed to restart and whether civil enforcement proceedings are warranted.

(b) The material sought must be relevant to the purpose. The government has established a prima facie case that each of the respondents held a position at TMI-2, that each respondent either had some knowledge of leak rate tests or was responsible for conducting such tests prior to the 1979 accident and, therefore, may have information bearing on the Hartman allegations.

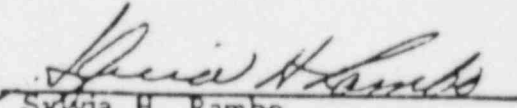
(c) The agency must establish that it does not presently possess the information it seeks. This court is satisfied that the earlier investigation was short-lived; that only seven (7) of the nineteen respondents were questioned and that this questioning was shallow because the Commission lacked more sophisticated information concerning hydrogen tests with which to make any in-depth questioning effective in its initial investigation.

(d) The procedure must be proper. This factor has been addressed earlier in this memo.

The respondents have argued that the subpoenas should not be enforced because the NRC already has the information it claims it needs. This matter has been addressed in the preceding paragraph designated (c).

The respondents finally argue that the subpoenas should not be enforced because they are issued in bad faith for political reasons. This argument is precipitated by a letter dated May 23 from Morris K. Udall, Chairman of the Committee on Interior and Insular Affairs. On April 11, 1983 the NRC had communicated with the Department of Justice seeking the Department's expeditious completion of its grand jury investigation in order that the NRC might pursue its investigation. It thus appears that the NRC's interest in pursuing its investigation occurred sometime prior to any alleged interference by Representative Udall. Furthermore, a review of Representative Udall's correspondence indicates that he was doing nothing more than attempting to clarify conflicting information received by his committee and expressing an interest that the investigation be thorough, a matter which was entirely within the prerogative of the committee charged with overseeing the operation.

This court is satisfied that the agency has a legitimate purpose for its investigation and that any theoretical or hypothetical allegation that these respondents may be the target of a grand jury inquiry must give way to the public interest in the legitimate inquiry to be pursued by the NRC.


Sylvia H. Rambo
United States District Judge

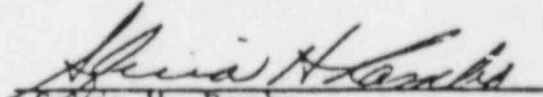
Dated: December 2, 1983

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA (NRC))
Petitioner)
v.) Civil Action No. 83-1536
JOHN J. BLESSING, et al.,)
Respondents)

ORDER

In accordance with the accompanying memorandum, IT IS HEREBY ORDERED THAT the respondents comply with the subpoenas issued by the NRC dated September 1 and 27 as they may be subsequently amended with regard to the return date.


Sylvia H. Rambo
United States District Judge

Dated: December 2, 1983

FILED
HARRISBURG, PA.

DEC 03 1983
DONALD R. BERRY, CLERK
PER.....
DEPUTY CLERK

EXHIBIT 9

LETTER FROM DOJ TO CHAIRMAN, NRC/12-14-83

Washington, D.C. 20530

November 14, 1983

Honorable Nunzio J. Palladino
Chairman, United States Nuclear
Regulatory Commission
Washington, D. C. 20555

Dear Chairman Palladino:

As you are aware, a federal grand jury in Harrisburg, Pennsylvania, recently returned an indictment charging the Metropolitan Edison Company with criminal misconduct arising out of its operation of Unit 2 of the Three Mile Island Nuclear Power Plant. The resulting trial is presently scheduled for January 3, 1984.

I am advised that your Commission is now conducting an administrative inquiry related to the Three Mile Island plant, which focuses in part on the operation of Unit 2. While parallel criminal and administrative proceedings can often proceed in harmony, the potential for conflicts increases as the criminal trial grows near.

Many of the witnesses being subpoenaed to testify in the NRC's inquiry are also scheduled to testify in the criminal case. As the trial approaches, counsel involved in that case will be seeking the cooperation of those witnesses in making themselves available for extensive pretrial interviews. The additional demands which will be placed on the witnesses, during this critical period, by the administrative inquiry have a potential for engendering frustration, confusion, and irritation which would be counterproductive to the fact-finding processes of both the administrative and judicial proceedings. It is also possible that your administrative inquiry could generate publicity that could inadvertently conflict with the defendants right to a fair trial.

No
No

The criminal trial may prove to be of substantial benefit to the NRC in the conduct of its administrative proceedings. The rules related to grand jury secrecy have precluded the Department from sharing with the NRC information developed during its investigation. However, much of that information

will become public during the trial. This may, in turn, aid the NRC in focusing and streamlining its administrative inquiry. Accordingly, the time lost to the NRC if it stays the administrative proceeding pending the outcome of the trial may prove to be more than offset by the benefit which the Commission derives from the trial.

Based on the foregoing considerations, it is requested that you stay further administrative proceedings related to the operation of TMI Unit 2 until the conclusion of the criminal trial. Any administrative inquiry which may exist related to the operation of Unit 1 need not be stayed.

Your prompt attention to this request is appreciated.

Sincerely,

/s/

D. LOWELL JENSEN
Associate Attorney General

EXHIBIT 10

SWORN STATEMENT OF HENRY KOHL/8-3-83

STATEMENT
(typed copy of original)

I, Henry M. Kohl, hereby make the following voluntary statement to R. K. Christopher and P. J. Connolly who has (sic) identified themselves to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator Christopher is writing this statement for me at my request.

I am currently an Auxilliary (sic) Operator A at TMI-2 and I have been in this position since Oct. 1978. I was primarily assigned to the D shift during the 1978 and 1979 time period.

I have never been directly involved in the performance of a RCS leak rate test during my employment at TMI. I have never been directed by a shift supervisor or licensed operator to add hydrogen or water to the make-up tank for the express purpose of affecting the leak rate test results. I have no knowledge as to whether or not TMI-2 supervisors or licensed operators were falsifying leak rate test results. Further, I am not aware of any management personnel who were aware of any practice of falsifying leak rate test data or any other records. During the 1978-79 time period I had no knowledge that the addition of hydrogen to the make-up tank would affect the tank level.

I have read the foregoing statement consisting of 2 handwritten pages. I have made and initialed any necessary corrections and have signed my name in ink in the margin of each page. This statement is the truth to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is true and correct. Executed on 8-3-83 at 07:30.

INTERVIEWEE: Original signed by Henry M. Kohl

Subscribed and sworn to before me this 3rd day of Aug, 1983,
at 0731.

INVESTIGATOR: Original signed by R. K. Christopher

EXHIBIT 11

SWORN STATEMENT OF WILLIAM WENTLING/8-3-83

STATEMENT
(typed copy of original)

I, William J. Wentling, hereby make the following voluntary statement to R. K. Christopher who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator Christopher is writing this statement for me at my request.

I am currently a CRO Trainee at TMI-2 and have been in this position for 13 months. Prior to this I was a Auxiliary Operator at Unit 2.

During 1978-1979 I did not directly participate in the performance of leak rate tests at Unit 2. Anytime that I made hydrogen additions to the make-up tank it was at the direction of a licensed operator. Any addition of hydrogen I made would have been done at the hydrogen manifold outside the make-up tank room. I never made any hydrogen additions unless I was told to do so by a licensed operator. I never knew when a leak rate test was being performed so if I added hydrogen to the make-up tank during a leak rate test it was without my knowledge. During the 1978-1979 time period I don't believe that I knew hydrogen affected the make-up tank level.

I have no knowledge regarding the licensed operators or shift supervisors intentionally falsifying leak rate test data by the addition of hydrogen or water to the make-up tank.

I have read the foregoing statement consisting of 2 handwritten pages. I have made and initialed any necessary corrections and have signed my name in ink in the margin of each page. This statement is the truth to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is true and correct. Executed on 8-3-83 at 0830.

INTERVIEWEE: Original signed by William J. Wentling

Subscribed and sworn to before me this 3rd day of Aug, 1983,
at 8:35 AM.

INVESTIGATOR: Original signed by R. K. Christopher.

EXHIBIT 12

SWORN STATEMENT OF RICHARD KLEINFELTER/8-3-83

Place: TMI-1

Date: 8-3-83

STATEMENT

(typed copy of original)

I, Richard G. Kleinfelter, hereby make the following voluntary statement to R. K. Christopher who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me.

I am an I&C first class Tech and have been in that position for three years. During the time of 1978 to 1979 time period I was an Aux operator "B" on "E" Shift. (Sup. B. Smith) (Foreman D. Hoyt) During the time frame of 1978 & 1979 I was never involved in a leak rate test. (sic)

I have on occasion added Hydrogen to the make-up tank and only under the directions of a licensed operator who were Ray Booker or Hal Hartman. The Shift Supervisors never told me to add Hydrogen. Since I never new (sic) they were doing leak rate testing I never new (sic) if I was adding Hydrogen when leak test was being performed at that time. I did not know Hydrogen effected the level. I have no knowledge that Hydrogen was added for the express purpose of affecting leak rate tests. And no knowledge that management was involved with leak rate testing.

With regards to any water additions I do not know if water was ever added to falsify leak rate tests, but licensed operators did know what additions were made to make-up tk. that computer could not see, through minimum "batch" sizes that comp. would not log. In other-words the operators on my shift new (sic) that by adding small amounts of water at a time the computer would not record these additions. This understanding comes from general discussions held in control room, and not from any specific knowledge of incidents.

I have read the foregoing statement consisting of 2 handwritten pages. I have made and initialed any necessary corrections and have signed my name in ink in the margin of each page. This statement is the truth to the best of my

knowledge and belief. I declare under penalty of perjury that the foregoing is true and correct. Executed on 8-3-83 at 0920.

INTERVIEWEE: Original signed by Richard G. Kleinfelter

Subscribed and sworn to before me this 3rd day of Aug, 1983 at 0922.

INVESTIGATOR: Original signed by R. K. Christopher

EXHIBIT 13

SWORN STATEMENT OF GEORGE CVIGIC/8-3-83

Place: JMI-11
Date: 8-3-83

STATEMENT
(typed copy of original)

I, George L. Cvigic, hereby make the following voluntary statement to Keith Christopher who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator Christopher is writing this statement for me at my request.

Presently I am a Control Room Operator Trainee (1-1-83). Prior to this position I was an aux. operator from 1977. I was never directly involved in the performance of a leak rate test and was unaware of the specific details in the performance of a leak rate calculation. There were on occasion, times when I added hydrogen to the make-up tank under the direction of a licensed control room operator or shift foreman, however, when done I didn't know that the hydrogen addition was done during a leak rate test. I had no knowledge that the hydrogen addition would affect the leak rate result. I did not know that the CRO's, S/F were directing this action to falsify leak rate results.

During the years 1978-79, I was unaware that hydrogen addition caused a rise in make-up tank level.

I was also unaware of any water additions to the make-up tank during leak rate tests that were not recorded in the in-plant during leak rate testing.

I was unaware of any supervisor's intent to falsify leak rate results.

I have read the foregoing statement consisting of two handwritten pages. I have made and initialed any necessary corrections and have signed my name in ink in the margin of each page. This statement is the truth to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is true and correct. Executed on 8-3-83 at 1005.

INTERVIEWEE: Original signed by George L. Cvigic

Subscribed and sworn to before me this 3rd day of Aug, 1983, at 10:06 AM.

INVESTIGATOR: Original signed by R. K. Christopher

EXHIBIT 14

SWORN STATEMENT OF J. K. LIONARONI/8-3-83

DATE: 8/3/83

STATEMENT
(typed copy of original)

I, J. K. Lionaroni, hereby make the following voluntary statement to R. K. Christopher who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator R. K. Christopher is writing this statement for me at my request.

As background I am currently a shift foreman at TMI Unit 2 and I have been in this position for approximately one year. Prior to this I was a CRO as of mid 1979. During the 1978-79 time period I was an "A" auxiliary operator.

During the time I was an AUX operator I did not get involved in the performance of leak rate tests and I did not know when the leak rate tests were being run on any one shift. There were times that I added hydrogen to the make-up tank as required but I don't recall if I made these additions on my own as a result of instrument readings or at the direction of a licensed operator. Since I did not know when the leak rate tests were run. I do not know if I ever added hydrogen during a leak rate test. I was never specifically instructed to add hydrogen to the make-up tank for the express purpose of affecting the leak rate test results. I am not aware if this was done or if it was condoned by management.

I am not aware of any unrecorded water additions to the make-up tank for the purpose of affecting the leak rate test result.

I have read the foregoing statement consisting of 2 handwritten pages. I have made and initialed any necessary corrections and have signed my name in ink in the margin of each page. This statement is the truth to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is true and correct. Executed on 8/3/83 at 1045.

INTERVIEWEE: Original signed by J. K. Lionaroni

Subscribed and sworn to before me this 3rd day of Aug, 1983,
at 10:46 AM.

INVESTIGATOR: Original signed by R. K. Christopher

EXHIBIT 15

SWORN STATEMENT OF JOSEPH STUPAK/8-3-83

Place: Middletown, PA
Date: August 03, 1983

STATEMENT
(typed copy of original)

I, Joseph Stupak, hereby make the following voluntary statement to Peter J. Connolly who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator Connolly is writing/typing this statement for me at my request.

I am presently an Auxiliary Operator (A.O.) at Unit I, Three Mile Island Nuclear Generating Station, Middletown, PA. I have been an a (sic) A.O. since 1975. I have worked as A.O. primarily at Unit I. I did work as an A.O. at Unit 2 for about six months prior to the accident at Unit 2 in March 1979.

I am not aware of any falsification of leak rate test. As an A.O. I was not involved in actually running leak rate test since that was the function of the CRO. I am aware that in the past I was routinely directed by CRO to add hydrogen to the makeup tank. The hydrogen was generally during the backshift from 2300 to 0700. I don't know why it was done more frequently during this time period. Generally it was the CRO who gave the directions. I was never directed nor did I out of my own volition added (sic) hydrogen to the makeup tank during a leak rate test for the express purpose of effecting the leak rate test results.

I am aware that hydrogen addition to the makeup tank effected the leak rate test.

I am not aware of water being added to the makeup tank without a corresponding computer input for the express purpose of the leak rate test.

I am not aware of any CRO's falsifying leak rate test. I am not aware of any supervisory personnel who directed or who were aware of either hydrogen or water additions being made to the makeup tank for the purposes of falsifying leak rate test results.

I have read the foregoing statement consisting of 2 handwritten/typed pages. I have made and initialed any necessary corrections and have signed my name in ink in the margin of each page. This statement is the truth to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is true and correct. Executed on 8-03-83 at 1034.

INTERVIEWEE: Original signed by Joseph Stupak

Subscribed and sworn to before me this 3rd day of August, 1983, at
Middletown, PA.

INVESTIGATOR: Original signed by Peter J. Connolly

EXHIBIT 16

SWORN STATEMENT OF EMBER A. CURRY/8-3-83

Date: August 3, 1983

STATEMENT
(typed copy of original)

I, Ember A. Gurry, hereby make the following voluntary statement to Peter J. Connolly who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator Connolly is writing this statement for me at my request.

I am present (sic) a shift Control Room Operator Foreman in training at Unit 2, Three Mile Island (TMI) Nuclear Generating Station, Middletown, Pa. I have been employed at TMI since 1974. I was an Auxiliary Operator at Unit 2 starting from the end of 1974 up to about a year after the March 1979 accident at B Shift. My Shift foreman was Bill Conaway and my Shift supervisor was Joe Chawastyk.

Mr. Connolly has questioned me concerning the falsification of leak rate tests at Unit 2 prior to the March 1979 accident. I am not aware of any falsification of leak rate tests at Unit 2. As an A.O. I was not involved in the process of actually running a leak rate test since that was primarily a CRO function. I do recall being directed by CRO's to add hydrogen to makeup tank while I was an A.O. I cannot recall any specific incidents since the procedure was routinely done. I cannot recall if a shift foreman or shift supervisor directed me to add hydrogen to makeup tank at any time.

I was never directed or out of my own volition added hydrogen to the makeup tank during a leak rate test for the express purpose of effecting the leak rate test results. At that time period I was not aware that hydrogen addition effected the leak rate test. I was also not aware of water being added to the makeup tank without a corresponding computer input for the express purpose of the leak rate test.

I am not aware of any CRO's falsifying leak rate tests. I am also unaware of any supervisory personnel who directed or who were aware of either Hydrogen or water additions being made to the makeup tank for the purpose of falsifying leak rate test results.

I have read the foregoing statement consisting of 2 handwritten pages. I have made and initialed any necessary corrections and have signed my name in ink in the margin of each page. This statement is the truth to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is true and correct. Executed on 3 Aug 83 at 0935.

INTERVIEWEE: Original signed by Ember A. Curry

Subscribed and sworn to before me this 3rd day of August, 1983, at Middletown, Pa.

INVESTIGATOR: Original signed by Peter J. Connolly

EXHIBIT 17

SWORN STATEMENT OF DAVID B. WILSON/8-3-83

August 22, 1983

STATEMENT
(typed copy of original)

I, David B. Wilson, hereby make the following voluntary statement to Peter J. Connolly who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator Connolly is writing/typing this statement for me at my request.

I am presently a licensed Control Room Operator (CRO) Unit 2, Three Mile Island Nuclear Generating Station, Middletown Pa. I have been licensed since approximately January 1983. I have been employed at TMI since April 1976. I was an auxiliary operator from Oct. 76 to early 1982 when I went into the CRO training program. As an auxiliary operator I took readings, operation & technical surveillances, checked operation of equipment.

Mr. Connolly has questioned me concerning the falsification of leak rate tests at unit 2 prior to the March 1979 accident at Unit 2. I am not aware of any falsification of leak rate tests during that time period. To the best of my knowledge I was not involved in the process of actually running a leak rate test during that time frame since it is a licensed CRO function. During the pre-accident period I was occasionally directed by a CRO to add hydrogen to the make up tank. Routinely it was a CRO who gave the direction. I cannot remember specifically a shift foreman or supervisor directing me to add hydrogen to make up tank. To my knowledge at the time the reason hydrogen was added to the make up tank was to stabilize pressure in the make up pumps and to control oxygen in the reactor coolant system. As far as I know I was never directed nor did I out of my own volition added (sic) hydrogen to the make up tank during a leak rate test for the purpose of effecting the leak rate test results.

During that time period I was not aware the hydrogen addition to the make up tank affected the leak rate test. I was not aware of water being added to the make up tank without a corresponding computer input for the express purpose of the leak rate test. I am not aware of any CRO's falsifying leak rate tests. I am also unaware of any supervisory personnel who directed or who were aware of either hydrogen or water additions being made to the make up tank for the purpose of falsifying leak rate test results.

During the pre-accident era I was assigned to C shift. My shift foreman was Charles Adams and shift supervisors were either Marshall Beers (phonetic spelling) or Brian Mehler (phonetic spelling).

I have read the foregoing statement consisting of 2 handwritten/typed pages. I have made and initialed any necessary corrections and have signed my name in ink in the margin of each page. This statement is the truth to the best of my knowledge and belief. I declare under penalty of perjury that the fore-

David ...

going is true and correct. Executed on 8-3-83 at 0903.

INTERVIEWEE: Original signed by D. Wilson

Subscribed and sworn to before me this 3rd day of August, 1983, at
Middletown, Pa.

INVESTIGATOR: Original signed by Peter J. Connolly

EXHIBIT 18

SWORN STATEMENT OF DENNIS A. BUCHTER/8-3-83

Place: Middletown, PA

Date: 08-03-83

STATEMENT

(typed copy of original)

I, Dennis A. Buchter, hereby make the following voluntary statement to Peter J. Connolly who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator Connolly is writing this statement for me at my request.

I am presently an Auxiliary Operator (AO) at Unit 2, Three Mile Island (TMI) Nuclear Generating Station, Middletown, PA. I have been a A.O. at TMI since 10/14/76. Prior to the March 1979 accident at Unit 2 I worked both at Unit 2 and Unit 1. At Unit 2 I was assigned to a shift. My shift foreman first Brian Mahler who was succeeded by Fred Sheiman, my shift supervisor was Bill Zewe. (sic)

I am not aware of any falsification of leak rate tests at either Unit 1 or Unit (2). As an A.O. I was not involved in the process of actually running a leak rate test since that was the responsibility of a control room operator. Prior to the accident I was routinely directed by CROs to add hydrogen to makeup tank (sic) I cannot recall any specific incidents or if any shift foreman or shift supervisor directed me to do the same. The reason that I understand for the addition of hydrogen to the makeup tank was to control oxygen in the makeup tank. I am aware that the addition of hydrogen effected the water level in the makeup tank. I am not aware if the addition of hydrogen to the makeup tank effected the leak rate test since I was not aware of when the leak rate test was performed. I was never directed nor did I out of my own volition added (sic) hydrogen to the makeup tank during a leak rate test for the express purpose of effecting the leak rate test results.

I am not aware of water being added to the makeup tank without a corresponding computer input for the express purpose of the leak rate test. I am not aware of any CROs falsifying leak rate tests. I am also unaware of any supervisory personnel who either directed or who were aware of either hydrogen or water additions being made to the makeup tank for the purpose of falsifying leak rate test results.

I have read the foregoing statement consisting of two handwritten/typed pages. I have made and initialed any necessary corrections and have signed my name in ink in the margin of each page. This statement is the truth to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is true and correct. Executed on Aug. 3, 1983 at 1005.

INTERVIEWEE: Original signed by Dennis A. Buchter

Subscribed and sworn to before me this 3rd day of August, 1983, at Middletown, PA.

INVESTIGATOR: Original signed by Peter J. Connolly

EXHIBIT 19

SWORN STATEMENT OF MICHAEL D. DENNY/8-3-83

STATEMENT
(typed copy of original)

I, Michael Demmy, hereby make the following voluntary statement to Peter J. Connolly who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator Connolly is writing this statement for me at my request.

I am presently an Auxillary (sic) Operator at Unit 2, Three Mile Island Nuclear Generating Station, Middletown Pa. I have been an auxillary (sic) operator at Unit 2 since October 1975. I have been employed with Metropolitan Edison since February 7, 1972. As an auxillary (sic) operator my responsibilities include taking instrument readings out of the control room, routine equipment inspections and surveillance.

Mr. Connolly has questioned me concerning the falsification of leak rate test at unit 2 specifically during the time frame of the initial startup of Unit 2 to the accident at Unit 2 in March 1979. I am not aware of any falsification of leak rate test. I was never involved in the process of actually running a leak rate to the best of my knowledge. I have in the past prior to the accident been directed by a Control Room Operator, to add hydrogen to the make up tank. I cannot recall specific incidents but I am quite sure that it normally was the CRO's who directed us to add hydrogen to make up tank. I don't know why the CRO's asked me to add hydrogen to make up tank.

I have never been directed or out of my own volition added hydrogen to the make up tank during a leak rate test for the purpose of effecting the leak rate test results. I do not know how the leak rate tests were conducted. To the best of my knowledge I was never knowingly involved in leak rate test since that was a CRO function.

During pre-accident period I was not aware that the addition of hydrogen effected the leak rate test. I was also not aware of water being added to the makeup tank without a corresponding computer input for the express purpose of the leak rate test. I am not aware of any CROs falsifying leak rate tests. I am also unaware of any supervisory personnel including shift foreman & supervisors who directed or were aware of either hydrogen or water additions being made to the makeup tank for the purpose of falsifying leak rate tests.

During the pre-accident period I was assigned to B Shift. My Shift foreman, was Carl Guthrie and my shift supervisor was Joe Chywastk (phonetic spelling).

I have read the foregoing statement consisting of two handwritten pages. I have initialed any necessary corrections and have signed my name in ink in the margin of each page. This statement is the truth to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is

true and correct. Executed on 8-3-83 at 0835.

INTERVIEWEE: Original signed by Michael D. Demmy.

Subscribed and sworn to before me this 3rd day of August, 1983, at
Middletown, Pa.

INVESTIGATOR: Original signed by P. J. Connolly

EXHIBIT 20

SWORN STATEMENT OF JEROME M. BOYD/8-3-83

Place: Middletown, PA

Date: 08-03-83

STATEMENT

(typed copy of original)

I, Jerome M. Boyd, hereby make the following voluntary statement to Peter J. Connolly who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator Connolly is writing this statement for me at my request.

I am presently Control Room Operator (CRO) in training Unit II, Three Mile Island (TMI) Nuclear Generating Station, Middletown, PA. I have been employed at TMI since January 3, 1977. I was an A.O. at Unit II until my present status as a CRO in training.

I have no information regarding falsification of leak rate tests at Unit II prior to the March 1979 accident. As an A.O. I was not involved in process of actually running a leak rate test since this was the responsibility of CRO. I do remember that I was routinely directed by CRO to add hydrogen to the makeup tank. I possibly received some directions from a shift supervisor and/or shift foreman but generally it was from the CRO. I never added hydrogen to the make up tank arbitrarily. I always added the hydrogen only after a direction from a CRO. To the best of my knowledge I was never directed nor did I out of my own volition added (sic) hydrogen to the make-up tank during a leak rate test for the express purpose of effecting the leak rate test results.

I am not aware that hydrogen addition to the make-up tank effects the leak rate test. I am not aware of water being added to the make up without a corresponding computer input for the express purpose of leak rate test. (sic)

I am not aware of any CRO, falsifying leak rate test data. I am not aware of any supervisory personnel who either directed or were aware of either hydrogen or water additions being made to the make up tank for the purpose of falsifying leak rate test results.

I have read the foregoing statement consisting of 2 handwritten/typed pages. I have made and initialed any necessary corrections and have signed my name in ink in the margin of each page. This statement is the truth to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is true and correct. Executed on 8-3-83 at 1550.

INTERVIEWEE: Original signed by Jerome M. Boyd

Subscribed and sworn to before me this 3rd day of August, 1983, at Middletown, PA.

INVESTIGATOR: Original signed by Peter J. Connolly

EXHIBIT 21

SWORN STATEMENT OF RANDY H. LIGHTNER/8-3-83

Place: TMI-1
Date: 8-3-83

STATEMENT
(typed copy of original)

I, Randy H. Lightner, hereby make the following voluntary statement to R. K. Christopher who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator Christopher is writing this statement for me at my request.

For information purposes I have been an Auxiliary Operator A at TMI-2 since October 1978. I originally began my employment at TMI in 1976. During this time I have never been directly involved in the performance of a leak rate test. I have on occasion (sic) added H₂ to the make-up tank. I only made these additions when instructed to do so by a licensed operator. I can't recall any specific operator instructing me to add hydrogen to the make-up tank. Since I never knew when the CRO's were running leak rate tests, I do not know if I ever made a hydrogen addition during the course of a leak rate test. At that time (1978-79) I did not know that H₂ affected the make-up tank level. I have no knowledge of any licened (sic) operator or operations supervisor intentionally falsifying leak rate tests through the addition of water or hydrogen to the make-up tank. I have no knowledge regarding any possible wrongdoing by TMI-2 employees or their management with respect to the conduct of leak rate test.

I have read the foregoing statement consisting of 2 handwritten/typed pages. I have made and initialed any necessary corrections and have signed my name in ink in the margin of each page. This statement is the truth to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is true and correct. Executed on 8-3-83 at 1530.

INTERVIEWEE: Original signed by Randy H. Lightner

Subscribed and sworn to before me this 3rd day of Aug, 1983, at 4:00 PM.

INVESTIGATOR: Original signed by R. K. Christopher.

EXHIBIT 22

REPORT OF INTERVIEW OF ROBERT EICH/8-25-83

REPORT OF INTERVIEW

Robert A. EICH, Computer Programmer, was interviewed by Investigator R. K. CHRISTOPHER on 8/25/83. He said he is currently responsible for maintaining the Generator Maintenance System Computer which is used for scheduling surveillances and maintaining maintenance histories. He explained that he had no contact or relationship with the personnel (and specifically William FELS) who maintained the plant Baily computer which is actually used to perform plant operations functions. EICH stated he had no knowledge relative to the performance of the leak rate test program and did not discuss any of the difficulties encountered in getting good leak rates with the computer programmers who maintained the Baily computer. EICH concluded that he had no knowledge of the alleged falsification of reactor coolant leak rate tests and was unable to provide any additional pertinent information.

EXHIBIT 23

SWORN STATEMENT OF WILLIAM D. HERMAN/8-17-83

Place: Middletown, PA

Date: 8/17/83

STATEMENT

(typed copy of original)

I, William D. Herman, hereby make the following voluntary statement to Peter J. Connolly who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator Connolly is writing this statement for me at my request.

I am presently in charge of onsite Data Processing Department at Units 1 at (sic) 2 at Three Mile Island Nuclear Generating Station (TMI) Middletown, PA. I have been employed at TMI since June 2, 1975. I am also the site analyst for Data processing and report to business information at Reading. Prior to the March 1979 accident at Unit 2 I was assigned to process computer group. That group was responsible for plant computers at Units 1 and 2. Even though I was assigned to this group my responsibilities lied entirely in data processing system of the corporate data processing system which the main frame is located in Reading. I was not involved in programming or maintenance of plant computers in Unit I or II.

Since I was not involved in plant computers in either Unit I or Unit II I have no information regarding leak rate tests. I do no (sic) know anything about false leak rate tests at either Units I or II. I have no knowledge if Control Room operators in either unit added unrecorded water additions or hydrogen to make-up tank in order to effect leak rate test. I am not aware of any supervisory personnel involved in additions of water or hydrogen to effect leak rate test. I am not aware of any bad leak rate test data being discarded, nor am I aware of any policy to round off leak rate test. I have no information regarding a request in either 1978 or 1979 to the Reading loadmaster to shut down Unit 2 because of excessive leak rates. I have no information regarding anyone discussing increasing tail pipe temperatures at Unit II. I don't

recall any discussions with Bill Fels regarding leak rate test program in Unit 2 plant computer.

I have read the foregoing statement consisting of 2 handwritten pages. I have made and initialed any necessary corrections and have signed my name in ink in the margin of each page. This statement is the truth to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is true and correct. Executed on 8/17/83 at 10:21.

INTERVIEWEE: Original signed by William Herman

Subscribed and sworn to before me this 17th day of August, 1983, at Middletown, PA.

INVESTIGATOR: Original signed by P. J. Connolly

EXHIBIT 24

SWORN STATEMENT OF RICHARD GEIGER/8-17-83

Place: TMI
Date: 8/17/83

STATEMENT
(typed copy of original)

I, Richard C. Geiger, hereby make the following voluntary statement to R. K. Christopher who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises or reward having been made to me. Investigator Christopher is writing this statement for me at my request.

As background information I have been employed at TMI for approximately 8 years. I am currently a Senior Engineer I in the Process Computer Dept. During the 1978-1979 time period I was primarily responsible for the hardware and software maintenance at the Unit 1 Barly 855 Process Computer. I did do some hardware maintenance at Unit 2 but never did any work in the actual programming of that computer. Bill Fels was primarily responsible for doing the programming of the Unit 2 computer.

With regards to the leak rate program at Unit 2 I was not aware that operators were adding hydrogen or water to the makeup tank in order to affect leak rates. I was not aware that Hy affected the makeup tank level and I have no knowledge as to whether or not any supervisory personnel were aware of this type of activity. I recall no discussions with Bill Fels regarding problems with the Unit 2 leak rate program.

I am not aware of the rationale for accepting negative leak rates at Unit 2 but I have seen negative leak rates at Unit 1 although I do not know if they have been accepted or not. Neither was I aware of a policy of rounding off leak rate test results at Unit 2 in order to get good leak rates.

I do not know what the policy was at Unit 2 for maintaing leak rate test records and I was not aware of the fact that the Unit 2 operators were throwing away bad leak rate test results.

Finally, I am not aware of any request being made to the load dispatcher in Reading to shut down in order to correct excessive valve leakage.

I have read the foregoing statement consisting of 2 handwritten pages. I have made and initialed any necessary corrections and have signed my name in ink in the margin of each page. I declare that the foregoing statement is true and correct. Signed on 8/17/83 at 9:25.

SIGNATURE: Original signed by Richard C. Geiger
WITNESS: Original signed by R. K. Christopher 8/17/83
TITLE: Director, OI:RI

EXHIBIT 25

SWORN TESTIMONY OF WILLIAM FELS/3-26-84

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

In the matter of:

**Investigative Interview of
WILLIAM J. FELS**

Docket No.

Location: Middletown, Pennsylvania Pages: 1 - 39

Date: Monday, March 26, 1984

TAYLOR ASSOCIATES

**Court Reporters
1625 I Street, N.W. Suite 1004
Washington, D.C. 20006
(202) 293-3950**

1 UNITED STATES OF AMERICA

2 NUCLEAR REGULATORY COMMISSION

3 -----x
4 In the Matter of: x
5 Investigative Interview of x
6 WILLIAM J. FELS x
7 -----x

8 Processing Center
9 General Conference Room
10 Three Mile Island 1
11 Middletown, Pennsylvania

12 Monday, March 26, 1984

13 The above-entitled interview commenced
14 at 11:00 a.m. pursuant to notice.

15 BEFORE:

16 PETER J. CONNOLLY, Investigator
17 BARRY R. LETZ, Investigator
18 U.S. Nuclear Regulatory Commission
19 631 Park Avenue
20 King of Prussia, Pennsylvania 19406

21 APPEARANCES:

22 JAMES G. PENNY, Esquire
23 Killian & Gephart
24 20-218 Pine Street
25 P.O. Box 384
Harrisburg, Pennsylvania 17107
(For Mr. Fels)

HARRY H. VOIGT, Esquire
LeBoeuf, Lamb, Leiby & MacRae
1333 New Hampshire Avenue, N.W.
Washington, D.C. 20036
(For Mr. Fels)

P R O C E E D I N G S

1
2 MR. CONNOLLY: For the record, my name is Peter J.
3 Connolly. My associate is Barry Letz. We are Investigators
4 with the Nuclear Regulatory Commission on this investigation.

5 Today we are interviewing Mr. William Fels at the
6 Processing Center, General Conference Room, at TMI-1.

7 Present, also, is Mr. Fels' attorneys, Jane Penny and
8 Harry Voigt.

9 Bill, before we begin our questioning, Mr. Letz would
10 like to place you under oath at this time.

11 Whereupon,

12 WILLIAM J. FELS

13 having been duly sworn, testified as follows:

14 DIRECT EXAMINATION

15 BY MR. LETZ:

16 Q State your full name.

17 A William J. Fels.

18 Q Spell your last name.

19 A F-e-l-s.

20 Q And your address?

21 A 1325 Rhoda Avenue, R.D. 2, Mt. Joy, Pennsylvania.

22 Q And your Zip Code?

23 A 17552.

24 Q Before we continue, will you please take a moment
25 to read 18 USC 1001, General Misstatements, this right here?

1 (Document handed to witness.)

2 A Is this dealing with departmental agencies or
3 just dealing with individuals?

4 MS. PENNY: Both.

5 BY MR. LETZ:

6 Q Any other questions?

7 A No.

8 Q By whom are you currently employed?

9 A GPU Nuclear Corporation.

10 Q In what capacity?

11 A Engineer Senior 1.

12 Q How long have you been so employed?

13 A Since GPU Nuclear was formed; I have worked here
14 since 1976, but it has been Met-Ed, GPU Service Corporation
15 and then GPU Nuclear.

16 Q Will you please recount your employment history
17 with GPU and Met-Ed as far as times and the positions you
18 have held?

19 A I started in 1976, January of 1976, as an Engineer 1
20 with Met-Ed. Sometime during 1979, my employment was
21 transferred to GPU Service Corp. In the fall of 1979, I was
22 promoted to Engineer Senior 1.

23 I believe early in 1983, or late 1982, whenever GPU
24 Nuclear was formed, I worked for them since they were formed.

25 Q In the same capacity as Senior Engineer 1?

1 A Yes.

2 BY MR. CONNOLLY:

3 Q This whole time you have been on Three Mile Island,
4 is that correct?

5 A Yes.

6 BY MR. LETZ:

7 Q During the time period April 1, 1978 through
8 March 29, 1979, in what capacity were you serving?

9 A Basically, at that time I was an Engineer 3, and
10 my primary duties at that time were startup and checkout of
11 the Unit 2 computer system.

12 Q That was the Unit 2 system?

13 A Yes.

14 Q Did you have any dealings during that time period
15 with the Unit 1?

16 A No.

17 BY MR. CONNOLLY:

18 Q Prior to that time period, did you have any
19 relationship with the Unit 1 system?

20 A No.

21 Q So, from 1976 up to the accident time period, you
22 dealt strictly with Unit 2?

23 A Yes, sir.

24 Q Was there anyone at Unit 1 who had similar
25 responsibilities?

1 A When I first came here, there were, I believe,
2 two people from the Service Corporation, and one person that
3 worked with Met-Ed that had most of the responsibilities and
4 duties similar to mine in the Unit 1 system.

5 Q Do you remember who they were?

6 A Yes. A fellow by the name of Bob Sheng, I believe.

7 Q Yes?

8 A And Bob Washick. They both worked for GPU Service
9 Corp. at the time.

10 Q We have talked to Bob Washick. I believe Bob
11 Sheng is no longer working here, is that correct?

12 A That's correct, and Richard Geiger worked for
13 Met-Ed.

14 Q Is Mr. Geiger still working here?

15 A Yes.

16 Q What were their responsibilities with regard to
17 Unit 1 computer system?

18 A Basically startup, maintenance, changes, that
19 type of thing.

20 Q Did you have any discussions with those individuals
21 regarding specific problems with the Unit 1 computer system,
22 either the software or the hardware?

23 A I don't recall any specific discussions. I guess,
24 generally speaking, the two systems were similar but were
25 different from the hardware standpoint. The Unit 2 computer

1 was the next model up on the same series.

2 Q The purpose of our investigation is we are looking
3 into the Unit 1 suspect falsification of leak rates at Unit 1.
4 That is the principal focus of this investigation. Primarily,
5 our questioning will be focusing on Unit 1. There might be
6 some carryover to Unit 2 more or less as an attempt to find
7 out if similar incidents were occurring at Unit 1.

8 Could you elaborate on your responsibilities with regard
9 to the Unit 2 computer hardware and software?

10 A Basically, as the plant was being constructed and
11 cables and field inputs were being added to the computer,
12 one of my responsibilities was to verify that the input from
13 the field transmitter was, in fact, connected to the proper
14 place on the computer.

15 The computer did, in fact, give the correct engineering
16 value to the operator based on how the transmitter was
17 calibrated in the field. That included both analog and digital
18 points.

19 Programs that were in use and required in Unit 1 that
20 were on Unit 1 were transported to Unit 2. Any changes needed
21 to those programs to run on the Unit 2 computer system were
22 made then.

23 I guess that is basically it. That covers an awful lot
24 of work.

25 Q Did you develop the computer programs for, say, such

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as the leak rate surveillance program?

A Which unit?

Q Unit 2?

A It was developed in Unit 1. I didn't develop it. I installed and made it work on Unit 2, yes.

Q But were you in the development phase of the development of the program for Unit 2?

A No. That was before I even came here.

Q Do you know who would have done that?

A Well, there was no real development done for Unit 2. The program essentially was carried from Unit 1 to Unit 2. Then the only changes that were required were to meet the line numbers in the Unit 2 procedure.

And the section that goes out to get the inputs, the Unit 2 computer stored those values in different locations. So, those were the kinds of changes that had to be made. But that was it, the development work, so to speak.

Q Were there any specific problems with the computer program with regard to RCS leakage at Unit 2?

A How do you mean, specific problems?

Q For example, operators experiencing extraordinary amount of negative leak rates?

A I don't recall them experiencing extraordinary amounts of negative leak rates.

1 I recall a given problem with large negative numbers,
2 but that had nothing to do with an actual computer problem
3 that we discovered and fixed.

4 Other than that, I don't know anything about numbers
5 because I never kept track of them.

6 Q But do you know if they had a similar problem that
7 needed addressing at Unit 1?

8 A No.

9 Q In regards to leak rate tests, what were your
10 responsibilities? Specifically, we are talking about RCS
11 leakage.

12 A In Unit 1?

13 Q Yes.

14 A None.

15 Q Unit 2?

16 A Strictly had the program in the machine for them
17 to use.

18 Q At Unit 2, were you aware that they were experiencing
19 problems with RCS leakage?

20 A What type of problems?

21 Q With leakage exceeding the tech specs.

22 A No. I never reviewed the results. Okay?

23 I merely put the computer program in. There was a problem at
24 one time with, I think, how they were entering the numbers.
25 So, like I would make a modification to output or a warning on

1 the header of the printouts so that the operator would be
2 more aware of how the computer expected it to be entered.
3 But other than that, no.

4 Q Are you aware of any problems that they were
5 experiencing possibly at Unit 1 with regards to leakage?

6 A No.

7 Q Under your responsibility, would you be a member
8 of the PORC or the POD?

9 A Unit 1?

10 Q Yes.

11 A No.

12 Q How about Unit 2?

13 A I was a substitute/alternate member for some period
14 of time at Unit 2, yes.

15 Q Do you remember any discussions in that time as
16 a position regarding problems with the Unit 2 RCS leakage?

17 A I can't say specifically that I remember those
18 discussions in PORC.

19 Q As a development over the years since the
20 accident, has there been any discussions regarding the
21 computer program itself with regards to RCS leakage?

22 A You mean since the accident?

23 Q Since the accident.

24 A Oh, yes, there was a lot of discussion since then.

25 Q Have discrepancies been found in the program?

1 A I haven't been intimately involved with most of
2 the work done on it, but a lot of it has been done within
3 my department.

4 To the best of my knowledge, I don't think I would call
5 it discrepancies as much as not carrying out the correct
6 accuracies and so forth.

7 From the standpoint of an example, if you multiply a
8 number by 10,000 or 20,000, carrying it out to one decimal
9 place, it doesn't provide much accuracy, that kind of thing.
10 But no places where you should subtract instead of add or
11 something like that, no major problems that I am aware of.

12 Q And the same question with regard to Unit 1: are
13 you aware of any analysis of Unit 1 program post-accident?

14 A Only from the standpoint that I know that somebody
15 in our department had done some, yes.

16 Q Who is your current supervisor?

17 A Bob Washick.

18 Q Bob Washick?

19 A Yes.

20 Q And in the pre-accident period, who was your
21 immediate supervisor?

22 A Wayne Harris.

23 Q Wayne Harris?

24 A Yes.

25 Q H-a-r-r-i-s?

1 A Yes.

2 Q Is he still employed?

3 A No.

4 Q When did he leave?

5 A I believe the fall of 1979 or the first quarter
6 of 1980.

7 Q Do you know who he is currently employed with?

8 A Key Systems.

9 Q Do you know where they are headquartered?

10 A Virginia.

11 Q As your supervisor, what would have been his
12 responsibilities?

13 A To direct any new work or problems that were
14 brought up to him by upper management, either install something
15 new, changing something old, correct a major hardware problem,
16 that kind of thing.

17 Q Am I safe in summarizing what you have told me
18 that, primarily, your focus in the pre-accident period was
19 with hardware, is that correct?

20 A Yes.

21 Q You weren't on the software side developing
22 computer programs or something, is that correct?

23 A No, but only because there wasn't any development
24 needed.

25 Q What was the difference between the Unit 1 program

1 and the Unit 2 program with regard to the leak rate
2 surveillance procedure?

3 A The only differences that I am aware of was that
4 there was a section in Unit 1's program that dealt with
5 evaporative losses that was not in Unit 2 procedure and,
6 therefore, was not in the Unit 2 program.

7 Q Yes?

8 A The only other differences was, as mentioned
9 before, the values for various plant parameters were stored
10 in different memory locations in Unit 1 and Unit 2.

11 So, I did a cross-correlation between the memory
12 locations and made them correct for the same value in Unit 2.

13 Q Who would have adapted the program of Unit 1 for
14 Unit 2?

15 A I did, basically. That is what I said before.

16 Q And could you explain to me how you did that
17 physically?

18 A I was handed a tape containing the source for the
19 Unit 1 program.

20 Q Yes?

21 A And I took it to Unit 2 and put it in the system,
22 made the modifications necessary to make it agree line for line
23 with Unit 2's surveillance procedure, changed the memory
24 locations that I mentioned and changed the title to say Unit 2
25 instead of Unit 1, that type of thing.

1 Q Would there have been anyone overseeing what
2 you were doing with regard to this particular program for
3 Unit 2?

4 A No, other than the people doing the surveillance
5 testing.

6 Q Mr. Harris?

7 A No.

8 Q Wayne Harris wouldn't have supervised directly
9 the adapting of this program for Unit 2?

10 A No. I was the senior person at the time, and
11 you don't have a day-to-day supervision like that.

12 Q With regards to RCS leakage, did you have any
13 responsibilities outside of the computer program for RCS
14 leak rates surveillance procedures?

15 A What type?

16 Q Did you have direct control responsibilities?

17 A No.

18 Q Did you ever run a leak rate surveillance test?

19 A Only test cases.

20 Q How was a leak rate surveillance test run at that
21 time?

22 A Unit 1 or Unit 2?

23 Q Unit 2.

24 A Basically, the operator just typed in RCSL.

25 Q And at Unit 1?

1 A The same thing as far as I know.

2 Q Was there a specific time requirement how often
3 they had to run a test?

4 A Which unit?

5 Q Unit 2.

6 A Unit 2, they ran the test, I think, once a shift.
7 The surveillance requirement was 72 hours, I believe.

8 Q And the same with regard to Unit 1?

9 A I don't know. I am not familiar with the tech
10 specs or the opts procedures in Unit 1.

11 Q Did the operators at Unit 2 experience problems
12 obtaining satisfactory leak rates?

13 A At the time, I can't say that I could say, yes, they
14 did. Obviously, with all the investigations that have gone
15 on, people said they did.

16 Q But firsthand knowledge, were you aware of it?

17 A No.

18 Q I know you had very limited dealings with Unit 1.
19 Are you aware of problems with Unit 1 operators obtaining
20 satisfactory leak rates?

21 A No.

22 Q How long would a leak rate test run for?

23 A One to eight hours if what the program would
24 accept. Typically, I think Unit 2, one hour.

25 Q Do you know how long it was at Unit 1?

1 A No.

2 Q Do you know if all surveillance tests, including

3 RCS leak rate surveillance tests, were required to be recorded

4 in the CRO log book?

5 A No.

6 Q Could you describe to me what your relationship

7 was with the Operations Department at Unit 2 at this time

8 period?

9 A Basically, helpful from the standpoint of them

10 utilizing the computer.

11 Q Did you have daily contact with them?

12 A Yes.

13 Q Who in Operations would you have the most contact

14 with on a daily basis?

15 A CROs, shift supervisors.

16 Q Would you have contact with also the Supervisor of

17 Operations?

18 A Yes.

19 Q That would have been Jim Floyd, at that time, is

20 that correct?

21 A Yes.

22 Q Did you have any contacts with Mike Ross, the

23 Unit 1 Supervisor of Operations?

24 A No.

25 Q Do you know if Mike Ross had any involvement in the

1 Unit 2 leak rate program?

2 A Not that I am aware of.

3 Q You are not aware of any discussions with Mike
4 Ross about the Unit 2 leak rate computer program?

5 A No.

6 Q Have you had discussions with Mike Ross regarding
7 problems that might have been experienced at Unit 1 with regard
8 to the leak rate program?

9 A Not that I am aware of.

10 Q Did you know if operators were throwing away what
11 they deemed to be invalid leak rate tests?

12 A Unit 1 or Unit 2?

13 Q Unit 2.

14 A After the fact, yes.

15 Q Before the fact, in the pre-accident period?

16 A No.

17 Q Had you become aware that they were discarding
18 tests in Unit 2?

19 A I believe it was an NRC investigation afterwards.
20 I talked to somebody about a month or two after the accident
21 with the NRC.

22 Q Do you know if a similar practice was occurring at
23 Unit 1?

24 A No, I am not aware of that.

25 Q Did you personally have any responsibility with

1 regard to the individual tests run by operators?

2 A None.

3 Q You were not in an oversight position?

4 A No.

5 Q And did you know the requirement that either
6 allowed or prohibited operators from throwing away invalid
7 surveillance tests?

8 A Not at the time, no. It wasn't part of my function
9 to really even consider that, and it wasn't brought up to me
10 until afterwards. What I thought about it was kind of
11 immaterial at the time, I guess.

12 Q Would you have been responsible for reviewing
13 operator control room log books?

14 A No.

15 Q You maintained a log book for the computer, is
16 that correct?

17 A I tried to, yes.

18 Q And in that log book, what kind of entries would
19 you make?

20 A If I made a change to any of the computer software,
21 I would typically make an entry and date it as to why the
22 change was made.

23 Q Yes?

24 A The computer technicians, or technician, when they
25 made changes or repaired the hardware, they were supposed to

1 make entries.

2 Q And, of course, as you indicated before in your
3 testimony, you dealt primarily with Unit 2 and did not deal
4 with Unit 1, is that correct?

5 A That is true.

6 Q And it would have been Mr. Washick or Mr. Sheng
7 that would have had similar responsibilities with regard to
8 Unit 1, is that correct?

9 A Or Mr. Geiger, also.

10 Q Or Mr. Geiger.

11 A Probably more so on a daily basis.

12 Q Mr. Geiger would have it on a daily basis?

13 A Yes.

14 Q What is his current position, Mr. Geiger?

15 A Engineer Senior 1, also.

16 Q You don't recall any discussions with anybody from
17 the Operations Department regarding problems with the leak
18 rate surveillance program at Unit 2?

19 A Yes, I recall discussions with both Jim Floyd and
20 some of the people from the mechanical department when we
21 started to make changes in the program.

22 Q What kind of problems surfaced that required
23 attention?

24 A The major problem that surfaced was what the office
25 people felt were just couldn't possibly be the right answers.

1 That is where we discovered the one problem with one of the
2 software routines that did a subtract or something like that.
3 They had a problem with subtracting zero. I don't recall
4 exactly the details or when it was, but sometime previous.
5 I think it was in 1978 sometime.

6 Q Would it have been before the plant went commercial?

7 A Yes, definitely.

8 Q Has anyone expressed to you the reason why invalid
9 tests were thrown away was to ensure that the NRC would not
10 see them?

11 A No.

12 Q Do you know if there was any kind of ulterior
13 motives in throwing away the tests?

14 A Not that I was aware of.

15 Q Of course, you indicated before that in the
16 pre-accident period you were not aware of operators throwing
17 away invalid leak tests?

18 A No.

19 Q Since then and the post-accident period, had you
20 become aware of what level of management was involved in the
21 decision process to throw away invalid tests?

22 A Not by personal experience. By newspaper articles,
23 you know, things like that I have heard of it.

24 Q Have you had any discussions with your counterparts
25 in Unit 1 in regard to Unit 1 operators throwing away leak

1 rate tests?

2 A No. We essentially don't have counterparts right
3 now. We are a corporate department to deal with both units.
4 Basically, we deal only with Unit 1 right now.

5 Q Were you aware of negative leak rates being
6 obtained?

7 A Yes.

8 Q What was the cause for the negative leak rates
9 being obtained?

10 A I would imagine either erroneous level readings,
11 adding water. A negative number out there indicates you made
12 water somehow.

13 Q Did the problem lie with the computer program?

14 A I don't believe it did. One of the things that
15 was discussed -- are we talking Unit 1 or Unit 2?

16 Q Unit 2. Excuse me.

17 A All right. One of the things that was discussed
18 was perhaps a more accurate way of dealing with what volume
19 changes would be to go through all mass calculations for every
20 addition, deletion, tag to make it more correct. Those changes
21 were in progress prior to the accident.

22 Q In the post-accident period, you indicate now
23 primarily your focus isn't with Unit 1?

24 A That's correct.

25 Q Are you aware of problems with negative leak rates

1 in the Unit 1 leak rate surveillance program?

2 A No. I was just about totally unaware of anything
3 going on at Unit 1.

4 Q And, again, in the post-accident, since you are
5 dealing with Unit 1 primarily now, has it come to your
6 attention any problems that might be experienced with the
7 Unit 1 computer program with regards to leak rates in the
8 pre-accident period?

9 A Not other than knowing that there are some people
10 in my department working on leak rates, but I have no direct
11 involvement in that.

12 Q Have you worked at all on leak rates in the Unit 1
13 program?

14 A No.

15 Q What are your primary responsibilities with regard
16 to the Unit 1 computer right now?

17 A Data acquisition, system performance, system
18 performance problems, system performance measurements, the
19 link program. We have a program that runs between the new
20 computer and the old computer that brings values across, memory
21 to memory link, verifying that the new computer and the old
22 computer both display the same data, that type of thing.

23 Q In the pre-accident period, are you aware of any
24 incidents at Unit 2 when a shift supervisor requested to shut
25 down the plant in order to repair excessive leakage and that

1 request being denied?

2 A No.

3 Q Do you know if at Unit 2 in the pre-accident period
4 they were experiencing problems with excessive leakage, that
5 is leakage either exceeding or just about meeting the limit
6 of the tech specs?

7 A Not really, because I didn't at the printouts.
8 When the operators got them, I usually had to wait to do my
9 work until they got done.

10 Q Has it come to your attention of any problems
11 with excessive leakage at Unit 1 in the pre-accident period?

12 A No, no.

13 Q Are you aware of any incidents at Unit 2 where an
14 operator either added water to the makeup tank during leak
15 rate tests not recording that in the control room log book and
16 still the test being accepted?

17 A No.

18 Q Are you aware of the conditions that would
19 invalidate a leak rate test?

20 A The only conditions that I was aware of at the
21 time was that if they didn't get a valid leak rate test, it
22 was because the plant was not stable enough at the time, and
23 they would typically rerun it.

24 Q Are you aware of any prohibitions in the leak rate
25 surveillance procedure, itself, that if an operator did, it

1 would invalidate the program?

2 A Not specifically, no.

3 Q Were you aware or familiar with the leak rate
4 surveillance procedure for Unit 2?

5 A Yes.

6 Q And how about the leak rate surveillance procedure
7 for Unit 1?

8 A No.

9 Q With regard to your familiarity with the leak rate
10 surveillance procedure, what was that? Did you refer to that
11 daily?

12 A No, I only referred to it to make the Unit 2
13 program reflect line for line, calculation for calculation,
14 what was done in the procedure in black and white.

15 Q Did you know if anyone at Unit 2 attributed
16 problems with the leak rate tests to the computer program?

17 A Not that I was aware of, that they didn't make me
18 aware of.

19 Q In the same light, do you know if anyone at Unit 1
20 attributed problems with leak rate tests in Unit 1 with the
21 computer program?

22 A No.

23 Q Are you aware of any instance where an operator
24 deliberately added water to the makeup tank during the leak
25 rate test to affect the leak rate test?

1 A No.

2 Q At Unit 2 or at Unit 1?

3 A I didn't hear about that until after the fact.

4 Q Has anyone admitted to you that they know of
5 someone who might have?

6 A No.

7 Q Or that they, themselves, did it?

8 A No.

9 Q In the same regard as to hydrogen additions. There
10 are legitimate reasons, of course, to add hydrogen and water,
11 but are you aware of any instances that an operator deliberately
12 added hydrogen to affect the leak rate tests?

13 A No.

14 Q Do you understand how an additional hydrogen
15 content would affect the leak rate tests?

16 A It has been explained to me recently.

17 Q If you will explain to me what you know about the
18 effect.

19 A Well, I guess, it changes the level in the tank
20 and the density, and that reflects back into the calculations.

21 Q Do you know if it also existed at Unit 1?

22 A No.

23 Q Are you aware of the existence of a loop seal that
24 might have been the fundamental reason for the effect?

25 A No.

1 Q Either Unit 2 or Unit 1 in the makeup tank
2 instrumentation system?

3 A No, I don't even understand the term, "loop seal."

4 Q Was there any discussions, do you know, with
5 operators in the pre-accident period indicating that they were
6 aware that the hydrogen would affect the leak rate tests?

7 A Not to my knowledge.

8 Q Are you aware of any operator, either at Unit 1 or
9 Unit 2, deliberately adding hydrogen in order to affect the
10 leak rate tests?

11 A No.

12 Q Do you know how hydrogen was added to the makeup
13 tank?

14 A No.

15 Q The addition of hydrogen, that would have been
16 an operation procedure; correct?

17 A I would imagine, yes.

18 Q That would have been performed by an operator in
19 the control room?

20 A I would think so, yes, if that is where they added
21 it; but I don't know if they added it in the control room or
22 outside the plant or where.

23 Q If an operator did add hydrogen during the leak
24 rate test, would that have invalidated the leak rate test?

25 A I really don't know.

1 Q The same with regard to the water?

2 A I would imagine water would if it wasn't accounted
3 for. The program asks questions about whether they added
4 water to the drain tank and stuff like that.

5 Q Did the program ask questions whether or not they
6 added hydrogen to the drain tank?

7 A No.

8 Q Was there any reason why it didn't?

9 A I really don't know. Well, it wasn't in the
10 surveillance procedure. That is why it wasn't in the program.

11 Q Do you know if it is in the current surveillance
12 procedure?

13 A I really don't know.

14 Q Again, as you said before, you are not involved
15 with the leak rate program at Unit 1 currently, is that correct?

16 A That's true.

17 Q Are you aware of any supervisory personnel that
18 might have known that deceitful practices were occurring at
19 Unit 1 or Unit 2 with regard to leak rate tests?

20 A No.

21 Q Of course, by your previous answers, you, yourself,
22 are not aware of deceitful practices occurring with regard to
23 leak rate tests?

24 A No.

25 Q Either in Unit 1 or Unit 2?

1 A That's correct.

2 Q Do you know if operators were pressured in such a
3 way by management to obtain good leak rate tests which would
4 force them to cheat on tests?

5 A Unit 1 or Unit 2 or both?

6 Q Both.

7 A Not to my knowledge, no.

8 Q Do you know if operators were directed to
9 manipulate tests by managing personnel by either the additions
10 of hydrogen or water?

11 A Not to my knowledge.

12 Q Are you aware of any operators jogging water into
13 the makeup tank during the leak rate tests? By "jogging," I
14 mean adding small increments of water during the test.

15 A Not to my knowledge.

16 Q Did you review the strip charts, the makeup tank
17 strip charts?

18 A No.

19 Q Whose responsibility would that have been?

20 A I would imagine Operations.

21 Q The strip charts, do they have anything to do with
22 the computer program at all?

23 A No. They were an instrument probably in the loop
24 that provided the indication to the computer, also.

25 Q But you had no kind of technical responsibility in

1 reviewing the strip charts system?

2 A No.

3 Q Did you ever have any discussion in the pre-accident
4 period with operators at the Unit 2 regarding the effect of
5 hydrogen on the makeup tank level?

6 A No.

7 Q You indicated before by your testimony you only
8 became recently aware of the effect of hydrogen on the
9 makeup tank level, is that correct?

10 A Yes.

11 Q And do you remember chronologically when that
12 would have occurred?

13 A I guess it would have been sometime after some
14 of the investigations started that somebody asked the question,
15 and that is the first I heard about it.

16 Q And you understand the technical reason why hydrogen
17 would affect the level?

18 A In very, very basic terms, yes. I am not a
19 thermohydraulic person. A layman's explanation is about all
20 I understand.

21 Q Are you aware of any other method that an operator
22 might have used to affect or to obtain good leak rates other
23 than hydrogen or water additions?

24 A No.

25 Q The question with regard to feed and bleed, if an

1 operator performed the feed and bleed operation during a leak
2 rate test, would that have invalidated the leak rate test?

3 A I really don't know.

4 Q Do you know if any operators perform feed and bleed
5 operations during leak rate tests?

6 A Not to my knowledge. In Unit 2, the time I spent
7 up there, it seemed to me that the norm was that everybody tried
8 to sit down and not touch anything. That is, you know, for
9 as much time they spend in the control room. That is pretty
10 much what I observed.

11 Q Did you actually see operators perform leak rate
12 tests when the plant went commercial? Did you observe them
13 perform the leak rate tests?

14 A Yes.

15 Q In the computer?

16 A Yes.

17 Q And, again, more or less they would make the
18 computer entry and the computer would do all the work?

19 A That is essentially true.

20 Q You are not aware of operators in this pre-accident
21 period throwing away the leak rate tests?

22 A No.

23 Q It is only after the accident that you became
24 aware of this practice?

25 A Yes.

1 Q Through reading the media and so on?

2 A Yes.

3 Q Does any operator discuss with you the reasons
4 why they throw away the tests?

5 A No.

6 Q Do you have any information at all regarding
7 the falsification of leak rates at either Units 1 or 2 in the
8 pre-accident period?

9 A No.

10 Q Are you aware of any operator who might have been
11 involved in the falsification of leak rate tests of either
12 units?

13 A No.

14 Q Has anyone admitted to you that they know of
15 someone who might have had knowledge of the falsification
16 of leak rates at either unit, that is Unit 1 or Unit 2?

17 A No.

18 Q Again, just for the record, could you compare the
19 difference between the leak rate program at Unit 1 and the
20 leak rate program at Unit 2 in the pre-accident period?

21 A Basically, as I said before, the only differences
22 that I was aware of was the Unit 1s had an evaporative loss
23 term in it that was not in Unit 2s. The procedure line by
24 line numbers were not the same.

25 The core memory locations for a given process out in the

1 plant, such as hot leg temperature, might have been stored
2 in a different location. That kind of thing was changed.
3 Other than that, I am not aware of any other differences.

4 Q Whose decision would it have been not to include
5 the evaporative losses in the Unit 2 program?

6 A Whoever wrote the Unit 2 surveillance procedure,
7 I guess.

8 Q You were not involved, yourself, in writing the
9 leak rate surveillance procedure for Unit 2?

10 A No.

11 Q What you did was adapted that procedure to the
12 computer?

13 A I adapted the program to the procedure.

14 Q But you had no input on what went in, originally,
15 in the procedure?

16 A No.

17 Q You, of course, had input on what went into the
18 computer?

19 A Yes.

20 Q Did you change anything that was in the original
21 procedure as before it went into the computer program?

22 A I am not sure I understand your question.

23 Q In the original surveillance procedure for Unit 2 --

24 A Okay.

25 Q Before it was entered into the computer 2 program,

1 were there any alterations to that procedure?

2 A Not that I am aware of.

3 Q If there were alterations to be made to that
4 procedure prior to going into the program, would that have
5 been your responsibility to make those alterations?

6 A Only to the program. As an example, being the
7 changes that were in process in the quarter or 46 months prior
8 to the accident, if there was a TCN or a PCR generated by
9 the people who were cognizant of the procedure, then I would
10 get that information and be requested to make the program
11 equal to the procedure.

12 Q But you would only make an alteration from the
13 direction of someone else, is that correct?

14 A That's correct.

15 Q You wouldn't make it on your own?

16 A No.

17 Q Who would have been the individual or individuals
18 that would have given you direction to make the alterations?

19 A Typically, the technical director, the person who
20 oversees all of the engineering groups in PORC.

21 Q Do you remember who that was in the pre-accident
22 period?

23 A I believe it was Jim Seelinger. Yes, I think it
24 was Jim Seelinger.

25 Q And the similar system would have been in effect at

1 Unit 1, is that correct?

2 A To the best of my knowledge, it would be.

3 Q Of course, by your previous testimony, you had
4 nothing to do with Unit 1 in the pre-accident period?

5 A Right.

6 Q Again, are you aware of any problems with excessive
7 leakage at either Unit 1 or Unit 2 in the pre-accident period?

8 A No.

9 Q You are not aware of any instances where the
10 leakage might have exceeded the tech specs?

11 A In Unit 2?

12 Q Yes.

13 A I was aware after the fact of the one in Unit 2
14 from seeing an LER.

15 Q And that LER, I think, would have been in the fall
16 of 1978?

17 A Yes, because I think that is what instituted the
18 beginning or starting to change the leak rate procedure.

19 Q Do you know if any operator did deceitfully alter
20 a leak rate test by the additions of hydrogen or water knowing
21 that if he did not make those additions, the tech specs would
22 have been exceeded?

23 A No.

24 Q In regard to Unit 1, are you aware of the leakage
25 problems in which leakage exceeded the tech specs at Unit 1 in

1 the pre-accident period?

2 A No.

3 BY MR. LETZ:

4 Q Bill, at the time when you were adapting the Unit 1
5 program to Unit 2, did you basically have day-to-day
6 conversation with Washick, Sheng and Geiger during this
7 process?

8 A No, not necessarily.

9 Q Did you routinely during the pre-accident period --
10 again concentrating from April, 1978 through March of 1979 --
11 did you have conversations with those individuals?

12 A Very little in that time period.

13 Q What would any of the conversations be about that
14 did occur?

15 A If I had a problem with the Unit 2 system
16 typically from a hardware standpoint, we probably talked to
17 Bob Washick about it. He was in on the initial design and
18 purchase of the system. He was familiar with the hardware,
19 itself.

20 If I had a problem that I could not solve with the
21 hardware, I talked to him about it.

22 Q During the actual adjustment period, adapting the
23 one program to the other, you really did not experience a
24 great degree of difficulty?

25 A No. He was very straightforward.

1 Q And had no cause to have conversations with those
2 gentlemen?

3 A That's true.

4 Q Have you ever had any discussions with either of
5 those gentlemen regarding the addition of hydrogen to this
6 system as it affects the leak rate calculations?

7 A No.

8 Q Either pre-accident or post-accident?

9 A Well, other than conversations, you know, reading
10 an article or something like that.

11 Q But general conversations on a professional level?

12 A On a professional level, no.

13 Q Did the leak rate program, do you know, that you
14 adapted to Unit 2, did that make an allowance for density
15 and temperature changes in the system?

16 A Yes, at least in RCS volume portion of the
17 calculation. There were several sections to that. It has
18 been so long since I have looked at it. There was the RCS
19 volume, the makeup tank, reactor coolant drain tank.

20 I am not sure which of those took into account mass
21 change and which just took into account volume change. Those
22 were part of the changes that were being made just prior to
23 the accident, and I don't recall which ones prior to the
24 accident did take into account the density and which ones did
25 not.

1 Q The ones that did, would they have been a
2 contributing factor to any difficulty in obtaining a valid
3 leak rate or come up with a large negative leak rate?

4 A No, I would think that those would be sections --
5 it is my understanding since we were making changes to go
6 to all mass calculations that that was felt to be the most
7 accurate way to do it.

8 Q But prior to making the changes, the lack of an
9 allowance for the density and temperature changes, you don't
10 think that would have impacted on difficulties with leak rates?

11 A I really don't know.

12 Q You did state that you actually observed operators
13 in the control room performing leak rates, leak rate tests?

14 A In Unit 2, yes.

15 Q Was there much interaction there between Mike Ross
16 and Jim Floyd between the units?

17 A Not that I was aware of.

18 Q Are you aware of Mike Ross spending any time at
19 Unit 2?

20 A I don't recall ever seeing him down there.

21 Q Conversely, do you know if Jim Floyd spent any
22 amount of time at Unit 1?

23 A I don't know. I saw Jim Floyd in Unit 2, but I
24 really don't know if he spent time over there or not.

25 Q I'm trying to determine if there was any interaction

1 between those two gentlemen in their respective units?

2 A I really don't know.

3 MR. LETZ: I have nothing further.

4 BY MR. CONNOLLY:

5 Q Before you came today to discuss this interview,
6 had anyone from GPU or from Met-Ed discussed with you the
7 appropriate answers to give to our questions?

8 A No.

9 Q Did anyone from the company brief you with regard
10 to questions that were being asked to any series of interviews
11 to be conducted by the NRC with regard to Unit 1?

12 A From the company?

13 Q Yes.

14 A No.

15 Q You were neither coached nor briefed in any way by
16 company representatives with regard to questions and answers?

17 A Not by the company, no.

18 MR. CONNOLLY: That concludes our questioning. Thank
19 you very much.

20 (Whereupon, at 11:45 a.m., the interview was concluded.)
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CERTIFICATE OF PROCEEDING

This is to certify that the attached proceeding before
the Nuclear Regulatory Commission Investigation

In the matter of: Investigation Interview of
Mr. William J. Fels

Date of Proceeding: Monday, March 26, 1984

Place of Proceeding: Processing Center, General Conference
Room, Three Mile Island 1,
Middletown, Pennsylvania

was held as herein appears, and that this is the original
transcript for the file of the Commission.

A. J. Plesce

Official Reporter - Typed

A. J. Plesce

Official Reporter - Signed

EXHIBIT 26

SWORN TESTIMONY OF ROBERT BEEMAN/9-29-83

ORIGINAL

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

In the matter of:

INVESTIGATIVE INTERVIEW OF:

Docket No.

Robert P. Beeman

Location: Harrisburg, Pa

Pages: 1 - 23

Date: Thursday, September 29, 1983

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

INVESTIGATIVE INTERVIEW

OF

ROBERT P. BEEMAN

Americana Host Inn
4751 Lindle Road, Rm. 383
Harrisburg, Pennsylvania

Thursday, September 29, 1983

APPEARANCES:

R. KEITH CHRISTOPHER, Director
PETER J. CONNOLLY, Investigator
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Harrisburg, Pennsylvania 17108
On behalf of Mr. Beeman

P R O C E E D I N G S

1
2 MR. CONNOLLY: The date is September 29th, 1983,
3 the time is 12:05 p.m. We're in Room 383 of the Americana
4 Host Inn, 4751 Lindle Road, Harrisburg, Pennsylvania, for
5 the purpose of obtaining information from Robert P. Beeman
6 regarding the alleged falsification of leak rate test data
7 at Unit 2 of Three Mile Island Nuclear Generating Station,
8 Middletown, Pennsylvania, prior to March 28, 1979.

9 Present in the room are myself, Peter J. Connolly,
10 Keith Christopher, both Investigators from the Office of
11 Investigations, Nuclear Regulatory Commission, Region I;
12 Mr. Robert P. Beeman and his attorney, Smith B. Gephart
13 and Ms. Jane Penny, of the firm Killian and Gephart located
14 216-218 Pine Street, Box 886, Harrisburg, Pennsylvania.

15 This interview is being conducted under subpoena.
16 Bob, the original subpoena was issued on the 21st of
17 September, 1983. After a motion to quash that subpoena
18 addressed to the Nuclear Regulatory Commission and that
19 motion was denied, a new subpoena was issued for October 4,
20 1983. Your presence here fulfills the requirement of that
21 subpoena.

22 It's my intent now to put you under oath for the
23 purpose of answering questions relative to the falsification
24 of leak rate test data at Unit 2. Before I do that, just so
25 you understand the ramifications of providing information

1 under oath, I would like you to read U.S. Code Title 18,
2 Section 1001. It's highlighted in yellow.

3 (Pause.)

4 Do you understand what the Code states?

5 MR. BEEMAN: Yes, I do.

6 Whereupon,

7 ROBERT P. BEEMAN,

8 after being first duly sworn, was examined and testified
9 as follows:

10 MR. CONNOLLY: For the record, could you please
11 state your full name and spell your last name?

12 THE WITNESS: Robert P. Beeman, B-e-e-m-a-n.

13 MR. CONNOLLY: And, Robert, your current home
14 address is?

15 THE WITNESS: 843 Mt. Gretna Road, Elizabethtown,
16 Pennsylvania.

17 MR. CONNOLLY: What is your age?

18 THE WITNESS: Thirty-eight.

19 MR. CONNOLLY: And who are you present employed
20 with?

21 THE WITNESS: GPU Nuclear Corporation.

22 MR. CONNOLLY: And what is your position with GPUN?

23 THE WITNESS: I'm a technical analyst 3/Nuclear.

24 MR. CONNOLLY: And where do you work?

25 THE WITNESS: Three Mile Island, Unit 2.

1 MR. CONNOLLY: And how long have you been employed
2 with GPU Nuclear?

3 THE WITNESS: Since June 1978.

4 MR. CONNOLLY: And since June of 1978 what have
5 been your positions with GPU Nuclear?

6 THE WITNESS: My position has been the same all
7 throughout, except my job duties are changed somewhat.

8 MR. CONNOLLY: Prior to the March 1979 accident,
9 what was your job title at GPU Nuclear?

10 THE WITNESS: It was GMS coordinator.

11 MR. CONNOLLY: Could you please define what you
12 mean by GMS?

13 THE WITNESS: Generation maintenance system,
14 computer system.

15 MR. CONNOLLY: And what unit did you work at
16 during that time period?

17 THE WITNESS: Unit 2.

18 MR. CONNOLLY: Prior to your employment with
19 GPU Nuclear in 1978, who were you employed with before?

20 THE WITNESS: I worked for the Harrisburg school
21 district, and before that I worked for the Pennsylvania
22 Social Services Union.

23 MR. CONNOLLY: What is your specialty?

24 THE WITNESS: I'm not sure I understand.

25 MR. CONNOLLY: Are you a computer specialist?

1 THE WITNESS: I'm a systems analyst.

2 MR. CONNOLLY: Could you define what you mean by
3 systems analyst?

4 THE WITNESS: I take manual operations and
5 computerize them.

6 MR. CHRISTOPHER: Prepare programs for various
7 functions, that type of thing?

8 THE WITNESS: Yes.

9 MR. CONNOLLY: What would be some of the programs
10 that you would design?

11 THE WITNESS: Right now I'm working on a system
12 for a modifications control group to track documents by
13 computer.

14 MR. CONNOLLY: Can you recall any programs that
15 you were involved in designing prior to the March 1979
16 accident?

17 THE WITNESS: No, I didn't do any of that before
18 then.

19 MR. CONNOLLY: Prior to the March 1979 accident,
20 who did do that work?

21 THE WITNESS: I have no idea.

22 MR. CHRISTOPHER: What kind of functions were you
23 actually performing, physically performing during the six
24 to eight-month period prior to the accident?

25 THE WITNESS: Well, before the accident I was in

1 training. In fact, I would have been in training for quite
2 some time after the accident, if the accident had not happened.

3 MR. CONNOLLY: When you say you were in training,
4 is that a physical location?

5 THE WITNESS: No. On the job training.

6 MR. CHRISTOPHER: What specifically were you
7 training for?

8 THE WITNESS: Well, I was receiving computer data
9 for the GMS system, generation maintenance system, for
10 preventive maintenance jobs and corrective maintenance jobs
11 and tech spec surveillance, and inputting it into the computer
12 and making sure that it got into the computer. And in some
13 cases I would file the documents.

14 MR. CHRISTOPHER: Who did you work for?

15 THE WITNESS: David Good.

16 MR. CONNOLLY: Who was David Good's supervisor?

17 THE WITNESS: I think it was Jim Seelinger. I
18 don't think there was anybody in between but I'm not sure.

19 MR. CONNOLLY: What was David Good's title?

20 THE WITNESS: He was a tech analyst senior 1.

21 MR. CHRISTOPHER: Did you work with Bill Fels?

22 THE WITNESS: No.

23 MR. CHRISTOPHER: Did you not have any work with
24 Bill Fels?

25 THE WITNESS: No.

1 . MR. CHRISTOPHER: He is also involved in computer
2 program system, is he not?

3 THE WITNESS: I don't know exactly. I know he has
4 something to do with computers but I'm not sure what he does.

5 MR. CHRISTOPHER: Do you do any work in programming
6 surveillances for, say, the Bailey computer?

7 THE WITNESS: Oh, no.

8 MR. CHRISTOPHER: Mostly just generation maintenance?

9 THE WITNESS: Yes. No -- when I say I'm a systems
10 analyst doing programming, I'm programming through TSO.
11 It's a very small application that I do for Unit 2 Maintenance
12 Department. I don't do any GMS programming.

13 MR. CONNOLLY: What does TSO stand for?

14 THE WITNESS: Timesharing option.

15 MR. CONNOLLY: What does that mean?

16 THE WITNESS: It's a set of software that users
17 can use, that on-site users can use to program their own
18 little programs, as opposed to the GMS system, generation
19 maintenance, which is a centralized software that the whole
20 corporation uses to schedule maintenance jobs.

21 MR. CONNOLLY: So this is tied in -- the computer
22 system you're talking about is not only tied with TMI but
23 throughout the GPU Corporation entirely?

24 THE WITNESS: Yes.

25 MR. CHRISTOPHER: You mentioned that you did some

1 programming in the area of tech spec surveillances.

2 THE WITNESS: No, never.

3 MR. CHRISTOPHER: In your answer earlier you said
4 that you inputted data on corrective maintenance, and you
5 said tech spec surveillance.

6 THE WITNESS: Yes, but I didn't do any programming.

7 MR. CHRISTOPHER: I just wanted you to clarify
8 what you meant by that. What actually is it that you do
9 with the tech spec surveillances?

10 THE WITNESS: Well, for tech specs I would get all
11 the tech specs, all the data that was generated from doing
12 tech spec tests and I would look at the tech spec cover sheet,
13 the computer-generated cover sheet, and make sure that the
14 data was enterable that was on the cover sheet, and then it
15 would be entered in the computer by cards. And then I would
16 get the edit list back and make sure that was supposed to
17 have been edited actually went in.

18 MR. CHRISTOPHER: Okay, I understand. Now, you
19 personally had no involvement in the actual performance of
20 a leak rate surveillance test, is that correct?

21 THE WITNESS: That's correct.

22 MR. CHRISTOPHER: Do you have any idea as to how
23 a leak rate surveillance test is performed?

24 THE WITNESS: None whatsoever.

25 MR. CHRISTOPHER: Have you ever had any discussions

1 with anyone in the computer -- individuals in similar areas
2 tend to discuss topical problems and that type of thing. Do
3 you recall having any discussions with Dave Good, Bill Fels
4 or any other individuals regarding problems that were being
5 experienced with the programming for the leak rate surveillance
6 procedure?

7 THE WITNESS: No, I never had any discussions
8 like that.

9 MR. CHRISTOPHER: Did you ever discuss problems
10 with any operators on a personal basis who had experienced
11 problems in getting good leak rate tests?

12 THE WITNESS: No.

13 MR. CHRISTOPHER: Did you ever discuss the same
14 type of problem with any supervisory personnel, particularly
15 in the Operations Department?

16 THE WITNESS: No.

17 MR. CHRISTOPHER: Did you discuss this problem
18 with any supervisors in any department?

19 THE WITNESS: I didn't even know a problem like
20 that existed.

21 MR. CHRISTOPHER: Are you at all familiar with how
22 a leak rate test would be performed?

23 THE WITNESS: You mean physically, how you do it?
24 No, I'm not.

25 MR. CHRISTOPHER: So you are not personally

1 knowledgeable of the technical specification? I think it's
2 3.4.6.2, which actually lays out the requirements for a
3 leak rate surveillance test program.

4 THE WITNESS: At this I don't. If you showed it
5 to me and told me that's what it was then I'd have to agree
6 with you. At the time, I looked over the tech specs because
7 that was part of my job to look at the tech spec -- the
8 license. But do you mean do I know what it means?

9 MR. CHRISTOPHER: Yes. Do you know how it would
10 be implemented?

11 THE WITNESS: No, I don't.

12 MR. CHRISTOPHER: Do you recall in generating
13 your computer file for maintenance activities, do you recall
14 any discussions or any unusual activity in preparing programs
15 that dealt with excessive valve leakages for repair with
16 problems with the make-up tank or the RCS inventory balance,
17 in attempting to correct deficiencies in those programs?

18 THE WITNESS: I don't know what those things are,
19 and I never talked to anybody about that -- are you talking
20 about the Bailey computer?

21 MR. CHRISTOPHER: Primarily the Bailey.

22 THE WITNESS: I never talked to anybody about the
23 Bailey.

24 MR. CONNOLLY: Did you have anything to do with the
25 Bailey computer prior to March 1979?

1 THE WITNESS: Nothing whatsoever, or since. Then
2 or since.

3 MR. CHRISTOPHER: Are you personally knowledgeable
4 as to how operators go about actually logging in the control
5 logs the actual performance of leak rate surveillance tests
6 or any other tests?

7 THE WITNESS: I didn't even know they did that.

8 MR. CHRISTOPHER: Then you would have no
9 responsibility for reviewing programs or entries into control
10 room operations type logs for accuracy or for consistency
11 or that type of thing?

12 THE WITNESS: Are you aware of or have you ever
13 discussed with any particular operator the fact that they
14 would perform a leak rate test that would, for one reason
15 or another, come out in excess of the tech spec requirement
16 and that they would then throw away the result?

17 THE WITNESS: No, I never discussed that with
18 anybody.

19 MR. CHRISTOPHER: Were you at any time aware,
20 prior to the accident, that a routine policy -- that there was
21 any routine policy or practice of actually throwing away
22 leak rate test results and not conforming to technical spec
23 requirements?

24 THE WITNESS: No.

25 MR. CHRISTOPHER: Were you aware of any supervisory

1 type of individuals who were aware of that type of
2 practice?

3 THE WITNESS: No.

4 MR. CONNOLLY: Were you involved in any way in
5 the leak rate testing, whether it be programming or providing
6 assistance?

7 THE WITNESS: Do you mean -- I'm not sure I
8 understand. Do you mean the physical getting of the data?

9 MR. CONNOLLY: Yes.

10 THE WITNESS: No.

11 MR. CHRISTOPHER: You say you were not part of the
12 team, so to speak. that would put a program together as to
13 how to actually perform leak rate tests?

14 THE WITNESS: No.

15 MR. CHRISTOPHER: Do you have any idea who those
16 individuals would have been?

17 THE WITNESS: No, I don't really know.

18 MR. CONNOLLY: Do you know who was involved with
19 the Bailey computer back prior to the accident?

20 THE WITNESS: I think Bill Fels had something to
21 do with it, but that's all I know.

22 MR. CONNOLLY: Were there any other individuals
23 that you know of besides Bill Fels?

24 THE WITNESS: If there were, I don't know who
25 it was.

1 MR. CHRISTOPHER: So in fact, if operators were
2 throwing bad leak rate tests, you have no idea as to why
3 they were being thrown away?

4 THE WITNESS: Right.

5 MR. CONNOLLY: Would the computer program be
6 developed for the Bailey computer for leak rate tests, or
7 would a program be developed in the computer, the maintenance
8 computer that you worked with?

9 THE WITNESS: I don't know about the Bailey side,
10 but I don't know whether -- I know that there was never any
11 program in the GMS side that I knew of that was involved
12 in that. I don't know whether anybody was developing it.
13 Is that what you're asking me?

14 MR. CONNOLLY: Yes.

15 THE WITNESS: I don't know. I have no idea.

16 MR. CHRISTOPHER: If we wanted to search the
17 maintenance histories for -- in an attempt to identify what
18 kind of work orders, what kind of maintenance was being
19 requested for, let's say, the reactor core leak rate test
20 procedure or surveillance, how would we go about doing that?

21 THE WITNESS: Do you mean look at hard copy, or
22 look at computer records?

23 MR. CHRISTOPHER: It could be by computer records.
24 Do you mean microfiche type copies?

25 THE WITNESS: Well, --

1 MR. CHRISTOPHER: If I wanted to review and see
2 what the maintenance history was, let's say, on make-up tank
3 level recorders or the analog recorders, those type of things,
4 how would I go about doing that?

5 THE WITNESS: I guess you'd probably just ask our
6 Licensing Department that question and they would go and get it.

7 MR. CHRISTOPHER: But they could actually pull out
8 the maintenance history on any one of these particular --
9 let's say the make-up tank?

10 THE WITNESS: Well, I don't know that for sure
11 because I don't know what they keep.

12 MR. CHRISTOPHER: Would that kind of data be kept
13 in the generation maintenance computer?

14 THE WITNESS: Well, some of it would. For example,
15 when you did a tech spec surveillance test and it was logged
16 into the computer as having been performed, the only data
17 that you --

18 MR. CHRISTOPHER: Just to clarify. Logged into
19 the Bailey computer, or do you mean the GMS?

20 THE WITNESS: No, the GMS maintenance storage. The
21 Bailey computer I know nothing about. If they logged stuff
22 in there, I have no idea.

23 The only data that's recorded when you log a tech
24 spec surveillance sheet is a performance code, 1 through 5.
25 One means performed okay, 2 means performed with exceptions,

1 3 means performed with deficiencies, 4 means performed with
2 both exceptions and deficiencies, and 5 means not performed.
3 A date performed would be logged. The employee number of the
4 performer and the approver would be logged most of the time.
5 Sometimes the employee numbers -- it might be a contractor so
6 there's no valid number.

7 The man hours will be logged, and that's all. You
8 will not get any hard data. You won't get any specific
9 positions of switches and whether a valve was on or off or
10 that sort of thing.

11 MR. CHRISTOPHER: Are you at all familiar with
12 the term, negative leak rates?

13 THE WITNESS: I don't know what that means. Is
14 that what you mean?

15 MR. CHRISTOPHER: Yes.

16 THE WITNESS: I have no idea.

17 MR. CHRISTOPHER: If I said that we ran a
18 surveillance procedure for leak rate test data and received
19 a negative leak rate, would you know what that means?

20 THE WITNESS: No.

21 MR. CHRISTOPHER: Do you recall any discussions
22 between any individuals in the several months prior to the
23 accident, either individuals at the working level, your level,
24 or in supervision, where the problem of excessive valve
25 leakages was discussed, or discussions that would indicate

1 that there was a problem with valve leakages?

2 THE WITNESS: No.

3 MR. CHRISTOPHER: And the same question, do you
4 recall any supervisors or other individuals discussing
5 difficulties in obtaining good unidentified leak rates?

6 THE WITNESS: No.

7 MR. CHRISTOPHER: Are you aware of any instance
8 prior to the accident in which a shift supervisor requested
9 authority to shut the plant down to excessive valve leakages
10 and that request being denied?

11 THE WITNESS: No.

12 MR. CHRISTOPHER: You would not normally be
13 involved in that type of evolution?

14 THE WITNESS: No.

15 MR. CHRISTOPHER: Have you ever had any personal
16 discussions with individuals such as Jim Floyd, Bernie
17 Smith, Ken Hoyt? Have you ever sat down and talked with any
18 of those individuals?

19 THE WITNESS: I have talked to them. I talked to
20 them when I saw them in the control room, but no, not any
21 kind of lengthy discussions.

22 MR. CHRISTOPHER: You've never had any discussion
23 with those individuals specifically about problems with leak
24 rates or excessive valve leakages?

25 THE WITNESS: No, nothing like that.

1 MR. CHRISTOPHER: Were you knowledgeable enough
2 to have any personal concerns over any indication of excessive
3 valve leakage during the time prior to the accident?

4 THE WITNESS: I'm not sure I understand what
5 that means.

6 MR. CHRISTOPHER: Were you in a position to be
7 knowledgeable enough as to actual plant parameters that you
8 would know that there was X amount of leakage coming from
9 various valves that may have caused you concern?

10 THE WITNESS: Oh, no. No.

11 MR. CHRISTOPHER: Were you ever told by any
12 individual operator that that individual was adding hydrogen
13 to the make-up tank for the express purpose of attempting to
14 manipulate a leak rate test result?

15 THE WITNESS: No.

16 MR. CHRISTOPHER: Have you ever heard of an operator
17 who allegedly has done that?

18 THE WITNESS: No.

19 MR. CHRISTOPHER: Have you ever entered into any
20 discussions with any individuals wherein he admitted that
21 they had done that or were aware of that happening?

22 THE WITNESS: No.

23 MR. CHRISTOPHER: Are you aware of any operators
24 admitting to, or have you personally observed an operator
25 add water to the make-up tank during performance of leak

1 rate tests without recording that entry in the computer?

2 THE WITNESS: No.

3 MR. CHRISTOPHER: Do you know if all water additions
4 are required to be recorded -- all water additions that are
5 made to the RCS system?

6 THE WITNESS: I have no idea.

7 I want to go back to a question you asked me a
8 couple of minutes ago. You asked me if I had ever heard any
9 discussions about that, and I'm trying to remember during
10 my grand jury whether the U.S. attorney talked to me about
11 that, and I honestly cannot remember.

12 MR. CHRISTOPHER: I'm speaking specifically of
13 plant personnel, and specifically prior to the accident.

14 THE WITNESS: Oh, absolutely not.

15 MR. CHRISTOPHER: And subsequent to the accident,
16 you don't recall having any discussions with plant personnel
17 who indicated to you that they were knowledgeable of that
18 type of thing?

19 THE WITNESS: I have not.

20 MR. CHRISTOPHER: Are you aware of what parameters
21 the operators watch when making a decision as to whether or
22 not hydrogen should be added to the make-up tank?

23 THE WITNESS: I have no idea.

24 MR. CHRISTOPHER: Did you ever hear of or have you
25 ever discussed with any particular operator the fact that

1 they, being the operators, felt that they were under a great
2 deal of pressure to get good leak rates?

3 THE WITNESS: No.

4 MR. CHRISTOPHER: Pressure to the extent that they
5 felt intimidated, harrassed or felt that it was necessary to
6 do something not within regulatory requirements in order to
7 get a good leak rate?

8 THE WITNESS: Did the operators ever say this?
9 No.

10 MR. CHRISTOPHER: Do you have any personal
11 knowledge that that was the case?

12 THE WITNESS: No.

13 MR. CHRISTOPHER: Are you familiar with any problems
14 of leakage from the code safety valves or pilot-operator
15 relief valves?

16 THE WITNESS: I don't know what those things are.

17 MR. CHRISTOPHER: Are you familiar with the term
18 excessive tailpipe temperatures?

19 THE WITNESS: No.

20 MR. CHRISTOPHER: Do you have any involvement in
21 the review or preparation of LERs, Licensee Event Reports?

22 THE WITNESS: Do I now?

23 MR. CHRISTOPHER: Then.

24 THE WITNESS: Then? One time I think somebody
25 asked me to write up a statement on some fire valves, but

1 that was probably a year after the accident and I don't
2 remember exactly what that was. But as a general rule, no.
3 And I can be certain that I did not before the accident. If
4 something I wrote was used in an LER, I had no knowledge of it.

5 MR. CHRISTOPHER: You don't recall any specific
6 LER that was written that pertained to the issue at hand?

7 THE WITNESS: No, I don't.

8 MR. CHRISTOPHER: Excessive leak rates.

9 THE WITNESS: No, I don't.

10 MR. CHRISTOPHER: Did you ever sit in as a member
11 of the PORC, Plant Operating Review Committee?

12 THE WITNESS: Right after I came to work I went
13 to a meeting which may have been a Plant Operations Review
14 Committee meeting, at which I was introduced to everybody and
15 people said various things that I didn't understand. But
16 I'm trying to be as detailed as I can remember. I know that
17 was before the accident, but if it was a PORC meeting, I
18 didn't know it.

19 MR. CHRISTOPHER: Okay. Are you familiar with
20 any changes that were made to the computer program as a
21 result of problems with the leak rate test program?

22 THE WITNESS: The Bailey computer?

23 MR. CHRISTOPHER: Yes.

24 THE WITNESS: No, I have no idea about that.

25 MR. CHRISTOPHER: And any changes in the leak rate

1 test program would not affected the GMS?

2 THE WITNESS: If they made a change to the
3 Bailey computer it would not affect the GMS scheduling
4 apparatus.

5 MR. CHRISTOPHER: And you would not have been
6 involved in making any changes with, say, Bill Fels, to the
7 computer program?

8 THE WITNESS: No, not at all.

9 MR. CHRISTOPHER: Was Bill Fels in the same
10 department as you?

11 THE WITNESS: I have no idea. I don't really know.
12 Maybe I could help you with that and clarify
13 something. I know Bill Fels to see him, and at the time I
14 knew him enough to say hello to him, but that's all. I knew
15 he did something with computers, and that's it.

16 MR. CONNOLLY: You had no work relationship
17 with him, is that correct?

18 THE WITNESS: None whatsoever.

19 MR. CHRISTOPHER: Do you have any personal knowledge
20 as to how many leak rate tests were run by operators during
21 a shift?

22 THE WITNESS: No, I have no idea.

23 MR. CHRISTOPHER: No personal knowledge as to how
24 operators actually performed the evolution?

25 THE WITNESS: No.

1 MR. CHRISTOPHER: That meaning the test itself.
2 Okay. Did you ever get involved in the preparation of
3 technical change notices?

4 THE WITNESS: I know what they are. Is that a TCN?

5 MR. CHRISTOPHER: TCN, yes.

6 THE WITNESS: No, I'm pretty certain I never did one.

7 MR. CHRISTOPHER: Would you have ever been involved
8 in a TCN, and specifically, TCN 79-070 regarding changes to
9 the test program for calculating reactor coolant system
10 leakage?

11 THE WITNESS: Absolutely not.

12 MR. CHRISTOPHER: Do you have at this time any
13 personal knowledge of individuals who may have attempted to
14 falsify reactor coolant system leak rate records?

15 THE WITNESS: No, sir, I do not.

16 MR. CHRISTOPHER: Has any individual ever admitted
17 to you that he has done that?

18 THE WITNESS: No, sir.

19 MR. CHRISTOPHER: Were you aware of or did you
20 attend any meetings or discussions with individuals or
21 in casual conversation that indicated that the policy at
22 that time, prior to the accident, was that the plant would
23 not be shut down to make repairs until Unit 1 was back
24 online from the refueling outage?

25 THE WITNESS: Did I ever hear that? No, I never did.

1 MR. CHRISTOPHER: Do you understand whether that
2 was a general policy that was being followed at that time?

3 THE WITNESS: I never heard that until now.

4 MR. CONNOLLY: Are you aware of any information
5 regarding the falsification of leak rate test data at
6 Unit 2?

7 THE WITNESS: No.

8 MR. CONNOLLY: Has anyone ever admitted to you that
9 they were involved in falsification of leak rate test data?

10 THE WITNESS: No.

11 MR. CONNOLLY: Has anyone ever identified to you
12 that they knew someone who was involved in that, the falsifi-
13 cation of leak rate test data.

14 THE WITNESS: No.

15 MR. CONNOLLY: Okay. I have no further questions.

16 MR. CHRISTOPHER: Robert, do you have any other
17 comments that you'd like to make?

18 THE WITNESS: No, I really don't.

19 MR. CHRISTOPHER: Okay. We appreciate your time,
20 and we're going to end the interview and the time is 12:30.
21 And we thank you for coming.

22 (Whereupon, at 12:30 p.m., the interview was
23 terminated.)

24

25

CERTIFICATE OF PROCEEDINGS

This is to certify that the attached proceedings before the
NRC COMMISSION

In the matter of: Investigative Interview of
Robert P. Beeman

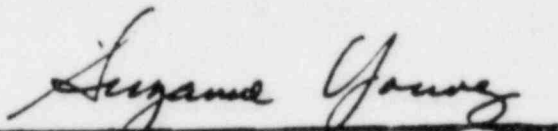
Date of Proceeding: Thursday, September 29, 1983

Place of Proceeding: Harrisburg, Pennsylvania

were held as herein appears, and that this is the original
transcript for the file of the Commission.

Suzanne Young

Official Reporter - Typed



Official Reporter - Signature

EXHIBIT 27

REPORT OF INTERVIEW OF JOHN HILBISH/10-9-83

REPORT OF INTERVIEW

Mr. John Francis HILBISH was interviewed by NRC Region I, Director, Office of Investigations, R. Keith CHRISTOPHER, on October 19, 1983 commencing at 10:30 AM. The interview was conducted at Mr. HILBISH's place of employment, Gilbert and Associates, Reading, Pennsylvania. Mr. HILBISH stated that he is currently a licensing consultant for Gilbert and Associates and has been with that firm for approximately four years. He said that prior to this he was employed by Metropolitan Edison Company for six years. He said during that six years, he was stationed at Three Mile Island (TMI) as a Lead Nuclear Engineer for Units 1 and 2 from 1973 until December of 1978, when he was transferred to the Reading, Pennsylvania office of Metropolitan Edison as the Supervisor of Licensing. HILBISH said that while he was at TMI, he was the only Lead Nuclear Engineer for both Units. He said that during this time period he worked for both James SEELINGER, Unit 2 Supervisor, and Mr. James O'HANLON, Unit 1 Supervisor. He said that in the functional aspect, he was responsible for interface with the various departments on all nuclear engineering aspects of the plant. He said that during this time period his role at Unit 1 was primarily technical support centering around refueling and core reload while at Unit 2 he spent a great deal of his time assigned as either Vice Chairman or Chairman of the Plant Operating Review Committee (PORC). He said that his position on the PORC as Chairman or Vice Chairman was dictated by the availability of Mr. James SEELINGER who was normally the Chairman of the PORC. He said that he left the PORC Committee in the latter part of 1978 when he started transferring his functions to the licensing office in Reading, Pennsylvania. With respect to the performance of leak rate surveillance test at Unit 1 and Unit 2, HILBISH stated that he has no independent knowledge of how leak rate tests were performed at those Units and has never personally performed a leak rate test or been involved in any discussions pertaining to them. He stated that during his time at TMI it was possible that he could have reviewed the surveillance procedures for leak rate testing (2301-3D1) but that he could not recall any specific review process or discussion regarding that surveillance procedure. With regards to revision three which was in effect during the time period in question (October 1978

through March 1979) HILBISH stated that to the best of his recollection he had primarily transferred his responsibilities to the licensing department in Reading, Pennsylvania, and was sure he had not been involved in any review of the procedure for that time period. HILBISH was next questioned regarding Licensee Event Report (LER) number 78-62/1P (1T) (failure to invoke the LCO Action Statement B of technical specification 3.4.6.2) which was submitted to the NRC on October 19, 1978. He said that he had no recollection of a review process regarding this particular LER and did not recall discussing it with any members of the PORC Committee. He reminded the investigator that during that time period he had primarily transferred that function as Vice Chairman to the PORC and was transferring his work load to Metropolitan Edison's Reading office.

HILBISH did explain the process for the preparation of LER's. He said that during that time period, all correspondence regarding LER's was processed and tracked through the Licensing Division of Metropolitan Edison at the Reading office but since the events were actually originated on site, two individuals in the Licensing Department, one of whom he identified as Mr. James STAIR, were assigned to coordinate the preparation of LER's with the plant staff. He said in that capacity the licensing individual, and in this case, Mr. James STAIR, would physically go to the site and discuss the particular LER with representatives of the plant staff and prepare the LER for plant staff and PORC review. He said the preparation of the LER was not based on the personal knowledge of the licensing engineer but based on the information he received from the plant staff. He said the assignment of an individual to work with the licensing staff would be dependent on what area the LER covered. With respect to this particular LER, HILBISH stated that he did not know who the cognizant engineer would have been who worked with licensing but conjectured the possibility of either William MARSHALL or William FELS being involved, based on review of PORC action item documents. Further, HILBISH stated that he was not aware of what the initiating event was for the LER and denied any knowledge of the fact that it was initiated by the NRC Resident Inspector finding a leak rate test in excess of technical specifications in the control room.

HILBISH further stated that he had no recollection of any discussions with plant management or the plant operating staff pertaining to the frequency requirement for the actual performance of the leak rate test surveillance. He also stated that he did not recall having any discussions with anyone in the management staff regarding the fact that operators were experiencing difficulty in obtaining good leak rates and stated that he did not recall having any knowledge at the time that they were in fact having problems getting acceptable leak rates.

HILBISH was next questioned regarding his recollection of the requirements for the recording of surveillance tests at TMI. He stated that he was not specifically familiar with what the requirements were for the recording of surveillances but assumed that all major surveillances were recorded in some fashion. HILBISH did review the TMI Administrative Procedure 1012 Section 3.3.17. After reviewing this section of the procedure, HILBISH stated that he was in agreement with the interpretation of the procedure that all surveillance tests should be recorded; however, HILBISH clarified that he was unaware of what the specific requirements or methods were for actually recording the surveillance tests.

With respect to the actual performance of leak rate tests, HILBISH denied that he was aware of the fact that operators were throwing away leak rate tests that did not meet the technical specification requirements and denied that he was aware of any management authorization to do so. He also stated that he was not responsible for the review of the control room operators log for verification and accuracy. HILBISH was then asked whether or not he felt it was acceptable to accept negative leak rate test results for unidentified leakage as valid. He stated that depending on the amount of the negative value he would not necessarily question the validity of the result. For example, he stated that if a negative result was in the area of a minus one half gallon per minute or less it would not cause him to question the validity of the test but if it was in excess of that amount he would have difficulty in accepting the test's validity based on his knowledge today. HILBISH was then asked what his opinion was of the interpretation of the frequency requirement for the performance of the leak rate surveillance test. After reviewing the surveillance procedure he stated it was his opinion that the test was only required to be performed once every 72 hours. He also stated that after

reviewing the referenced LER, his interpretation of the technical specification requirements for entering an action statement would in his mind require that after receiving a "bad" leak rate test result, he would have to immediately enter the action statement irregardless of whether or not you were still within the 72 hour time frame or not. He stated that he had no independent recollection of any discussions regarding this interpretation and this opinion was based on his review of the material at this time.

HILBISH stated that he had no knowledge of any incidents in which a shift supervisor allegedly requested permission to shut down the Three Mile Island Unit 2 (TMI-2) to repair excessive valve leakage and that request being denied. He further denied that he recalled being a party to any discussions when it was decided to keep Unit 2 on line despite the valve leakage until Unit 1 returned to service from the refueling outage. He also stated that he had no particular knowledge or concerns relative to any excessive tail pipe temperatures while operating at TMI-2 and reminded the investigator that since he had left the plant in the latter part of 1978 this apparent problem had not yet surfaced at the time that he was actually at the plant. He also stated that because he was not at the plant during the time, he did not recall being involved in any discussions or decisions relating to a decision not to close the PORV block valve. HILBISH further denied that he had any knowledge or information in his possession to indicate that operators were adding hydrogen to the makeup tank during the performance of a leak rate test for the purpose of attempting to manipulate the leak rate test result. Similarly, he denied any such knowledge of similar actions regarding the addition of water to the makeup tank without recording such addition in the computer calculation. He also stated that he did not, at this time, have any understanding as to why the addition of hydrogen to the makeup tank during the leak rate test would actually effect the leak rate test results.

HILBISH was next asked his opinion as to how the calculation for identified leakage could effect the unidentified leakage results. HILBISH stated his opinion that the calculations and accuracy were more or less dependent upon the accuracy of the instrumentation you are reading. He stated his opinion that the more sources of identified leakage that you had to calculate when running the tests, the greater the margin of error would be. He explained in more detail saying that the more areas and the more instrumentation you look

at in order to obtain the identified leakage the more variables and margin of error you would be incorporating into the calculation to effect your unidentified leakage. He said the greater the margin of error for the identified leakage, the more the unidentified leakage would be effected. He said if your identified leakage continued to increase and it was being calculated in multiple instruments, then the band of error in which your unidentified leakage was being determined would continue to increase in relation to the number of instrumentation readings you had to take. HILBISH concluded that he was not knowledgeable enough about the operation and performance of the leak rate tests at TMI Units 1 and 2 to make any comparisons or to cite any specific differences in the way leak rate tests were performed. He concluded by stating that he had no information regarding the alleged falsification of leak rate test data at TMI Units 1 or 2 and could recall no discussions with anyone in the management staff at TMI which would indicate that management personnel were aware of and condoned such practices. This interview was then terminated at 11:45 AM. The results of this interview was dictated, on October 19, 1983 at 2:30 PM. End of Report of Interview.

Reported by:

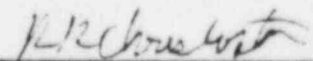

R. K. Christopher, Director
Office of Investigations
Field Office, Region I

EXHIBIT 28

REPORT OF INTERVIEW OF MERRILL SHAFFER/11-16-83

REPORT OF INTERVIEW

Merrill Ray SHAFFER was interviewed on November 16, 1983 commencing at 0950 by NRC Investigator R. K. CHRISTOPHER. The interview was conducted in the office of the law firm of Killian and Gephart in Harrisburg, PA. Present during the interview at SHAFFER's request were his personal attorneys, Smith B. GEPHART and Jane PENNY. Ms. PENNY was present during the latter portion of the interview and not during the initial phase of the interview. SHAFFER stated that he is currently employed at the Three Mile Island Nuclear Generating Station as a startup and test engineer at TMI-1. He said he has been in that position since October 1982. Prior to this position SHAFFER said he was the staff assistant for the Director of Startup and Test who he identified as Mr. Gary MILLER. He also advised that during 1978 and the early part of 1979 he was a staff assistant to the Unit 2 Superintendent. He said this position was first held by Mr. MILLER who was in an acting capacity and later by Joseph LOGAN who took over as the formal Superintendent of TMI Unit 2 in the latter part of 1978. SHAFFER described his duties as receiving all incoming and outgoing correspondence for both MILLER and LOGAN in their respective positions, maintaining of certain personnel folders, and the preparation and recording of staffing reports and the significant events of reports. SHAFFER was questioned as to whether or not Gary MILLER attended the plan-of-the-day (POD) meetings during which plant operational events were discussed. SHAFFER stated that it was his recollection that MILLER did not routinely attend the POD meetings. He said that MILLER, on occasions, attended these meetings but he was unable to recall with any clarity the actual number of times or frequency in which MILLER attended the meetings. He said that he never attended any of the POD meetings with MILLER and as such did not know what the subject of any conversations were during those meetings. He also stated that he never prepared any notes, files or memorandums for MILLER as a result of any concerns or thoughts MILLER had as a result of the POD meetings. SHAFFER did state that there was a weekly staff meeting which was attended by Gary MILLER when he was the station superintendent. He said this meeting was held approximately once a week and would last for one or two hours in duration. He said that the purpose of this meeting was to provide MILLER with a weekly

status report from each of the various departments in the plant. He said that attendees of these meetings would usually include the various department heads such as: Joe LOGAN, James SEELINGER, Dan SHOVLIN, Michael ROSS, Jim FLOYD and Dick SIEGLITZ. He said there were at times other individuals who attended in place of these individuals and there were also occasions when some of these individuals would not attend the meetings at all. SHAFFER explained that an agenda was prepared for these meetings in advance by himself. He said that he prepared this agenda by contacting or being contacted by the various department heads who would advise him of what topics they wished to discuss at the staff meeting. He said this agenda would then be prepared and distributed to the attendees and the items would be discussed in their order by the various department heads. He said MILLER also provided agenda items for this meeting. SHAFFER said at the conclusion of covering the items on the agenda they would also have a "around the table discussion" regarding any other items of interest.

SHAFFER said that there were no formal minutes recorded of these meetings nor any type of summary, formal or informal, prepared subsequent to the meeting to document what discussions were held or what if any decisions were made. He stated that to his recollection these agendas were filed in the station superintendents files. He said any notes that were taken would have been "scribble" type notes that were put on the agenda as various topics were discussed and would be very limited in detail. SHAFFER also stated that while he attended these staff meetings he had no recollection of any discussions concerning problems being experienced with the Unit 2 leak rate test surveillance procedure. He also stated that he was aware of no similar discussions regarding any similar problems being experienced at Unit 1 regarding the surveillance procedure. He also stated that irrespective of the procedure, he did not recall there being any discussions or concerns being stated that indicated there was any type of Reactor Coolant System (RCS) leakage problems at either Unit 1 or Unit 2. SHAFFER clarified at this point that he was not a licensed individual and had no personal or technical knowledge of the actual performance of the leak rate test surveillance procedure or of its requirements. He specifically denied that he recalled having any discussions with Gary MILLER which would indicate that MILLER was aware of or concerned about problems with RCS leakage or the RCS leak rate test procedure at either TMI Units 1 or 2.

In response to questions about any other meetings attended by MILLER, SHAFFER stated that he had no recollection of there being any formal meetings between Gary MILLER and Jack HERBEIN. He stated that he was aware that MILLER and HERBEIN spoke frequently in telephone conversations but he was not a party to those telephone calls and he did not know what the discussions were. He said it was his understanding that these topics usually centered on the day to day plant status. He also stated that he had no knowledge of MILLER routinely talking to GPUN President, Robert ARNOLD, about the plant status including any problems with the RCS leak rate test for TMI Unit 1 or 2. He conjectured that he would have known if MILLER and ARNOLD were meeting or talking on a routine basis and for this reason he said that he did not believe that this was occurring.

SHAFFER did deny that he had any personal knowledge of operators at either TMI-1 or TMI-2 attempting to manipulate the RCS leak rate test results by the addition of hydrogen or water to the makeup tank during the test. Further he stated that he did not recall any discussions or concerns raised by MILLER, HERBEIN or other managers which would indicate that they were knowledgeable with respect to the what the operators were actually doing to get good leak rate test results. SHAFFER also stated that MILLER had an open door policy during his tenure at the plant and that he would talk to any individual who felt he had a concern and who wanted to discuss any problems that he was having with the way the plant was being run. SHAFFER said that in this regard he did not recall any particular individual going to MILLER to discuss any particular individual problems.

SHAFFER went on to explain that in terms of the management reporting chain at TMI, Gary MILLER at one time reported to Mr. Lawrence LAWYER who was the Manager of Generation Operations for both fossil and nuclear plants. He said during the early to mid part of 1978 LAWYER's responsibilities were changed to only fossil plants and MILLER took over the duties for all nuclear operations. He said from that time on MILLER then reported directly to HERBEIN regarding TMI matters.

SHAFFER went on to state that he had no recollection of being involved in the drafting of any memorandums or instructions to plant personnel regarding the RCS leakage procedure or any recommendations or indications that a problem had

been identified at that level. SHAFFER stated that he was not personally aware of the fact that leak rate test results were being thrown away and has no knowledge of as to whether or not Gary MILLER or any other plant supervisors were aware of the fact that leak rate test results were being thrown away. He said he had no recollection of overhearing any discussions among the plant managers regarding this particular topic.

SHAFFER stated that he could not recall any particular discussions that took place between plant management in any of the staff meetings or daily meetings regarding particular problems with RCS leakage at TMI- 1 or TMI-2. He stated that he does recall hearing general conversations among various engineers that TMI-2 was going to be brought down for repairs as soon as TMI-1 came back on line from the refueling outage. He said that he only recalled this as a general topic of discussion among plant personnel and he had no specific knowledge as to what the reasons were for the plans to bring the Unit down after Unit-1 was back on line.

SHAFFER denied having any knowledge relative to the initiation and review of Temporary Change Notice (TCN) 2-19-070 regarding a change in the calculation methodology for RCS leakage. SHAFFER also denied any knowledge of Licensee Event Report (LER) 78-62/1P, regarding a technical specification violation concerning RCS unidentified leakages and any knowledge of management decisions or actions taken in response to it.

SHAFFER concluded by denying that he had any knowledge of alleged falsification at TMI Unit 1 or 2 and denied having any information or knowledge as to whether plant or corporate management were aware of the

alleged falsification. The interview then concluded at 11:05 AM. This interview was recorded from the investigator's notes at 4:00 PM on November 16, 1983.

Reported by:

R. K. Christopher
R. K. Christopher, Director
Office of Investigations
Field Office, Region I

EXHIBIT 29

SWORN STATEMENT OF RICHARD DUBIEL/8-25-83

cc: Hershey, PA
Date: 26 August 1983

STATEMENT
(typed copy of original)

I, Richard W. Dubiel, hereby make the following voluntary statement to Keith Christopher who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator Christopher is writing this statement for me at my request.

As background information I am currently Manager of Engineering for Nuclear Support Services in Hershey Pa. During the 1978-1979 time period I was Supervisor of Radiation Protection and Chemistry.

I had no direct involvement in the performance of leak rate tests at TMI 2 except that from a radiological standpoint I would be concerned about radwaste control. I had no knowledge of any discussions or concerns regarding excessive leakage at TMI Unit 2. I was not aware of any incidents in which operators added water or hydrogen to the makeup tank during the leak rate test for the express purpose of manipulating the leak rate test results. Further, I have no knowledge of any management officials who condoned such activity. I was not aware that adding hydrogen to the make-up tank would affect the tank level.

I do recall that in most cases, to add hydrogen to the tank it was necessary to send an auxiliary operator down to the H₂ addition status to do it. While I was a member of the PORC during the time period in question I do not recall any meetings or discussions relative to LER 78-6/IT. I am not aware of any discussions or rationalizations to justify rounding of the test results in order to get back into compliance as stated in the LER.

I am not aware of any request made by a plant shift supervisor to the load dispatcher to shut down the plant to reduce excessive leakage. I do not recall our procedures for shutdown operations in such a fashion.

I was not aware as to whether or not operators were throwing away bad leak rate test results or as to what the operations department policy was for maintaining these records. I have no other pertinent information I can provide regarding the leak rate test program.

I have read the foregoing statement consisting of 2 handwritten pages. I have made and initialed any necessary corrections and have signed my name in ink in the margin of each page. This statement is the truth to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is true and correct. Executed on 8/26/83 at 10:20.

INTERVIEWEE: Original signed by Richard W. Dubiel

Subscribed and sworn to before me this 26th day of Aug, 1983, at 10:21.

INVESTIGATOR: Original signed by R. K. Christopher 8/26/83

EXHIBIT 30

SWORN STATEMENT OF RICHARD ZECHMAN/8-25-83

STATEMENT
(typed copy of original)

I, Richard W. Zechman, hereby make the following voluntary statement to Keith Christopher who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me. Investigator Christopher is writing/typing this statement for me at my request.

As background information I am currently the Technician Training Manager for TMI Units 1 and 2. I have been with the company since Sept. 1969. During the 1978-1979 time period I was first promoted to Supervisor of Training and then entered a personal training program to obtain an SRO license.

With regards to the leak rate test program the training dept. function was limited to quoting the technical specification and the reporting requirement for the leak rate test but not the actual implementation of the procedure.

During the 1978-1979 time frame I was not in any way involved in the actual performance of the leak rate test program at TMI 2. As such I had no knowledge or information as to whether or not operations were adding hydrogen or unrecorded water additions to the make-up tank during the leak rate test for the express purpose of affecting the test results.

Additionally I have no knowledge or information as to whether or not supervisory personnel condoned such activity.

I am not aware of any individual being pressured or otherwise coerced to get good leak rate test results. I am not aware of any justification for accepting negative leak rate test results nor was I aware of any decision to round off leak rate test results.

Finally I am not aware of any shift supervisor requesting the load-dispatcher to give permission to shut down the plant to repair excessive leakage and that request being denied.

I have read the foregoing statement consisting of 2 handwritten pages. I have made and initialed any necessary corrections and have signed my name in ink in the margin of each page. I swear that the foregoing statement is true and correct. Signed on 8/25/82 at 1320.

SIGNATURE: Original signed by Richard W. Zechman 8/25/83

Subscribed and sworn to before me this 25th day of Aug, 1983,
at 1:21 PM.

INVESTIGATOR: Original signed by R. K. Christopher 8/25/83

EXHIBIT 31

SWORN STATEMENT OF DWAYNE B. JENKINS/8-17-83

Place: TMI
Date: 8/17/83

STATEMENT
(typed copy of original)

I, Dwayne B. Jenkins, hereby make the following voluntary statement to R. K. Christopher who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me.

As background information I have been employed at TMI since 1977 primarily as a mechanical engineer in Unit 2 plant engineering.

I had no direct involvement in the leak rate program in Unit 2 as my work involved other areas which included general plant support to operations and maintenance departments as assigned (by) my lead mechanical engineer or supervisor.

I have no direct knowledge of operators adding Hydrogen or water to the make-up tank for the purpose of manipulating leak rate test results nor am I aware of any supervisory involved in such activities.

I am not aware of any plant personnel rounding off leak rate test results nor throwing away test results.

I do not remember any requests being made to the reading load dispatcher for plant power reduction as a result of excessive leak rate.

I have read the foregoing statement consisting of 2 handwritten/typed pages. I have made and initialed any necessary corrections and have signed my name in ink in the margin of each page. This statement is the truth to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is true and correct. Executed on 8/17/83 at 10:30.

INTERVIEWEE: Original signed by Dwayne B. Jenkins

Subscribed and sworn to before me this 17th day of Aug, 1983,
at 10:30 AM.

INVESTIGATOR: Original signed by R. K. Christopher 8/17/83

EXHIBIT 32

SWORN TESTIMONY OF JOHN BRUMMER/10-17-83

ORIGINAL

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of:

INVESTIGATION OF:

THE OFFICE OF INVESTIGATION
AND ENFORCEMENT

Docket No.

TESTIMONY OF JOHN ALLEN BRUMMER

Location: Harrisburg, Penna.

Pages: 1 - 47

Date: Monday, October 17, 1983

TAYLOR ASSOCIATES

Court Reporters
1625 I Street, N.W. Suite 1004
Washington, D.C. 20006
(202) 293-3950

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

IN RE:

INVESTIGATION OF:

THE OFFICE OF INVESTIGATION
AND ENFORCEMENT

TESTIMONY OF
JOHN ALLEN BRUMMER

Americana Host Inn
4751 Lindle Road
Room 383
Harrisburg, Pennsylvania

Monday, 17 October 1983

APPEARANCES:

R. KEITH CHRISTOPHER, Director
Office of Investigations, Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

JANE G. PENNY, ESQ.
Killian & Gephart
216-218 Pine Street
Box 886
Harrisburg, Pennsylvania 17108
On behalf of John Allen Brummer

C O N T E N T S

THE WITNESS

EXAMINATION

John Allen Brummer

by Mr. Christopher

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P R O C E E D I N G S

(1:05 p.m.)

MR. CHRISTOPHER: Today is October 17, 1983.

We are currently in the Host Inn in Harrisburg, Pennsylvania to take testimony from Mr. John Allen Brummer.

My name is Keith Christopher. I am an investigator with the United States Nuclear Regulatory Commission, Office of Investigations, Region I.

John Brummer is represented here today by Miss Jane Penny, an attorney with the firm of Killian & Gephart of Harrisburg, Pennsylvania.

John, as you know, this interview is being conducted under subpoena and your being here today is appreciated and takes care of compliance with that subpoena.

For the purposes of this interview, I am going to put you under oath and then we will proceed with the interview. So if you would raise your right hand.

Whereupon,

JOHN ALLEN BRUMMER

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

EXAMINATION

BY MR. CHRISTOPHER:

Q John, would you state your full name and address for the reporter?

1 A John Allen Brummer, 35 Valley Drive, R.D. 3, .
2 Annville, Pennsylvania 17003.

3 Q John, how old are you?

4 A Thirty-one.

5 Q What is your current position?

6 A My current position is technical engineer with
7 Metropolitan Edison Company.

8 Q How long have you been in that position?

9 A Since August 1, 1983.

10 Q What was your previous position?

11 A Start up and test manager for Oyster Creek
12 Nuclear Power Station.

13 Q How long were you in that position?

14 A I was in that position two years.

15 Q So from --

16 A From August 1, 1981 to August 1, 1983.

17 Q And prior to that?

18 A Prior to that I was at Three Mile Island as
19 lead instrumentation engineer.

20 Q Who was your supervisor at that time?

21 A George -- at the very end it was a transition
22 between Branch Elan and Ed Gishel.

23 Q I'm sorry. Who was the --

24 A Branch Elan.

25 MS. PENNY: Spell that.

1 THE WITNESS: B-r-a-n-c-h E-l-a-n.

2 BY MR. CHRISTOPHER:

3 Q And you said you also worked for Ed Gishel.

4 A Yes, he was just coming in.

5 Q And that is G-i-s-h-e-l?

6 A I believe so.

7 Q Who did they report to? Was that part of technical
8 support?

9 A It was part of the recovery group which reported
10 to John Barton.

11 Q How long did you say you were actually physically
12 at Three Mile Island?

13 A I was at Three Mile Island since approximately
14 March 18, 1974.

15 Q Did you work with or for Ivan Porter?

16 A Yes.

17 Q What was the relationship between your function
18 and his?

19 A That changed a couple times. At the end, the last
20 portion of the time when I was working with him, I was
21 working for him as an instrumentation engineer. He came
22 over from GPU Nuclear start up group where we were more or
23 less equal functions.

24 Q Was your primary area of responsibility at
25 Unit 1 or Unit 2?

1 A Unit 2.

2 Q Did you also work for George Kunder?

3 A Yes.

4 Q How long did you work for George?

5 A That was actually through Ivan, and then during
6 the period of time which I was in license training, I
7 reported to George, I guess.

8 Q That would have been when? What time period
9 would you have been reporting to George?

10 A That would have been from, say, January 1979
11 through March, the time of the accident.

12 Q Can you describe, John, the type of responsibili-
13 ties and work that you did in, let's say, the six-month
14 period prior to the accident, six to eight months, in that
15 period? What kind of functions and work were you actually
16 performing on a day-to-day basis?

17 A From about January 1979, end of December,
18 beginning of January 1979 through to the accident, I was in
19 the license training program; at which time I was in
20 training for the NRC SRO license.

21 Prior to that, for about five to six months, I
22 was responsible for control systems tuning in the plant,
23 working under Ivan Porter. And what I was doing is I was
24 tuning the integrated control systems working on the
25 non-nuclear instrumentation and making sure its calibrations

1 were kept up.

2 Q Mostly on non-nuclear instrumentation?

3 A And in nuclear, both.

4 Q Are you familiar with technical specification
5 3.4.6.2 which places limits on the amounts of RCS during
6 steady state operations?

7 A I know there is a specification that places
8 limits on that.

9 Q I have it here. Feel free to refer to it
10 whenever you would like, John.

11 I want to ask you a few questions about it.
12 Did you ever personally perform that particular technical
13 specification? There is a surveillance requirement that
14 implements the technical specification.

15 MS. PENNY: This is the leak rate test?

16 MR. CHRISTOPHER: This is 2301-3D1.

17 THE WITNESS: No, not to my knowledge.

18 BY MR. CHRISTOPHER:

19 Q You never personally performed it?

20 A Never personally performed it, to my knowledge.

21 Q Have you ever looked at or reviewed that
22 surveillance procedure?

23 A I would say that I have looked at the procedure
24 before, but as far as, you know, review, I never did a
25 detailed review of it, to my knowledge.

1 Q You said you never actually performed a leak
2 rate test?

3 A To my knowledge, no.

4 Q Did you have any involvement in review and
5 approval of this procedure in its preparation? Would you
6 have been involved in any way?

7 A Yes. I could have been. I can't say for sure.
8 I don't remember.

9 Q If you would have been, under whose auspices
10 would that have been?

11 A I was a PORC member, so I would have been
12 observing on the PORC committee.

13 A Which would have been a review and approval --
14 in other words, you would not necessarily have drafted the
15 procedure, but you would have been part of the review?

16 A PORC served as the review function for technical
17 specification procedures as well as operating procedures.

18 Q What was the time period that you were a
19 member of the PORC?

20 A I would say from about July 1978 back.

21 Q July 1978 and back?

22 A Back through sometime in 1974.

23 Q But you were not on the PORC through 1979?

24 A I was on PORC but as an alternate, not a
25 primary, member.

1 Q What does that mean?

2 A The requirements of the technical specifications
3 state that there are certain people that are designated as
4 primary members and then you have alternates, and you
5 have to have so many of each to make up a PORC meeting.
6 And I was an alternate at that time, after 1978.

7 Q In other words, if you needed a quorum for a
8 PORC review, then you would serve if the primary member
9 wasn't available, something like that?

10 A But there is numbers in the technical
11 specifications which I cannot read off to you. I don't
12 have them. That would tell you how many primaries and
13 how many alternates you must have.

14 Q Are you personally familiar with the surveillance
15 requirements of unidentified leakage and the technical
16 specification limit that limits unidentified leakage to
17 one gallon per minute?

18 A I don't remember the exact limits. I would have
19 to read the specifications because it has been years since
20 I looked at them.

21 Q During that time period, the technical
22 specification and, of course, the surveillance, which if
23 you want to look at it, go right ahead, placed limits on
24 unidentified leakage of one gallon per minute and on
25 identified leakage of ten gallons per minute.

1 A Yes.

2 Q Do you have any understanding or any recollection
3 of what your understanding was as to how the Unit 2
4 operating personnel met that requirement to maintain the
5 one gallon unidentified?

6 A No.

7 Q Do you have any -- I think if you will read
8 the frequency requirements, it states "at least once
9 every 72 hours during steady state operations." Do you have
10 any particular interpretation of how often this surveillance
11 procedure was supposed to be performed?

12 A In accordance with the procedure, it says it has
13 to be done once per 72 hours during steady state operation.

14 Q So then your understanding would be that if you
15 ran it once over a three-day time period, that would
16 satisfy the requirements?

17 A Reading this document, that is what it states.

18 Q Were you aware of the fact that operators were
19 running this particular procedure multiple times a day
20 during the shifts, particularly the back shifts?

21 A No, I had no real notification of that or
22 awareness of it.

23 Q You didn't know that they were running, say,
24 maybe three or four leak rate tests per shift?

25 A No.

1 Q Did you ever have any discussions with anyone,
2 such as Ivan Porter or anyone in the operations department,
3 about the way they were running the leak rate test or why
4 they were running it the way they were?

5 A Not that I can remember.

6 Q Would you personally be able to run a leak rate
7 tase if you were asked to? Would you have been personally
8 familiar with it at the time?

9 A I could --

10 Q You could take the procedure --

11 A I could take the procedure and follow the
12 procedure, but as far as knowing how to do it right off
13 the cuff, no.

14 Q Do you know if the operators were required to
15 log the performance of every surveillance test?

16 A I don't know. I don't remember the specific
17 requirements.

18 Q Not just specifically for leak rates. Do you
19 have a general knowledge as to what the requirements were
20 for recording the performance of a surveillance test?

21 A I don't remember.

22 Q Did you perform any surveillance tests yourself
23 at the time that you were at Three Mile Island?

24 A Not to my -- not that I remember.

25 Q You would not perform surveillance tests?

1 A It was not typically my function to perform
2 surveillance tests.

3 Q These calibrations, those types of things, they
4 were more -- what would you characterize those as?

5 A Those are a combination of -- could have been
6 surveillances or it could have been just normal maintenance.
7 However, it was still a technician's job to perform them.
8 I was just overseeing them and looking at the data.

9 Q I was just trying to make sure I understood the
10 difference between what you did and what a surveillance
11 test would be.

12 You are not aware of whether or not all
13 surveillance tests are supposed to be logged in, whether it
14 be the CRO log or a maintenance log or anything to that
15 nature?

16 A I don't remember specifics.

17 Q Do you recall any technical specifications or
18 administrative procedures that would place requirements to
19 that effect?

20 A I don't remember right now.

21 Q Were you aware of the fact that the operators
22 were having a difficult time getting good leak rate test
23 results?

24 A No.

25 Q Prior to the accident, the six- to eight-month

1 period prior to the accident?

2 A No.

3 Q Did you ever have any discussions with the people
4 that you worked for such as Ivan Porter, George Kunder, did
5 you discuss at any time with those individuals problems with
6 leak rates or problems with excessive valve leakages, they
7 were affecting the plant's operability?

8 A No.

9 Q Valve leakage, those things would not have been
10 a primary concern to you in that function?

11 A Not the function I was in, no.

12 Q Have you ever looked at the, had occasion to watch
13 a control room operator actually perform one of these tests?

14 A I have watched surveillance tests being performed.

15 Q Specifically this one, do you recall that?

16 A I may have. I don't remember any specifics.

17 Q Did you spend much time in the control room?

18 I am trying to talk in that time period six to eight
19 months prior to the accident. Did you spend much time in the
20 control room during that period?

21 A I spent time in the control room. "Much" is
22 sort of vague. You will have to be more specific.

23 Q Why don't you tell me how often you would spend
24 in the control room. What you would normally expect to be
25 doing when you were there.

1 A I was in the control room a couple hours a week
2 while I was in training, just to observe locations of
3 equipment so I could study for my tests and just to watch
4 some surveillances being routinely run.

5 Q This was for your -- you were studying for the
6 SRO?

7 A Yes. And then prior to that, when I was working
8 on the control systems, talking about manipulations we were
9 going to take the plant through as part of the power
10 escalation program to perform the test procedures.

11 Q Did you have an operator's license?

12 A At that time?

13 Q A CRO license. Were you a licensed operator?

14 A Six to eight months before the accident?

15 Q Yes.

16 A No. I had finished my exam the week before the
17 accident.

18 Q For an operator?

19 A Yes. For an SRO license.

20 Q But during those time periods that you were in
21 the control room, you don't specifically recall ever
22 observing or watching the leak rate test being performed or
23 having any discussion with any operators or shift supervisory
24 personnel about the performance of that test?

25 A No.

1 Q Do you recall what kind of surveillance test
2 you normally would have observed or walked through as part
3 of your training?

4 A It was more or less what was going on in the plant
5 at the time. I had looked at most of the procedures
6 beforehand. And what was being scheduled when I was there
7 I would have been observing.

8 Q What was going on at that particular time.

9 A Right.

10 Q Did you work mostly day shifts?

11 A Mostly day shifts.

12 Q Would you have had any responsibility for
13 reviewing control room operators' logs, those type of
14 things, in an effort to determine their or verify their
15 accuracy?

16 A Not in my function, no.

17 Q Do you know who would have had the responsibility
18 to do that?

19 A I don't recall.

20 Q Do you know in terms of -- you said you don't
21 really perform surveillance tests, but as a general
22 practice, if a surveillance test, let's say that a
23 surveillance test has to be recorded, whether it is this
24 one or any one, and the test starts at 1:00 o'clock and
25 it ends at 3:00 o'clock -- it is a time function -- how

1 would you expect that test to be logged? .

2 Would it be logged only at the completion of the
3 test and recorded in the results, or would you expect that
4 they would log at the start of the test time, 1:00 o'clock,
5 and then log the completion of the test, time 3:00 o'clock,
6 and the results? Do you know how that was done?

7 A I would have to go back and look at the require-
8 ments. I don't remember.

9 Q From your own knowledge, do you have any idea as
10 to what the normal practice was for recording data in
11 that manner?

12 A No, I don't.

13 Q You don't know whether they would record start and
14 stop times?

15 A I don't know what they recorded, no.

16 Q Are you personally aware of or have you heard
17 at that time that operators were throwing away leak rate test
18 results?

19 A Not that I remember, no.

20 Q This is again, this is during this six to
21 eight months prior to the accident up to the time of the
22 accident.

23 A I assumed that.

24 Q At no time during the period do you recall being
25 aware that they were throwing away tests?

1 A No. Like I said, it wasn't my function to really
2 be participating in that.

3 Q And you don't recall ever hearing discussions as to
4 whether that was an acceptable practice among other
5 supervisory personnel?

6 A Not at that time, no.

7 Q Have you since heard individuals discussing it?

8 A I have heard discussions about it, but that is it.

9 Q What discussions and in what context?

10 A That the questions were raised. That is all.

11 Q Have you talked with any individuals since
12 that time who have indicated that they were aware of the
13 practice and policy of throwing test results away, as to
14 whether or not it was a proper interpretation of procedures
15 to do that?

16 A No.

17 Q Do you know if anyone specifically authorized the
18 throwing away of test results?

19 A No.

20 Q Do you know if it is common practice at
21 Three Mile Island, not just regarding this specific test,
22 to throw out surveillance tests that are considered
23 unacceptable? By "unacceptable" I mean you don't think it
24 is a valid test or for any reason that you find that maybe
25 it doesn't meet the tech spec results. Do you know what the

1 standard practice is on that type of thing?

2 A No.

3 Q Do you have any idea as to whether or not the
4 operators are required to maintain all the surveillance
5 tests that they run?

6 A I would have to go back and review the
7 requirements. I can't remember.

8 Q But you personally were not involved in any
9 surveillances, so you did not personally have a policy of
10 either keeping or throwing away test results?

11 A No.

12 Q And you have no idea what was supposed to happen,
13 formally happen with the leak rate test results, whether they
14 met or did not meet tech specs?

15 A No.

16 Q Do you know how operators determined whether or
17 not a leak rate test was valid or not? They would run
18 a test, get a result.

19 A If I go back to the surveillance procedure
20 2301-3D1, it tells me what the requirements are there.
21 That is your acceptance criteria.

22 Q Beyond what is in the procedure, you don't
23 know how they went about determining the validity of test
24 results?

25 A No.

1 Q Do you recall discussions relating to the fact
2 that it was very difficult to get good leak rate test
3 results at that time and specifically with respect to the
4 unidentified leak rate of one gallon per minute?

5 A No.

6 Q Or any concerns related to their inability to
7 consistently get a good leak rate?

8 A No.

9 Q Has anyone ever told you, either then or now, that
10 the main reason that the leak rate tests were thrown away --
11 there were tests thrown away -- that the main reason that
12 they were thrown away was so that the NRC would not see
13 them?

14 A No.

15 Q Do you have any reason to believe that that was the
16 case?

17 A No.

18 Q You are not aware of whether or not the plant
19 was ever placed into an action statement as required by the
20 tech specs as a result of this particular leak rate test?

21 A To my knowledge, no.

22 Q Do you have any idea or do you recall any
23 discussions with individuals regarding what level of
24 management decision it would take to invalidate a test result?

25 A No.

1 Q Besides a leak rate test, are you aware of what .
2 specific level a surveillance result would have to go to in
3 order to determine if an operator felt -- let's stay with
4 operations but not specifically a leak rate test -- if an
5 operator had a reason to believe for one reason or another
6 that the test was invalid, could he himself invalidate the
7 test, or would he have to get the concurrence of the
8 shift foreman, the shift supervisor, or would it have to go
9 to someone else? Do you know?

10 A I have no idea what the requirements were.

11 Q You have no knowledge of any particular
12 supervisory individual invalidating a leak rate test result?

13 A No.

14 Q Or authorizing its throw away?

15 A No.

16 Q Do you have any idea as to why it was difficult
17 to get good leak rates at that time?

18 A No.

19 Q Do you recall -- you say you don't recall any
20 discussions relating to their inability to get good leak
21 rates?

22 A No.

23 Q That was just something you would not be
24 involved in?

25 A I was not normally involved in that.

1 Q Would you be in any way involved in the performance
2 of leak rate tests?

3 A Just maybe from an occasional observation when I
4 was in the control room. That would be it.

5 Q But you don't specifically recall being,
6 observing any particular test?

7 A No.

8 Q Are you aware of whether or not a negative leak
9 rate can be obtained? Let's say they run the test for an
10 hour and you end up with an unidentified leak rate of a
11 negative half gallon, .1 gallons per minute. Would you,
12 are you familiar with getting negative leak rates?

13 A Not to my knowledge.

14 Q Would you consider, in a technical function such
15 as yours, would you consider a negative leak rate an
16 acceptable result?

17 A It would be based on the magnitude because it
18 is measured by instrumentation which has a plus or minus
19 accuracy. Beyond that, I don't know the specifics of the
20 instrumentation, so I couldn't tell you.

21 Q You wouldn't necessarily automatically invalidate
22 a leak rate test then because it had a negative result?

23 A No.

24 Q If you reviewed -- from your knowledge of the plant,
25 whatever plants you run, if you reviewed the leak rate test

1 results for Unit 2 -- I think there was 170 -- and out of
2 the 170 there were 39 that had a negative leak rate test
3 result, would that raise any concerns to you?

4 A Not specifically.

5 Q Would you have any reason to be concerned about
6 39 out of 170 having a negative result?

7 A Without going through a specific review, I
8 couldn't have any impact.

9 Q Is it physically possible to have a negative
10 unidentified leak rate, do you know? In other words, to have
11 a negative leak rate you would have to assume that the plant
12 is making water.

13 A No.

14 Q It is not physically possible?

15 A Not to my knowledge.

16 MS. PENNY: Would you have to assume that the
17 plant was making water?

18 THE WITNESS: You could look at the accuracy
19 instrumentation.

20 BY MR. CHRISTOPHER:

21 Q It would depend on the amounts of negative
22 leakage. In other words, you are saying if you saw a
23 negative leak rate of a minus .12, that may not concern you,
24 that may fall within an error band. But if you saw a negative
25 leak rate of 2.5, is that what you mean by --

1 A Yes. You would have to look at the error on it.
2 I have no idea what it is.

3 Q What, to your own knowledge or just your
4 own opinion right now, would you consider to be a negative leak
5 rate that would be within an acceptable band?

6 A I couldn't answer that question without knowing
7 more about the instrumentation. It has been too long.

8 Q You said you never performed leak rate tests?

9 A To my knowledge, no.

10 Q And so you have never thrown away any leak rate
11 test result?

12 A No.

13 Q Are you aware of what supervisors or what
14 individuals within the management, particularly in the
15 operations department, Bernie Smith, Jim Floyd, are
16 you familiar with any individuals that were aware that those
17 leak rate test results were being thrown away?

18 A No.

19 Q You never recall hearing any discussions at that
20 time to that effect?

21 A No.

22 Q Have you since that time talked with any of
23 these individuals who have indicated to you that they
24 were aware that the leak rate tests were being thrown
25 away?

1 A No.

2 Q You have not talked to any of these individuals
3 or any others about this?

4 A Not about this, no.

5 Q You have no idea as to how often they were running
6 the leak rate tests?

7 A No, just what the frequency is based on what is
8 stated in the procedure here.

9 Q Do you recall during the time that you were at
10 TMI, particularly say in the three or four months prior to
11 the accident, a shift supervisor requesting permission from
12 the load dispatcher to shut down the plant to repair
13 excessive valve leakage?

14 A No.

15 Q Would you normally expect to hear about something
16 like that?

17 A No, because I was mostly in the training program
18 which wasn't really tied to the day-to-day operation.

19 Q During this training program, were there any
20 discussions -- I guess before I ask that, who was training
21 you? In effect, was this an ongoing training by being
22 there, or was this a classroom instruction type thing?

23 A Combination of both. I was under the
24 training department.

25 Q So who would primarily have been responsible for

1 training?

2 A As far as the planning of it, the training
3 department laid out the planned training which I should have.

4 Q Any particular individual?

5 A No.

6 Q And those included both classroom lectures and
7 hands-on type training?

8 A Hands-on meaning walk-arounds by instructors?

9 Q Yes.

10 A Yes.

11 Q Prior to the accident, at least three or four
12 months going back before the accident, were you -- did
13 you participate in any discussions regarding excessive
14 leakage from the code safeties or the PORV?

15 A No.

16 Q Do you recall any discussions relative to any
17 concern over the possible leakage from either one or both of
18 those valves? Actually there were three.

19 A I recall discussion, but I can't say whether it
20 was before or after the accident.

21 Q Do you recall who your discussions were with?

22 A No.

23 Q Were you aware, prior to those three or four
24 months prior to the accident, say particularly from
25 January on, that the code safeties or the PORV were leaking?

1 A There was a concern based on this discussion which
2 I can't remember was before or after the accident, but that
3 was it.

4 Q Do you recall if -- during that time, do you
5 recall if a determination had been made as to whether or not
6 the leakage was from the PORV or the code safeties?

7 A No.

8 Q I'm sorry?

9 A I don't recall specifically, no.

10 Q Did you at the time have any knowledge as to
11 whether or not the leakage, this excessive leakage was coming
12 from the PORV or the code safety?

13 A No.

14 MS. PENNY: Was the leakage ever characterized
15 as excessive?

16 THE WITNESS: No, not to my knowledge it was
17 never characterized as excessive.

18 BY MR. CHRISTOPHER:

19 Q You never discussed with anyone in particular
20 excessive leakage or problems with continued and increasing
21 leakage from these valves?

22 A No, not specifically.

23 Q Do you recall Gary Miller, Jim Floyd or any of the
24 individuals discussing that particular concern in such a
25 fashion as to whether or not they should continue to keep the

1 plant running with increasing leakage from these valves?

2 A No.

3 Q Did you have any -- did you sit in on the plan
4 of the day meetings at that time?

5 A During that period of time I was in training,
6 so most of the time I was not attending those meetings.

7 Q Were you personally aware of, during that time
8 period, of the higher than normal tailpipe temperatures
9 that they were experiencing?

10 A No, not specifically.

11 Q Were you aware of the fact that they had the
12 higher than normal tailpipe temperatures?

13 A I can't tell you whether it was before or after the
14 accident. I knew of discussions of a problem with the
15 unexpected leakage, not excessive leakage, and that would be
16 one indication. But I don't remember exactly when the
17 discussions were.

18 Q You don't remember who those discussions were with
19 or in what context they took place?

20 A It has been five years. It is hard to remember.

21 Q I understand.

22 Would you say it was not in the plan of the day
23 because at that time you were in training?

24 A Most of the time I was attending training and not
25 at the PODs.

1 Q So if you discussed that kind of leakage --

2 A What I said is that it could have been after
3 the accident. I don't specifically remember.

4 Q You don't remember whether it was before or after?

5 A That is correct.

6 Q Did you have any experience, personal experience
7 prior to the accident with increasing valve leakage?

8 A No.

9 Q Or the high tailpipe temperatures?

10 A No.

11 Q Do you know if all water additions made to the
12 RCS are required to be logged in some fashion?

13 A I don't know the requirements there, no.

14 Q Would you normally, just as an opinion, you
15 would expect that all water additions would be required
16 to be added?

17 A I would have to --

18 MS. PENNY: Required to be logged.

19 MR. CHRISTOPHER: Required to be logged. If
20 you are adding water to the RCS for a particular reason, would
21 it be reasonable to assume that, to expect that that addition
22 would have to be logged or recorded somewhere in order to
23 maintain some knowledge as to what your actual inventory was?

24 THE WITNESS: I don't know the requirements.

25 Okay?

1 BY MR. CHRISTOPHER:

2 Q Would you have expected -- this is just your
3 opinion. Would you assume that or would you think that
4 water addition should be logged in some fashion?

5 A It would seem logical.

6 Q Are you aware of operators making water additions
7 to the RCS that were not recorded?

8 A There again, I don't know what the requirements
9 were, so I can't answer that question.

10 Q But you are not aware of operators, say,
11 adding 500 gallons or 1,000 gallons from the make up tank
12 and not recording the entry in some fashion?

13 A No. I don't have any specific knowledge of that.

14 Q And have you had any discussion since that time
15 with any individuals as to whether or not that was occurring?

16 A No.

17 Q Were you aware of the fact that operators were
18 adding water to the RCS during the performance of a leak
19 rate test?

20 A No.

21 Q Did anyone ever tell you that they were adding
22 water and not recording the water addition during the test
23 in order to manipulate the leak rate test result?

24 A No.

25 Q Do you have any understanding as to how the addition

1 of water to the RCS during a leak rate test would affect
2 the leak rate test result?

3 A Leak rate is based on what is going in and what
4 is going out; the difference being your leakage out of the
5 system. So if you add water, from an engineering standpoint,
6 that is what happens. But I don't have any specific
7 knowledge of anybody doing that.

8 Q Did anyone ever tell you since that time that that
9 was the case?

10 A No.

11 Q You have no personal knowledge of any operator
12 adding water to the make up tank during the course of a
13 leak rate test that was not recorded?

14 A No.

15 Q Do you have any knowledge of any operator
16 attempting to manipulate a leak rate test result by any
17 manipulation of the RCS inventory?

18 A No.

19 Q Is there a requirement to add periodically
20 hydrogen to the RCS?

21 A There was a hydrogen requirement on the make up
22 tank.

23 Q What was the purpose of that, of the hydrogen
24 additions?

25 A Oxygen scavenging.

1 Q What parameters would the operators be watching
2 to make a determination as to when hydrogen would have to be
3 added?

4 A I can't remember.

5 Q Was hydrogen added from the control room or was
6 it added from a hydrogen addition station?

7 A I can't remember. I would have to go look at
8 a diagram.

9 Q Are you aware of hydrogen additions being made to
10 the make up tank for the express purpose of affecting
11 leak rate test results?

12 A No.

13 Q Has any individual admitted to you that they added
14 hydrogen to the make up tank during the test to affect the
15 test results?

16 A No.

17 Q Are you aware of any supervisory individual who was
18 aware that operators were adding hydrogen to affect the
19 test results?

20 A No.

21 Q Have you heard that that was, ever heard that that
22 was the case?

23 A No.

24 Q Do you today have any knowledge that would indicate
25 that other individuals knew that that was happening?

1 A No.

2 Q Did you work at all with Bill Fels?

3 A Yes.

4 Q In what capacity would you have worked with Bill?

5 A During periods when we were testing instrumentation

6 I would periodically talk to him about readings we were

7 getting in the computer to find out what points were

8 associated with it.

9 Q And in talking, in your recollection of talking
10 with Bill, did you ever discuss with him the leak rate
11 tests?

12 A No, not to my knowledge.

13 Q Do you know who actually prepared the program for
14 the leak rate tests for the computer?

15 A No, I don't.

16 Q Do you recall Bill Fels ever telling you that
17 hydrogen would affect the make up tank level?

18 A No.

19 Q In this job, do you have recall discussing with
20 Bill any calibration problems that they were having in
21 calibrations that they wanted you to make because of
22 problems with the leak rate tests?

23 A No. I don't remember any specifics.

24 Q You don't recall being assigned to do any
25 calibrations or, I don't know if maintenance task is the

1 right word, but a task associated with the leak rate test?

2 A Not that I remember.

3 Q That would be, that could be -- they had at
4 one time I guess they had a voltmeter on the RCDT that
5 would require -- they had two. I am not sure I understand
6 exactly because they changed it in 1978. At one time the
7 operators had to manually take the volt reading from the
8 RCDT to obtain the level. Then they changed it so that
9 it would automatically be read into the computer.

10 Did you have any involvement in that change?

11 A No.

12 Q So you don't recall being asked to do any work
13 with Bill Fels in terms of assisting in providing different
14 or new input for the computer program for the leak rate test?

15 A Not that I remember.

16 Q And you don't recall being directed to perform
17 any type of maintenance activity or calibration associated
18 with instrumentation that would affect the leak rate test?

19 A Not that I remember.

20 Q Do you have any idea how much hydrogen pressure
21 the operators would normally have to add if they were making
22 a hydrogen addition?

23 A No.

24 Q Who would know that? An operations --

25 A Operations personnel or I would go to the

1 procedures to find guidance.

2 Q Did you ever discuss with any of the operators
3 the fact that they felt that they were being pressured to
4 get good leak rate test results?

5 A No.

6 Q Are any of the operators particularly good
7 friends of yours at Unit 2 now, guys that you run around
8 with, that you are closely associated with?

9 A No, not specifically.

10 Q You don't have any particularly close relationship
11 with any of the operators?

12 A I have been away for quite awhile.

13 Q Tell me again, when was the last time, how long has
14 it been since you have been on the island?

15 A Approximately two years.

16 Q Since that time, has anyone told you or have you
17 been told that operators were being placed under pressure to
18 get good leak rate test results in order to keep the plant
19 running?

20 A No.

21 Q Or were you aware of operators being directed by
22 supervisors to manipulate leak rate tests by the addition
23 of hydrogen or water during the leak rate tests?

24 A No.

25 Q Would leakage from the code safeties or the PORV,

1 would they affect your ability to get a good leak rate?

2 A No. It was hard pipe to the drain tank.

3 Q That would be identified leakage, right?

4 A Yes.

5 Q How would identified leakage affect your ability
6 to get unidentified leakage?

7 A It wouldn't.

8 Q It seems to me that you, if we are talking
9 about instrumentation accuracy, the accuracy of the program,
10 and the error was within plus or minus a certain amount and
11 we were only talking about one gallon per minute unidentified
12 that any almost nominal change or variation in the identified
13 leak rate would then have a direct effect on the unidentified.
14 In other words, during the course of the test you have
15 continuing -- because you have this leakage, you have
16 your -- the RCDT level continues to rise because you have
17 this continued leakage at whatever rate it is going to be.
18 And since your unidentified is garnered by subtracting the
19 identified from the gross, would that not -- how could the
20 identified not affect the unidentified, I guess, is what
21 I am asking?

22 You can't have one without the other. I have
23 almost asked it because I am not sure I understand that
24 concept myself. I have had several individuals tell me
25 that it would not affect it. I have had just as many

1 individuals tell me that it has a direct effect on the
2 unidentified leak rate.

3 A Well, the leakage is either identified or
4 unidentified. If you have identified it, then you still know
5 what your unidentified is. So I don't understand how it would
6 affect it.

7 Q What about, do you know what kind of error band
8 they have in there?

9 A No.

10 Q Are you familiar or do you recall an LER that
11 was issued in October of 1978, and it was an entry into the
12 action statement because of the, because of excessive leakage
13 that exceeded the one gallon per minute unidentified?
14 You may possible have been on the PORC at that time. Let me
15 show you the LER and let you take a look at it for a minute,
16 just to familiarize yourself, John. Just take a look at this
17 LER.

18 (Pause.)

19 A Okay.

20 Q Did you have any personal recollection about that
21 LER?

22 A No.

23 Q Do you recall ever sitting in a PORC review
24 regarding the disposition of this LER?

25 A Not that I remember.

1 Q I think I said this was in October of 1978. Were
2 you -- the event date was October 19, 1978. Were you out
3 of the PORC as a primary member by that time?

4 A Yes.

5 Q But you would have still served as an alternate
6 member?

7 A If necessary. But I don't remember sitting in
8 on anything with regard to this LER.

9 Q Do you have any recollection about this LER at all?

10 A No.

11 Q You don't recall any discussions about the LER
12 with any individuals?

13 A No.

14 Q Can you tell me how an LER such as this would
15 normally be dispositioned as a matter of routine?

16 A I don't remember the normal disposition.

17 Q How did the normal sequence of events work in the
18 initiation of an LER? How would this document itself have
19 gotten initiated? Somebody had to write it and submit it.
20 I just wondered what the normal procedure is for follow-up
21 and preparation of these type things at that time?

22 A I don't specifically remember the flow path of
23 how they were performed.

24 Q Do you know who would normally actually prepare
25 in writing these, the LER?

1 A I don't think it is any one specific person.

2 Q You don't recall whether or not the licensee
3 people from Reading actually prepared the LERs?

4 A No.

5 Q When you hear the term "a cognizant engineer
6 assigned to the LER," do you know what that would mean?

7 A No, I don't remember.

8 Q So you don't have any recollection of this
9 whatsoever?

10 A No.

11 Q And you don't recall what the initiating event
12 was for this particular LER?

13 A No.

14 Q You don't recall -- do you recall hearing of
15 any instance where an NRC inspector walked into the
16 control room and found a leak rate test result that was
17 in excess of one gallon unidentified and that is what
18 resulted in this LER being initiated?

19 A I don't remember.

20 Q Have you since heard that?

21 A No.

22 Q Do you know, I asked you earlier about this
23 hydrogen addition. Do you know if auxiliary operators were
24 allowed to make hydrogen additions to the RCS?

25 A I don't know.

1 Q Would you have had, in your capacity, any review
2 responsibility for a TCN of this nature?

3 A No.

4 Q Are you aware of why this TCN was initiated?

5 A I can read the reason for change and that
6 describes why it was changed. But other than that, no.

7 Q Do you have any indication as to who -- can you tell
8 me who actually was the originator of this TCN? Would that
9 be this individual; I believe that is Tom Morck, M-o-r-c-k?

10 I guess what I am asking, is this signature
11 indicative of he being the individual that initiated the
12 action?

13 A No, not necessarily. The action could be
14 initiated by an event which he was assigned to resolve.

15 Q That is what I mean. This would be indicative
16 that he is the individual that prepared the TCN?

17 A Based on this saying "recommended by," it
18 leads me to believe that he recommended this one, prepared
19 it.

20 Q Do you know this particular individual?

21 A Yes. I know Tom Morck.

22 Q Do you recall ever discussing this particular
23 TCN with him?

24 A No.

25 Q Is he a supervisor? I notice he also signed

1 the supervisor's signature block. Was he in the
2 capacity to sign both sections?

3 A I can't answer that.

4 Q If you can, walk me through this. After he has
5 prepared this, can you explain what would happen next with this
6 TCN or, as a matter of routine, with any TCN?

7 A Well, it has the PORC signatures here. It
8 says "reviewed by members of PORC." Then it says "approved
9 by," and then the unit superintendent block and then
10 the shift supervisor's signature is also here.

11 Q What kind of review would the PORC do? How
12 detailed a review does a PORC normally do?

13 A The PORC would have the review of, a discussion
14 of the reason for a change; go over the evaluations that
15 were made, and go over the details of the preparation of the
16 change.

17 Q Would you have any -- would you expect that PORC
18 review would identify any errors in a TCN?

19 A It could.

20 Q Any substantive errors?

21 A It could. PORC is --

22 Q Is that one of its purposes, to identify errors or
23 deficiencies during its review?

24 A Its charter is to approve it. So in the state
25 of approving it, you would look to verify that it is

1 technically correct.

2 Q Do you have any independent knowledge as to
3 whether or not this TCN that refers to the RCS inventory
4 resulted in erroneous leak rates being produced?

5 A No.

6 Q So you have no independent recollection or
7 involvement in a review of this particular TCN?

8 A No.

9 Q And you were not a member of the PORC at that
10 time?

11 A No. I didn't sign it as a PORC member.

12 Q Can you tell me what this last -- can you
13 interpret the last signature there?

14 A From this copy, no.

15 Q Do you recall any discussions during the time
16 that you were at TMI 2 regarding whether or not to close
17 the block valve to the EMOV?

18 A No.

19 Q That would have been as a result of leakage
20 or trying to determine whether there was leakage from the
21 PORV.

22 A I was not part of any of those discussions, to my
23 knowledge.

24 Q And you said you were not aware that the plant
25 was operating prior to the accident with tailpipe temperatures

1 of 180 degrees?

2 A Not to my knowledge, no.

3 Q Did you participate in any discussions or meetings
4 when it was recognized that leakage, while not exceeding
5 tech specs, was continuing to increase?

6 A Not that I can recall.

7 Q And that repair was going to have to be made, but
8 the decision was made not to take the plant off line and
9 make that repair until Unit 1 came back from the refueling
10 outage?

11 A Not that I remember, no.

12 Q You have no -- you recall no discussions to that
13 effect?

14 A No.

15 Q Are you personally aware of any method used by
16 operators to get good leak rates that was not in compliance
17 with regulatory requirements?

18 A No.

19 Q Are you -- do you have any information regarding
20 falsification of leak rate test data at TMI at all?

21 A No.

22 Q Any personal information or knowledge as to
23 whether or not leak rates were actually being falsified?

24 A No.

25 Q Did you do any work at Unit 1?

1 A When I first came to Met Ed, yes.

2 Q Do you have any basis for comparison of how they
3 did leak rates at Unit 1 versus Unit 2?

4 A No.

5 Q None at all?

6 A No.

7 Q Has anyone admitted to you that they have any
8 knowledge of falsification of leak rate test data at TMI?

9 A No.

10 Q Has anyone admitted to you that they know
11 individuals who have knowledge of falsification of leak
12 rate test data at TMI?

13 A No.

14 Q Do you recognize these initials?

15 A No.

16 Q Have you ever seen this particular maintenance
17 memo before? Do you recall any discussions about it in the
18 last several weeks?

19 MS. PENNY: What is this?

20 MR. CHRISTOPHER: A work request.

21 THE WITNESS: Could you repeat the question?

22 BY MR. CHRISTOPHER:

23 Q Have you ever seen this maintenance memo before?

24 A Not that I remember.

25 Q And no one has discussed this memo with you in the

1 last several weeks or --

2 A No.

3 MS. PENNY: Is this Unit 1?

4 MR. CHRISTOPHER: Yes.

5 I don't have any other questions at this time.

6 We are going to terminate the interview and the time is

7 2:10.

8 (Whereupon, at 2:10 p.m., the interview was
9 concluded.)

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CERTIFICATE OF PROCEEDINGS

This is to certify that the attached proceedings before the
NRC COMMISSION

In the matter of: Investigative Interview of John A. Brummer

Date of Proceeding: Monday, 17 October 1983

Place of Proceeding: Harrisburg, Pennsylvania

were held as herein appears, and that this is the original
transcript for the file of the Commission.

Rebecca E. Eyster

Official Reporter - Typed

Rebecca E. Eyster

Official Reporter Signature

EXHIBIT 33

SWORN TESTIMONY OF JACK W. GARRISON/9-28-83

ORIGINAL

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of:

INVESTIGATIVE INTERVIEW OF:

Docket No.

JACK W. GARRISON

Location: Harrisburg, Pa

Pages: 1 - 43

Date: Wednesday, September 28, 1983

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

INVESTIGATIVE INTERVIEW

OF

JACK W. GARRISON

Americana Host Inn
4751 Lindle Road, Rm. 383
Harrisburg, Pennsylvania

Wednesday, September 28, 1983

APPEARANCES:

R. KEITH CHRISTOPHER, Director
PETER J. CONNOLLY, Investigator
Office of Investigations, Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

JANE G. PENNY, Esq.
Killian & Gephart
216-218 Pine Street
Box 886
Harrisburg, Pennsylvania 17108
On behalf of Mr. Garrison

P R O C E E D I N G S

(2:00 p.m.)

MR. CONNOLLY: The date is September 29, 1983.

The time is 1:58 p.m. We are in room 383 at the Americana Host Inn, 4751 Lindle Road, Harrisburg, Pennsylvania, for the purpose of obtaining information from Jack W. Garrison regarding the alleged falsification of leak rate test data at Unit 2, Three Mile Island Nuclear Generating Station, Middletown, Pennsylvania, prior to March 28, 1979.

Present in the room are myself, Peter Connolly, Keith Christopher, and both of us are investigators with the Nuclear Regulatory Commission, Office of Investigation, Region I; Jack W. Garrison and his attorney, Jane Penny, of the firm Killian & Gephart, located at 216-218 Pine Street, Box 886, Harrisburg, Pennsylvania.

Jack, the interview is being conducted under subpoena. You originally were scheduled for interview on the 30th of September at 1530, or 3:30 in the afternoon. This interview suffices that subpoena and fulfills the requirements of that subpoena.

It is my intent to put you under oath for the purpose of asking the questions relative to the false leak rate test data. Before I do that, just so you understand the ramifications of providing information under oath, I would like you to read U.S. Code Title 18, Section 1001.

1 (Pause)

2 MR. CONNOLLY: Do you understand what the Code
3 states?

4 THE WITNESS: Yes.

5 MR. CONNOLLY: Do you have any questions?

6 THE WITNESS: No.

7 Whereupon,

8 JACK W. GARRISON,
9 after being first duly sworn, was examined and testified as
10 follows:

11 MR. CONNOLLY: For the record, Jack, would you please
12 spell your full name and spell your last name?

13 THE WITNESS: Jack William Garrison, G-a-r-r-i-s-o-n.

14 MR. CONNOLLY: What is your present home address
15 of record?

16 THE WITNESS: 6326 Pine Street, Linglestown,
17 Pennsylvania.

18 MR. CONNOLLY: And what is your age?

19 THE WITNESS: 36.

20 MR. CONNOLLY: And who are you presently employed
21 with?

22 THE WITNESS: General Public Utilities Nuclear
23 Corporation.

24 MR. CONNOLLY: And how long have you been employed
25 with GPU Nuclear?

1 THE WITNESS: I've been there since April of 1973.
2 GPU Nuclear was formed just last year. I have been with
3 GPU systems since April 1973.

4 MR. CONNOLLY: What is your present job?

5 THE WITNESS: Presently I am a startup and test
6 engineer working as a construction test supervisor.
"

7 MR. CONNOLLY: Where?

8 THE WITNESS: At Three Mile Island Unit 1.

9 MR. CONNOLLY: How long have you been in that
10 position?

11 THE WITNESS: Since March of this year.

12 MR. CONNOLLY: Prior to the March 1979 accident at
13 Unit 2, what was your job title?

14 THE WITNESS: Prior to the accident?

15 MR. CONNOLLY: Prior to the accident.

16 THE WITNESS: I was a shift foreman in training.

17 MR. CONNOLLY: At which unit?

18 THE WITNESS: Unit 2.

19 MR. CONNOLLY: And how long were you in that
20 position?

21

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1 THE WITNESS: I was in that position from January
2 of '79 until the accident.

3 MR. CONNOLLY: Prior to January of '79, what were
4 your other occupations with Met Ed?

5 THE WITNESS: I was hired in 1973 as an auxiliary
6 operator, primarily for Unit 1. However, at the time, the
7 organization was set up where the auxiliary operators were in
8 a pool, so you were eligible to go to Unit 2 if need be.
9 In 1975, September of '75 -- let me back up just a minute.

10 In August of '75 I bid on and was accepted as a
11 CRO for Unit 2. I entered into a training program for Unit 2
12 CROs and was in that program approximately one week, at which
13 time I was selected for shift test engineer at Unit 2 for
14 Unit 2 startup.

15 In September of '75 I accepted that position and
16 was shift test engineer from September of '75 until January
17 of '79.

18 MR. CONNOLLY: What is your educational background,
19 Jack?

20 THE WITNESS: I've got a high school education. No
21 college background.

22 MR. CHRISTOPHER: Do you have Navy experience?

23 THE WITNESS: Yes, nine years.

24 MR. CONNOLLY: Nine years in the Navy?

25 THE WITNESS: Right.

1 MR. CONNOLLY: In the Nuclear Navy Program?

2 THE WITNESS: Yes.

3 MR. CHRISTOPHER: Submarine program?

4 THE WITNESS: Yes.

5 MR. CHRISTOPHER: What submarine were you on?

6 THE WITNESS: USS Haddo and USS Sam Houston.

7 MR. CONNOLLY: While you were in the training
8 status, what jobs did you perform?

9 THE WITNESS: None. I was strictly a trainee.

10 MR. CONNOLLY: This is from January '79 onward, during
11 that time period?

12 THE WITNESS: That's correct.

13 MR. CONNOLLY: Would you describe what your daily
14 duties were?

15 THE WITNESS: I reported to work each morning on
16 the island and went immediately to the training complex which
17 at that time was located on the island, and spent the entire
18 eight hours in the training center studying for a license.

19 MR. CONNOLLY: During 1978 what was your job?

20 THE WITNESS: Shift test engineer, Unit 2 startup.

21 MR. CONNOLLY: Could you describe to me what your
22 job function at that time was?

23 THE WITNESS: My job responsibilities and functions
24 at that time were to act as a test engineer and the performance
25 of test procedures that had been written and approved in

1 accordance with the test plan that had been laid out for Unit
2 2, and to perform those test procedures that had been
3 assigned to me to perform.

4 MR. CONNOLLY: Test procedures? What do you mean by
5 test procedures?

6 THE WITNESS: These were written tests that were
7 developed as a result of commitments made by the company
8 through the FSAR and other various documents, the tests that
9 we would perform to satisfy commercial operation of the
10 plant.

11 MR. CONNOLLY: You use the term "FSAR." What do you
12 mean by that term?

13 THE WITNESS: The Final Safety Analysis Report for
14 Unit 2.

15 MR. CHRISTOPHER: Did you basically get into -- did
16 you actually test surveillance procedures, that type of
17 thing? Is that what you mean?

18 THE WITNESS: No. These were written test procedures
19 that were written and approved by the test working group,
20 known as TWIG, which was made up of representatives of the
21 Metropolitan Edison, B&W, the architect engineer, who at that
22 time was Burns & Roe, and approved by those people under the
23 scope of the test program.

24 MR. CHRISTOPHER: While you were in training for shift
25 foreman's position, who actually -- was it a course of

1 instruction taught by an instructor?

2 THE WITNESS: It was primarily self-study.

3 MR. CHRISTOPHER: Whose auspices would you have
4 been working under at that time?

5 THE WITNESS: I would assume Jim Floyd, who was the
6 supervisor of operations.

7 MR. CHRISTOPHER: Jack, at that time were you --
8 did you have occasion to become familiar with in your studies
9 or in conversations, with technical specification for limiting
10 conditions for operations for reactor coolant system leakage?

11 Specifically, that's 3.4.6.2? The specification places limits
12 on the amount of leakage from the reactor coolant system.
13 Are you familiar with that procedure?

14 THE WITNESS: In the course of my eleven weeks of
15 training, we did not go over specifically the procedure for
16 leak rates or the tech spec surveillance requirements for leak
17 rates.

18 MR. CHRISTOPHER: Are you now familiar with it?

19 THE WITNESS: I'm aware that there's a tech spec
20 requirement for leak rates.

21 MR. CHRISTOPHER: I'll show it to you just for
22 reference and information, and you will see that it states
23 that reactor coolant system leakage shall be limited to
24 in part, one gallon per minute unidentified leakage, which is
25 particularly what we are interested in here. You will also

1 note that it contains an action statement that states, with
2 any reactor coolant system leakage greater than any one of
3 the above limits, excluding pressure boundary leakage, you
4 reduce the leakage rate to within limits within four
5 hours or be in at least hot standby within the next six hours
6 and within cold shutdown within the next 30 hours. That is
7 the action statement.

8 Looking at that now, do you recall having any
9 discussions or any studies related to this particular surveil-
10 lance requirement, this technical specification?

11 THE WITNESS: No.

12 MR. CHRISTOPHER: Were you aware at that time that
13 unidentified leakage from the reactor coolant system was
14 required to be kept below the one gallon per minute limit?

15 THE WITNESS: Again, I was aware that there was a
16 tech spec limit on leakage and that we had to comply with the
17 tech spec requirement.

18 MR. CHRISTOPHER: But not specifically the one gallon
19 per minute unidentified?

20 THE WITNESS: Right

21 MR. CHRISTOPHER: Were you aware at that time that
22 if you exceeded the leak rate, you had to enter the action
23 statement; i.e., you had four hours to identify the leakage or
24 commence plant shutdown?

25 THE WITNESS: I was aware that if we exceeded any
limit by tech specs we were required to go into action

1 statements.

2 MR. CHRISTOPHER: Again you are speaking in
3 generalities and not in terms of the specific procedure.

4 THE WITNESS: That's correct.

5 MR. CHRISTOPHER: Are you familiar with the surveil-
6 lance procedure that implements the technical specification
7 specifically, that is, 2301-3.D.1?

8 THE WITNESS: No.

9 MR. CHRISTOPHER: Take a look at that for your
10 information, and you will see that the purpose of it is to
11 ensure compliance with the stated technical specification.
12 Again, it reiterates that it is a requirement for one gallon
13 per minute unidentified leakage and states the applicable
14 surveillance and frequency requirements, and specifically it
15 states that the test should be performed at least once per
16 72 hours to ensure steady state operation.

17 At that time, though, no particular familiarity
18 with this particular surveillance procedure?

19 THE WITNESS: That's correct.

20 MR. CHRISTOPHER: Would you have if you had
21 continued your training at some point, had to become familiar
22 with this?

23 THE WITNESS: Yes, I would have.

24 MR. CHRISTOPHER: The reason you did not, is it
25 because of the accident you did not progress that far?

1 THE WITNESS: Yes. And during the period of time that
2 I was in training, the surveillance procedure is not presented
3 to me as part of my training program.

4 MR. CHRISTOPHER: Okay. So you are not at this
5 point -- are you aware of what the interpretation is for the
6 surveillance requirement of 72 hours, for running a test every
7 72 hours? Did you at that time have any understanding as to
8 what that requirement meant?

9 THE WITNESS: At that time, no.

10 MR. CHRISTOPHER: Do you today have any understand-
11 ing of what that requirement means?

12 THE WITNESS: This says to run a leak rate test every
13 72 hours, once per 72-hour period.

14 MS. PENNY: And you know that by reading that
15 document in front of you.

16 THE WITNESS: That's correct.

17 MR. CHRISTOPHER: Have you ever personally run a
18 leak rate test?

19 THE WITNESS: No.

20 MR. CHRISTOPHER: Have you ever personally witnessed
21 a leak rate test being run?

22 THE WITNESS: No.

23 MR. CHRISTOPHER: Are you aware of operators or have
24 any discussion with operators or shift supervisors who have
25 run the test and indicated they were having problems getting

1 good leak rate test results?

2 THE WITNESS: No.

3 MR. CHRISTOPHER: Would you at this time be able to
4 run a leak rate test if you wanted to? Would you have the
5 capability to do that?

6 THE WITNESS: Can you clarify?

7 MR. CHRISTOPHER: Would you have had the capability
8 at that time to run the test or run the surveillance procedure
9 at that time, pre-accident, in January during your training?

10 THE WITNESS: Would I have had the opportunity?

11 MR. CHRISTOPHER: Would you have had the opportunity
12 or could you have run the procedure?

13 THE WITNESS: If I had elected to go to the control
14 room, I could probably have run a leak rate.

15 MR. CHRISTOPHER: But you did not during that time.

16 THE WITNESS: No.

17 MR. CHRISTOPHER: Again, as part of the training,
18 would you have ultimately gone to the control room as part of
19 the hands-on training with another shift supervisor, or however
20 the program was set up?

21 THE WITNESS: Eventually that is what would have
22 happened, yes.

23 MR. CHRISTOPHER: But not until after you had
24 received your license, or somewhere in that process?

25 THE WITNESS: It would have been after I received

1 my license because I took my license exam prior to the
2 accident, and that was not offered to me prior to that time.

3 MR. CHRISTOPHER: During your studies, did you ever
4 study or did you ever enter into any discussions with Jim
5 Floyd or any other individuals in the Operations Department
6 over what the requirements were for the logging in the
7 control room operator's log book for the surveillance test?

8 THE WITNESS: No.

9 MR. CHRISTOPHER: Do you have any understanding as
10 to whether or not all the surveillance tests that were being
11 performed by the operators would have to be logged in the log
12 book?

13 THE WITNESS: At that time, no.

14 MR. CHRISTOPHER: Do you have any understanding as
15 to what that should be today?

16 THE WITNESS: Only through the procedures that
17 require log-keeping records to be maintained.

18 MR. CHRISTOPHER: Are you referring to any particular
19 procedure that comes to mind?

20 THE WITNESS: As I recollect, there was a procedure
21 written that required log-keeping measures to be taken.

22 MR. CHRISTOPHER: Are you referring, possibly, to
23 Administrative Procedure 1012?

24 THE WITNESS: Right.

25 MR. CHRISTOPHER: You may want to read the scope

1 of the procedure. Specifically, is that the procedure that you
2 were referring to?

3 THE WITNESS: That is the procedure title. I do not
4 know if that is the exact provision that was in effect at the
5 time.

6 MR. CHRISTOPHER: It is my understanding that this
7 should be the updated -- the revision wasn't in effect at that
8 time. I want to specifically ask you to read Section 3.3.17,
9 and if you would read it aloud just for the record.

10 THE WITNESS: Accomplishment of testing. Record
11 title and number of the test performed and the start and
12 completion times and time of suspension of the test. The
13 performance of all periodic tests and inspections required by
14 the technical specification shall be recorded.

15 MR. CHRISTOPHER: Okay. In reading that, if you
16 started to run a test, any test, be it the leak rate test or
17 any other test that, let's say, was run for a one-hour time
18 period and that started at time zero and ended at time one,
19 would you be required, placing yourself in the operations
20 mode, now, would you be required to log the start of the test
21 and the end of the test?

22 THE WITNESS: According to this procedure as it
23 states in Step 3.3.17, it requires you to record the start
24 and completion times of all tests, in tests that are required
25 by technical specifications.

1 MR. CHRISTOPHER: With respect to the leak rate
2 test, though, you have never performed a leak rate test to
3 actually make a log entry; is that correct?

4 THE WITNESS: That's correct.

5 MR. CHRISTOPHER: Do you know who is responsible for
6 actually reviewing for accuracy and completeness the CRO
7 logs?

8 THE WITNESS: At that time, at the time I was a shift
9 test engineer, I assumed it was the responsibility of the
10 shift foreman.

11 MR. CHRISTOPHER: You personally did not have any
12 responsibility for reviewing the logs for accuracy or anything
13 else; is that correct?

14 THE WITNESS: That is correct.

15 MR. CHRISTOPHER: Do you know if, when they log
16 activities in the control room operator's log, are they all
17 logged within a reasonable amount of time as they occur during
18 a shift, or are they logged at the end of a shift? Do you know
19 how that is routinely done?

20 THE WITNESS: Again, are we talking about the time in
21 question?

22 MR. CHRISTOPHER: Yes, the time in question.

23 THE WITNESS: At that time I did not know how they
24 were recorded because it was not my responsibility.

25 MR. CHRISTOPHER: Today do you know how that is being

1 done?

2 THE WITNESS: I think as a routine matter that is
3 done at the time the events are accomplished.

4 MR. CHRISTOPHER: Are you aware of or did you ever
5 discuss with any operator the fact that leak rate tests were
6 being run that were exceeding the technical specification
7 requirements and that those leak rate tests results were being
8 thrown away or discarded?

9 THE WITNESS: I am not aware of any leak rate
10 tests that were being discarded or any discussions to that
11 effect.

12 MR. CHRISTOPHER: This is during the time period
13 prior to the accident. At that time you were not aware that
14 operators were throwing test results away?

15 THE WITNESS: I'm not aware of any such statements,
16 no.

17 MR. CHRISTOPHER: And if they were thrown away, you
18 were not aware of who would have authorized the policy of
19 throwing test results away?

20 THE WITNESS: No.

21 MR. CHRISTOPHER: Do you know if a conscious decision
22 was made to not log the start times of the tests because so many
23 bad test results were being received?

24 THE WITNESS: No, I don't know anything like that.

25 MR. CHRISTOPHER: Do you know if it is a common

1 practice to discard surveillance test results that don't meet
2 technical specification requirements? And I'm not specifi-
3 cally limiting that to the leak rate test program, but as a
4 general matter of practice. Is there anything, any technical
5 specification, any procedure that allows you to arbitrarily
6 discard test results, surveillance tests that you run that
7 don't meet the acceptance criteria?

8 THE WITNESS: I'm not aware that that is a common
9 practice nor am I aware that there is a requirement that
10 authorizes you or allows you to do that.

11 MR. CHRISTOPHER: Do you know of any requirement
12 that specifically prohibits you from discarding bad test
13 results?

14 THE WITNESS: No.

15 MR. CHRISTOPHER: Again, as it pertains to either
16 leak rates or other surveillances.

17 THE WITNESS: That's correct.

18 MS. PENNY: Are you aware of any procedure that says
19 you cannot?

20 THE WITNESS: No. He asked both questions: was I
21 aware of a procedure that allowed us to do that or was I
22 aware of a procedure that prohibited that. The answer to both
23 of them was no.

24 MS. PENNY: Fine. Thank you.

25 MR. CHRISTOPHER: Do you know, Jack, what operators

1 were supposed to do with test results if they were not in
2 compliance with technical specifications? Specifically a leak
3 rate result. Do you know what action an operator would have
4 been required to initiate, what motions he would have went
5 through? Would he have discussed it with the shift supervisor?
6 Would he have made a unilateral decision to redo it? Do you
7 know what officially an operator should have done?

8 THE WITNESS: No, not at that time because I had no
9 direct involvement with the operations staff.

10 MR. CHRISTOPHER: And that was not addressed in your
11 training at the point at which you were in it in any way?

12 THE WITNESS: No.

13 MR. CHRISTOPHER: Do you know how operators --
14 Operators have told us that when they ran a test that came out
15 with a leak rate that was in excess of the technical specifica-
16 tions, they would consider them invalid for one reason or
17 another. Do you know how operators would go out and determine
18 that a test was invalid and how they would document it?

19 THE WITNESS: The way they would determine it was
20 invalid, I'm not aware of any way that they could determine
21 that. Whether the test passed or failed would be determined
22 by the acceptance criteria of the procedure.

23 MR. CHRISTOPHER: Do you have any personal knowledge
24 as to why it was difficult to get good leak rates for the
25 unidentified leakage during the three to five months prior to

1 the accident?

2 THE WITNESS: I have no personal knowledge that there
3 was any problem getting bad leak rates.

4 MR. CHRISTOPHER: And are you personally aware of
5 bad leak rate results being thrown away?

6 THE WITNESS: No.

7 MR. CHRISTOPHER: Do you have any idea or did you
8 ever have any discussions with other operators or other
9 individuals to indicate the test results were being thrown
10 away so the NRC would not see them?

11 THE WITNESS: No.

12 MR. CHRISTOPHER: You have never discussed with any
13 operator or other individual anything that would indicate
14 that that may be the case?

15 THE WITNESS: No.

16 MR. CHRISTOPHER: Do you have any idea as to whether
17 or not the plant was ever placed into the action statement
18 as we refer to it because of the excessive unidentified
19 leakage?

20 THE WITNESS: No, not to my knowledge.

21 MR. CHRISTOPHER: Do you recall any discussions
22 with supervisory individuals, either in operations or in
23 management or in the training department, problems that the
24 plant was experiencing in getting good leak rates, and what
25 the reasons were for why they could not get good leak rates?

1 THE WITNESS: No. Again, I was not aware that there
2 was a problem with getting good leak rates.

3 MR. CHRISTOPHER: And you do not recall overhearing
4 discussions among supervisory or management personnel that
5 there was a problem in getting good leak rates?

6 THE WITNESS: No.

7 MR. CHRISTOPHER: Are you familiar with the term
8 "negative leak rates"?

9 THE WITNESS: I'm familiar with the term, yes.

10 MR. CHRISTOPHER: Are you familiar with whether or
11 not in the performance of a leak rate test you could get a
12 negative leak rate, which would theoretically indicate that
13 the plant was making water?

14 THE WITNESS: I'm aware that you could do that, yes,
15 through the computer program, the manipulations, and through
16 the calculations that the computer does; it is possible that
17 they could get a negative leak rate.

18 MR. CHRISTOPHER: Okay. You would not expect, as a
19 professional in the business, that the plant would, in effect,
20 be making water, would you?

21 THE WITNESS: No.

22 MS. PENNY: That is not your only understanding of the
23 obtaining of a negative leak rate, is it?

24 THE WITNESS: Meaning am I aware that you could get
25 a negative leak rate?

1 MS. PENNY: Yes.

2 THE WITNESS: Again --

3 MS. PENNY: Does it just imply to you that the plant
4 is making water based on your understanding of negative leak
5 rates?

6 THE WITNESS: That's what it would imply to me
7 because the plant has no positive leak rate. The plant is
8 not leaking water.

9 MR. CHRISTOPHER: I think we are trying to get to
10 the same place. By seeing a negative leak rate, theoretically
11 that would indicate that the plant was making water.

12 THE WITNESS: That's correct.

13 MS. PENNY: Theoretically.

14 THE WITNESS: Theoretically.

15 MR. CHRISTOPHER: Is it possible for the plant to
16 make water in amounts sufficient that you could routinely --

17 THE WITNESS: No.

18 MS. PENNY: Is that within your area of expertise?

19 THE WITNESS: You are talking startup and test
20 engineer?

21 MS. PENNY: As a startup and test engineer, do you
22 have any expertise for analyzing negative leak rates and the
23 means of obtaining a negative leak rate?

24 THE WITNESS: No.

25 MR. CHRISTOPHER: In your years of experience with

1 Navy reactors and whatnot, have you ever known a reactor to
2 make water?

3 THE WITNESS: There is a process under neutron
4 interaction where you can get a disassociation.

5 MR. CHRISTOPHER: Correct. Do you have any idea
6 what amounts? I mean would that be a significant amount?

7 THE WITNESS: That's an extremely small amount.

8 MR. CHRISTOPHER: If I told you that we had -- over
9 a certain period of time, approximately a year, we had 170
10 leak rate tests that were actually performed in the plant,
11 out of that 170 results that were considered valid, 39 of those
12 results were negative leak rates, what does that indicate to
13 you, if anything? And again, I'm specifically talking about
14 an unidentified negative result, a negative unidentified leak
15 rate of some varying amount.

16 (Pause)

17 THE WITNESS: I guess -- again, in my area of
18 expertise -- what that would mean to me is that the computer
19 calculations have indicated that the plant is not leaking
20 water and doesn't have a positive leak rate.

21 MR. CHRISTOPHER: Would that volume of negative
22 results, would that in your mind be indicative of a signal
23 of deficiencies in the surveillance procedure itself?

24 THE WITNESS: Not necessarily, no.

25 MR. CHRISTOPHER: It would only be indicative of -- we

1 have agreed that substantially we would not expect the plant
2 to make water in any consistent amounts, so we have the 39
3 negatives. What do you attribute that amount of negative
4 results to, I guess is what I'm trying to get at.

5 THE WITNESS: I don't have any feel for what would
6 cause that.

7 MR. CHRISTOPHER: And you never discussed the issue
8 of negative leak rates with anyone in plant management or in
9 operations or as a matter of training?

10 THE WITNESS: No.

11 MR. CHRISTOPHER: Have you ever been a member of
12 the PORC? Have you ever sat in on meetings of the PORC,
13 or the plan of the day meetings, the PODs?

14 THE WITNESS: No.

15 MR. CHRISTOPHER: Are you aware of the leak rate
16 problem or the policy of throwing away leak rate test results
17 ever being discussed in any of those meetings or at any other
18 type of management meeting?

19 THE WITNESS: No.

20 MR. CHRISTOPHER: With your understanding at the
21 time, if you went into the plant and performed a leak rate
22 test and that leak rate test was unacceptable in terms of
23 unidentified leakage, i.e., it was in excess of one gallon per
24 minute, what at that point would be your understanding that
25 you would have to -- what would you have to do?

1 THE WITNESS: At that time, as shift test engineer,
2 had I been running the leak rate test and it came out in
3 excess of the limits for unidentified leakage, I would have
4 notified the shift foreman.

5 MR. CHRISTOPHER: Would it be your opinion that that
6 would require you to go into the action statement, do you
7 know?

8 THE WITNESS: If the action statements and the
9 tech specs were written such that you violated the limits of
10 the tech specs, you would be required to go into an action
11 statement.

12 MR. CHRISTOPHER: Do you have any idea as to how
13 many leak rate tests were being run during a shift, an
14 individual shift?

15 THE WITNESS: No.

16 MR. CHRISTOPHER: Were you aware that the leak rate
17 test is run for a one-hour time period? At the time prior to
18 the accident were you aware that they ran them on a one-hour
19 basis?

20 THE WITNESS: No, I was not aware of that.

21 MR. CHRISTOPHER: And again, you do not recall having
22 any specific discussions with Jim Floyd, Bernie Smith or any
23 of the other shift operations people regarding their policy of
24 performing leak rate tests?

25 THE WITNESS: I had no such discussions, or I was

1 not aware of any such discussions.

2 MR. CHRISTOPHER: Are you aware of an instance in
3 which a plant shift supervisor requested to shut down the
4 plant to repair excessive leakage and that request being
5 denied? This would have been just in the month or so prior
6 to the accident.

7 THE WITNESS: No.

8 MR. CHRISTOPHER: You are not aware of any indica-
9 tion that that may have happened?

10 THE WITNESS: No.

11 MR. CHRISTOPHER: Were there any other operators in
12 training with you at the time?

13 THE WITNESS: No. Well, wait a minute. I'll correct
14 that. There was one other operator, and that was Dave Smith.

15 MR. CONNOLLY: Is Dave still working on the island?

16 THE WITNESS: Yes, he works in Unit 1.

17 He was not specifically in my training classroom sessions with
18 me. There was Dave, myself and John Brummer, who was an
19 instrument I&C engineer and also in license training. The
20 three of us were assigned to training to sit for a March
21 licensing exam. We were not per se in the classroom all the
22 time together. At various times we were together, and there
23 were times when we were not.

24 MR. CONNOLLY: You said you were preparing for your
25 license in March?

1 THE WITNESS: That's correct.

2 MR. CONNOLLY: Did you take your test in March?

3 THE WITNESS: Yes.

4 MR. CONNOLLY: Did you successfully pass the test?

5 THE WITNESS: Yes, and as a result of the accident,
6 I was not issued a license until July of '79, at which time I
7 was issued a cold shutdown license.

8 MR. CONNOLLY: Going back to prior to the accident,
9 were you aware of any discussions in which management or
10 other supervisory personnel discussed excessive leakage from
11 code safety valves and/or the PORV, and the effect on the
12 ability to get good leak rate test results because of the
13 leakages?

14 THE WITNESS: I was not aware of any such discussions.

15 MR. CONNOLLY: Do you have any knowledge of increasing
16 problem with leakage during 1979 prior to the accident?

17 THE WITNESS: No.

18 MR. CONNOLLY: Was that discussed at any time in any
19 of your training programs?

20 THE WITNESS: No.

21 MR. CONNOLLY: Were you aware of increase in tailpipe
22 temperatures?

23 THE WITNESS: No, I was not aware of any increase in
24 tailpipe temperatures.

25 MR. CHRISTOPHER: What would increase in tailpipe
temperatures indicate to you, Jack?

1 THE WITNESS: That a relief valve was leaking or had
2 just lifted and reseated.

3 MR. CHRISTOPHER: Would it also be indicative of
4 PORV leakage?

5 THE WITNESS: If that particular temperature indica-
6 tor was monitoring the POR --

7 MR. CHRISTOPHER: Not being familiar enough with
8 the system, one thing I'm interested in is whether or not by
9 looking at these tailpipe temperatures, could you distinguish
10 whether or not a code safety or a PORV was leaking? Why
11 would you only be in a position to say one or the other was
12 leaking?

13 THE WITNESS: I don't totally recall exactly how
14 the system was set up. I do remember that we had thermocouples
15 on the PORV, and I think we had thermocouples on the code
16 safeties, but I'm not totally clear on how we could differ-
17 entiate which one was leaking.

18 MR. CHRISTOPHER: And they both drained where?

19 THE WITNESS: To the RC drain tank.

20 MR. CHRISTOPHER: Which is considered identified
21 leakage, then, if it is controlled? Do you know the term or
22 would you understand what would be identified versus unidenti-
23 fied leakage?

24 THE WITNESS: If we knew that was the source of
25 leakage, then we could have classified that as identified

1 leakage.

2 MR. CHRISTOPHER: Do you have any understanding as
3 to how increasing leakage from the code safeties or the PORV
4 would have an effect on your ability to get an unidentified
5 leak rate?

6 THE WITNESS: Could you restate that again?

7 MR. CHRISTOPHER: Would you have an understanding
8 as to whether or not increasing leakage from the code safeties
9 or the PORV to the drain tank -- would that increasing leakage
10 have an effect on your ability to get an unidentified leak
11 rate?

12 THE WITNESS: I don't understand the question.

13 MR. CHRISTOPHER: If we, in fact, had -- we know we
14 had some leakage from the code safeties or the PORV, whichever
15 the case would be, that gradually was increasing as the time
16 of the accident occurred -- that has been established by
17 reading the tailpipe temperatures, et cetera -- would that
18 kind of leakage, which is classified as identified leakage,
19 would those steadily increasing leakages as an identified
20 leakage, would that give you a problem in getting your uniden-
21 tified leak rate; or would it have no effect at all?

22 THE WITNESS: Based on what I know, I don't think it
23 would have any effect.

24 MR. CONNOLLY: Do you know if all water additions to
25 the RCS inventory are to be recorded in the CRO logbook?

1 THE WITNESS: I don't know if that's a requirement.

2 MR. CHRISTOPHER: By that, we are not referring to
3 just during the time of leak rate test but any addition to
4 the RCS, any water addition.

5 THE WITNESS: I don't know if that's a requirement.

6 MR. CHRISTOPHER: Are you aware of whether or not
7 water additions to the RCS during a leak rate test were
8 required to be recorded?

9 THE WITNESS: Again, I don't know what the require-
10 ments were for recording additions, period.

11 MR. CHRISTOPHER: You aren't familiar enough with
12 the procedure to know what the requirements are?

13 THE WITNESS: That's correct.

14 MR. CHRISTOPHER: And because you never performed it,
15 you don't know?

16 THE WITNESS: That's correct.

17 MR. CONNOLLY: Were you present at any discussions,
18 whether in training or in the control room, regarding problems
19 with the leak rate test being associated with the computer
20 program?

21 THE WITNESS: I was never present at any discussions
22 that had to do with leak rate problems.

23 MR. CHRISTOPHER: Do you know Bill Fels?

24 THE WITNESS: Yes, I do.

25 MR. CHRISTOPHER: Have you ever had any discussions

1 with Bill regarding the leak rate test program?

2 THE WITNESS: No, I haven't.

3 MR. CHRISTOPHER: Or any problems with the computer
4 program and preparing the leak rate test program?

5 THE WITNESS: No.

6 MR. CONNOLLY: Are you aware of hydrogen additions
7 being made to the makeup tank during leak rate tests for the
8 purpose of affecting that leak rate test result?

9 THE WITNESS: I'm not aware that that was being done,
10 no.

11 MR. CONNOLLY: Do you know what indications the
12 operators normally responded to in addition of hydrogen to the
13 RCS?

14 THE WITNESS: What indications they responded to for
15 additions --

16 MR. CONNOLLY: Additions of hydrogen to the RCS.
17 What conditions would allow them to add hydrogen to the RCS?

18 THE WITNESS: Again, I don't know what the
19 requirements were.

20 MR. CHRISTOPHER: Would you have to read a certain
21 set of parameters or an understanding that you would have to
22 add hydrogen to the makeup tank or the RCS to scavenge
23 oxygen? Were there any certain set of parameters that the
24 operators would monitor in making a determination as to when
25 to add hydrogen?

1 THE WITNESS: There was, as I recall, a requirement
2 to maintain a pressure overblanket on the makeup tank to
3 maintain a pressure. Again, I don't know what the value was.
4 I don't recall what that was.

5 MR. CHRISTOPHER: And you personally never talked to
6 an operator who indicated to you that by adding hydrogen to the
7 make-up tank during the test you could affect the leak rate test result?

8 THE WITNESS: No, I never had any such discussions
9 with any operators.

10 MR. CONNOLLY: Are you aware of any unrecorded
11 water additions being made to the makeup tank during leak rate
12 tests in order to affect the leak rate test results?

13 THE WITNESS: I'm not aware of any such additions.

14 MR. CONNOLLY: And based on that question and one
15 follow-up question, did you ever see anyone do that?

16 THE WITNESS: No.

17 MR. CHRISTOPHER: You never discussed with any
18 operator the fact that by adding water to the makeup tank
19 without recording the addition in the computer, that you could
20 get a good leak rate?

21 THE WITNESS: No.

22 MR. CHRISTOPHER: Were you aware of any supervisory
23 individuals who were aware of or who condoned that type of
24 activity?

25 THE WITNESS: No, I was not aware of anybody who

1 would do that.

2 MR. CHRISTOPHER: Have you ever since that time, has
3 anyone ever admitted to you that they have done that?

4 THE WITNESS: No.

5 MR. CONNOLLY: To your knowledge, was pressure
6 exerted upon operators from a management/supervisory personnel
7 to get a good leak rate test?

8 THE WITNESS: Not to my knowledge, no.

9 MR. CHRISTOPHER: Did you have any discussions with
10 any operators on a routine basis as to how things were going
11 in the plant, be it leak rates, whether it be leak rates
12 or just a day-to-day routine since you were in training, or
13 did you ever just go over and discuss with them any particular
14 type problems that they had and try to get an idea of what
15 you would be facing?

16 THE WITNESS: No, because my primary goal was to
17 train for my license, and that involved eight hours a day in
18 the training center.

19 MR. CONNOLLY: Do you know if operators were directed
20 to manipulate leak rate tests by the addition of hydrogen or
21 water?

22 THE WITNESS: I don't know that operators were
23 directed to do that, no.

24 MR. CONNOLLY: Do you know what effect the code
25 safety valves and pressurizer leakage would have on the

1 ability to get a good leak rate?

2 THE WITNESS: I think that that -- again, not knowing
3 the parameters that were in the computer program for monitoring
4 that leakage, if those leakage rates were in the computer, then
5 that leakage would affect the calculations.

6 MR. CONNOLLY: Do you know if operators instructed
7 auxiliary operators to add hydrogen to the makeup tank for the
8 purpose of affecting leak rate test results?

9 THE WITNESS: If the operators --

10 MR. CONNOLLY: Instructed auxiliary operators to
11 add hydrogen to the makeup tank in order to affect leak rate
12 tests.

13 THE WITNESS: No, I'm not aware of any of that.

14 MR. CHRISTOPHER: Do you know how hydrogen is added
15 to the makeup tank?

16 THE WITNESS: It enters a hydrogen bank of bottles
17 that are piped in through some control valves that are controlled
18 from the control room.

19 MR. CHRISTOPHER: Can you add the hydrogen from the
20 control room?

21 THE WITNESS: Yes.

22 MR. CHRISTOPHER: Was there a period of time prior to
23 the accident where hydrogen could not be added from the
24 control room because of some valve problems?

25 THE WITNESS: During the period when?

1 MR. CHRISTOPHER: In the several months prior to
2 the accident. Let's say five or six months prior to the
3 accident. Was there a time period there where you had to
4 manually go to the hydrogen addition station to add hydrogen?

5 THE WITNESS: There was a time, and I don't recall
6 when it was, where I remember the control valves on the
7 makeup tank -- and again, I don't remember whether it was
8 hydrogen or nitrogen, but they were out of service. As I
9 recall, that was during the startup and test program, it was
10 not after commercial operation.

11 MR. CHRISTOPHER: During that time, how would operators
12 have made hydrogen additions?

13 THE WITNESS: The time that I remember the valve
14 being out of service, there wasn't any way because that was
15 a solenoid-operated valve that was out of service.

16 MR. CHRISTOPHER: Could you not manually have an
17 auxiliary operator add it from the hydrogen addition station?

18 THE WITNESS: Again, I don't remember how the system
19 was piped, whether you could do that.

20 MR. CHRISTOPHER: Do you know whether an auxiliary
21 operator could of his own volition make hydrogen additions to
22 the RCS or other additions, or would he have required the
23 direction of a licensed operator?

24 THE WITNESS: He would have required the direction
25 of a licensed operator.

1 MR. CONNOLLY: Are you familiar with Licensee
2 Event Report 78-62, October 19, 1978, which is a technical --
3 concerns a technical specification for an identified leakage
4 problem?

5 THE WITNESS: No.

6 MR. CONNOLLY: At this time I'd like to show you
7 that Licensee Event Report and I'd like you to review it and
8 see if you do recall at anytime seeing this.

9 (Pause.)

10 MR. CONNOLLY: Are you familiar with that document?

11 THE WITNESS: No, I'm not.

12 MR. CONNOLLY: Have you ever seen it before?

13 THE WITNESS: No.

14 MR. CONNOLLY: In October 1978, would you repeat
15 again what your job was at TMI?

16 THE WITNESS: I was a shift test engineer.

17 MR. CONNOLLY: At Unit 2?

18 THE WITNESS: At Unit 2.

19 MR. CONNOLLY: Would you have been involved in any
20 discussions relating to this LER?

21 THE WITNESS: No. Our function would not have
22 required any kind of interface or discussions concerning LERs.

23 MR. CHRISTOPHER: Would you have ever sat in on,
24 or did you as a matter of practice, ever sit in on PORC
25 meetings?

1 THE WITNESS: No.

2 MR. CONNOLLY: Did a representative from your
3 department sit in on PORC meetings?

4 THE WITNESS: Not that I'm aware of.

5 MR. CHRISTOPHER: Who did you specifically work for
6 at that time?

7 THE WITNESS: Tom Hawkins.

8 MR. CONNOLLY: This was in October 1979?

9 THE WITNESS: 1978.

10 MR. CHRISTOPHER: Was Ivan Porter also in that
11 department?

12 THE WITNESS: Ivan was also in that department.

13 MR. CHRISTOPHER: He did sit in on some of the
14 PORC meetings, so you probably did have a representative
15 there at times.

16 THE WITNESS: Again, I wasn't aware of that.

17 MR. CHRISTOPHER: Do you have any knowledge or
18 recollection as to what actually was the initiating event
19 in this LER? What action caused this LER to be written?

20 THE WITNESS: Other than the fact that there was
21 a violation of tech specs, no.

22 MS. PENNY: You know that from reading this
23 document right now, is that correct?

24 THE WITNESS: That's correct.

25 MR. CHRISTOPHER: Since that time, have you come

1 to know what was the initiating event for this LER?

2 THE WITNESS: No. I'm not familiar with this
3 document at all.

4 MR. CHRISTOPHER: Have you ever heard of this LER
5 being initiated because an NRC inspector walked into the
6 control room and found the leak rate test in excess of --
7 the result in excess of tech spec limits, and asked why the
8 plant was not shut down?

9 THE WITNESS: No.

10 MR. CHRISTOPHER: You never heard any discussions
11 to that effect?

12 THE WITNESS: No.

13 MR. CHRISTOPHER: And you're not personally aware
14 of any discussions to that effect, or were not present at
15 any of those?

16 THE WITNESS: No, I wasn't.

17 MR. CHRISTOPHER: And do you have any idea as to
18 what the action taken was to get the plant back into compli-
19 ance with the technical specification?

20 If you'll notice, I think on the bottom of the LER
21 it states, action was initiated which resulted in placing the
22 plant back into compliance at 0735 on October 18, 1978.

23 Do you have any idea what that action would have been?

24 THE WITNESS: No. All it says is unidentified
25 leakage was subsequently reduced to within allowable limits

1 at 0735 on October 18th. I don't know what action was taken
2 to do that.

3 MR. CONNOLLY: Jack, do you know how many leak
4 rate tests were being run by operators in the months
5 preceding the accident?

6 THE WITNESS: No.

7 MR. CONNOLLY: Would you have been familiar with
8 the leak rate tests being run before the accident?

9 THE WITNESS: No. Again, that was not part of
10 our training program.

11 MR. CONNOLLY: Were you aware of operators jogging
12 water into the make-up tank to affect leak rate test results?

13 THE WITNESS: No.

14 MR. CHRISTOPHER: Have you since heard whether or
15 not operators have done that?

16 THE WITNESS: I heard there's an allegation to that
17 effect from the Hartman issue.

18 MR. CHRISTOPHER: Has any operator ever admitted
19 to you that he jogged water into the make-up tank in order
20 to affect leak rate test results?

21 THE WITNESS: No.

22 MR. CHRISTOPHER: Has any operator ever admitted to
23 you that he added water, just added water to the make-up tank
24 to affect the test?

25 THE WITNESS: No.

1 MR. CONNOLLY: Same questions relative to hydrogen.
2 Did anyone ever admit to you or told you that they knew of
3 someone who did add hydrogen to the make-up tank in order to
4 affect leak rate test results?

5 THE WITNESS: No.

6 MR. CHRISTOPHER: Do you have any reason to believe
7 that operators were doing anything at the time to affect the
8 leak rate test results? That would have been not within
9 regulatory requirements?

10 THE WITNESS: I'm not aware of any such actions.

11 MR. CONNOLLY: During your training program in
12 January 1979 until the accident, did you ever witness leak
13 rate tests being performed by operators?

14 THE WITNESS: No. I was not -- from January of
15 1979 until the time I took my license exam I was not in the
16 control room.

17 MR. CONNOLLY: Prior to the training program, did
18 you ever witness anybody take a leak rate test?

19 THE WITNESS: No.

20 MR. CHRISTOPHER: Do you recall any discussions
21 in training and in the various plant operations over the
22 oscillating nature of the plant, the continuous and rapid
23 changes in the various plant parameters? Do you recall any
24 discussions about that?

25 THE WITNESS: I'm not aware of any such discussions,
no.

1 MR. CHRISTOPHER: Have you ever heard TMI-2 being
2 referred to as an oscillating plant?

3 THE WITNESS: No.

4 MR. CHRISTOPHER: Do you have any knowledge of
5 operators taking advantage of these so-called oscillations
6 to affect leak rate test results?

7 THE WITNESS: No.

8 MR. CONNOLLY: Are you familiar with TCN 79-070
9 that changed the calculation procedure for leak rate tests?

10 THE WITNESS: No.

11 MR. CONNOLLY: At this time I'd like to show you
12 the document so you can review it.

13 (Pause.)

14 MR. CONNOLLY: Jack, after reviewing this document,
15 do you recall ever having seen this before?

16 THE WITNESS: No, I don't recall ever seeing it.

17 MR. CONNOLLY: Do you recall the topics discussed
18 in the TCN?

19 THE WITNESS: No.

20 MR. CHRISTOPHER: Do you ever recall any discus-
21 sions with reference to the leak rate procedure, over the
22 failure of the procedure to account for the water density
23 change due to temperature differences between the RCS and
24 the make-up tank and the RCDT?

25 THE WITNESS: I'm not aware of any such discussions.

1 MR. CHRISTOPHER: Were you aware of the fact that
2 this particular procedure changed the TCN and made corrections
3 to the procedure to correlated the RCDT to the RCS conditions,
4 but failed to make the same correction to the MUT, to additions
5 made to the MUT?

6 THE WITNESS: I was not even aware of the TCN so
7 I could not have been aware of those changes.

8 MR. CHRISTOPHER: And you're not aware of, nor did
9 you sit in on any PORC review that would have accompanied the
10 approval of the TCN?

11 THE WITNESS: I sat in on no PORC meetings of
12 any sort.

13 MR. CHRISTOPHER: Do you recall any discussions or
14 any decisions over whether or not the plant should have taken
15 action in an emergency procedure, number 2202-1.5, which is
16 for the pressurizer system failure? This particular
17 procedure, to refresh your memory, requires the EMOV or the
18 PORV relief isolation valve be closed when your tailpipe
19 temperatures and your discharge line temperatures become in
20 excess of 130°.

21 Do you recall that there were ever any discussions
22 at a management level or operator level as to whether or not
23 that procedure should be invoked?

24 THE WITNESS: I was not aware of any such
25 discussions, no.

1 MR. CHRISTOPHER: Were you aware of what the
2 discharge line temperatures were in the month preceding the
3 accident?

4 THE WITNESS: No.

5 MR. CHRISTOPHER: You are not aware that they
6 were operating at approximately 180 or 200°?

7 THE WITNESS: No.

8 MR. CHRISTOPHER: Were you aware of a decision or
9 a discussion relative to the fact that the plant was having
10 problems with valve leakage, but the decision was made not
11 to shut the plant down to repair the leakage until Unit 1
12 came back online from refueling?

13 THE WITNESS: No.

14 MR. CHRISTOPHER: You would not normally participate
15 in those kinds of conversations or meetings?

16 THE WITNESS: That's correct.

17 MR. CHRISTOPHER: So you're not aware of that
18 being the established operating philosophy at that time?

19 THE WITNESS: That was, to my knowledge at that
20 time, not the operating policy.

21 MR. CHRISTOPHER: Are you aware of any other, or
22 has any other operator or individual admitted to you or told
23 you that they were aware of Operations personnel attempting
24 to manipulate leak rate test results?

25 THE WITNESS: I'm not aware of any such discussions.

1 or have not been told that by any operators.

2 MR. CONNOLLY: Do you have any information regarding
3 the falsification of leak rate test results at Unit 2?

4 THE WITNESS: No.

5 MR. CHRISTOPHER: Do you have any indication or
6 any reason to believe that individuals in a supervisory or
7 management position were aware of instances of falsification
8 of leak rate test data?

9 THE WITNESS: No indication or reason to believe
10 that that was the case.

11 MR. CHRISTOPHER: No supervisory or management
12 individual ever admitted to you that they knew that was
13 happening?

14 THE WITNESS: That's correct.

15 MR. CONNOLLY: No further questions.

16 MR. CHRISTOPHER: Jack, do you have any other
17 comments or anything you'd like to add?

18 THE WITNESS: No.

19 MR. CHRISTOPHER: We'll terminate the interview,
20 and the time is 2:55.

21 (Whereupon, at 2:55 p.m., the interview was
22 terminated.)
23
24
25

CERTIFICATE OF PROCEEDINGS

This is to certify that the attached proceedings before the
NRC COMMISSION

In the matter of: Investigative Interview of
Jack W. Garrison

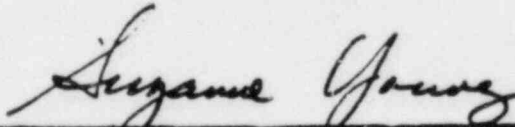
Date of Proceeding: Wednesday, September 28, 1983

Place of Proceeding: Harrisburg, Pennsylvania

were held as herein appears, and that this is the original
transcript for the file of the Commission.

Suzanne Young

Official Reporter - Typed



Official Reporter - Signature

EXHIBIT 34

SWORN TESTIMONY OF RICHARD W. BENDEL/9-28-83

ORIGINAL

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of:

INVESTIGATIVE INTERVIEW OF:

Docket No.

RICHARD W. BENSEL

Location: Harrisburg, Pa

Pages: 1 - 62

Date: Wednesday, September 28, 1983

TAYLOE ASSOCIATES

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1625 I Street, N.W. Suite 1004
Washington, D.C. 20006
(202) 293-3930

1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION

3
4 IN RE:

5 INVESTIGATION OF:
6 THE OFFICE OF INVESTIGATION
7 AND ENFORCEMENT

8 TESTIMONY OF
9 RICHARD W. BENSEL

10
11 Americana Host Inn
12 4751 Lindle Road, Rm. 383
13 Harrisburg, Pennsylvania

14 Wednesday, September 28, 1983

15 APPEARANCES:

16 R. KEITH CHRISTOPHER, Director
17 Office of Investigations, Region I
18 U.S. Nuclear Regulatory Commission
19 631 Park Avenue
20 King of Prussia, Pennsylvania 19406

21 PETER J. CONNOLLY, Investigator
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JANE G. PENNY, Esq.
Killian & Gephart
215-218 Pine Street
Box 886
Harrisburg, Pennsylvania 17108
On behalf of Mr. Bensel

P R O C E E D I N G S

(1:38 p.m.)

MR. CONNOLLY: The date is September 28, 1983, the time is 1:30 p.m., we're in room 383 of the Americana Host Inn, 4751 Lindle Road, Harrisburg, Pennsylvania, for the purpose of obtaining information from Richard W. Bensel regarding the alleged falsification of leak rate test data at the Three Mile Island Nuclear Generating Station Unit 2, Middletown, Pennsylvania, prior to March 28, 1979.

Present in the room are myself, Peter Connolly, Keith Christopher, both of Investigators from the Nuclear Regulatory Commission, Office of Investigation, Region I; Richard W. Bensel and his attorney Jane Penny of the firm Killian & Gephart, located at 216-218 Pine Street, Box 886, Harrisburg, Pennsylvania.

The interview is being conducted under subpoena. We're here to get as much information as we can about the incident in question.

It is my intent, Richard, to put you under oath for the purpose of asking these questions, and before I do that, just so you understand the ramifications of providing information under oath, I'd like you to read for us U.S. Code Title 18, Section 1001.

(Pause.)

MR. CONNOLLY: Do you have any questions?

1 MR. BENSEL: No, I do not.

2 Whereupon,

3 RICHARD W. BENSEL,

4 after being first duly sworn, was examined and testified
5 as follows:

6 MR. CONNOLLY: For the record could you state and
7 spell your full name, please?

8 THE WITNESS: Richard William Bensel, B-e-n-s-e-l.

9 MR. CONNOLLY: And your home address of record?

10 THE WITNESS: Box 224, R.D. 1, Wellesville,
11 Pennsylvania.

12 MR. CONNOLLY: How old are you?

13 THE WITNESS: Thirty-three.

14 MR. CONNOLLY: Your present employment is with whom?

15 THE WITNESS: With GPU Nuclear.

16 MR. CONNOLLY: And how long have you been employed
17 with GPU Nuclear?

18 THE WITNESS: Greater than 10 years.

19 MR. CONNOLLY: What is your present job title
20 at GPU Nuclear?

21 THE WITNESS: Manager, M&C Tech Support, TMI-1.

22 MR. CONNOLLY: And how long have you been in that
23 position?

24 THE WITNESS: Slightly over one month.

25 MR. CONNOLLY: Prior to the March 1979 accident,

1 what were your jobs at GPU Nuclear?

2 THE WITNESS: It was Metropolitan Edison Company
3 at that point in time, and I was the electrical engineer for
4 TMI Unit 2.

5 MR. CONNOLLY: From when?

6 THE WITNESS: The actual date I was made the
7 electrical engineer -- probably, maybe a year before that,
8 maybe longer.

9 MR. CONNOLLY: So we're going back to 1978?

10 THE WITNESS: Yes.

11 MR. CONNOLLY: And prior to being electrical
12 engineer, what were your other positions?

13 THE WITNESS: I was electrical engineer in Unit 2.

14 MR. CONNOLLY: And as lead electrical engineer
15 during the timeframe, what were your responsibilities?

16 THE WITNESS: My responsibilities were support
17 operations and maintenance in the area of electrical systems
18 in TMI-2, cognizant engineer for those type systems; and
19 principal PORC member for the Unit 2 PORC.

20 MR. CONNOLLY: And you said you commenced your
21 employment with GPU Nuclear and its predecessor, Metropolitan
22 Edison, in 1973. Is that correct?

23 THE WITNESS: Yes, it would have been July 1973.

24 MR. CHRISTOPHER: For the record, when you refer
25 to the PORC, you mean the Plant Operating Review Committee?

1 THE WITNESS: Yes.

2 MR. CHRISTOPHER: Dick, who was your direct
3 supervisor from the time you were electrical engineer prior
4 to the accident?

5 THE WITNESS: Just prior to the accident, it was
6 George Kunder.

7 MR. CHRISTOPHER: And during that time, were you
8 a member of the PORC?

9 THE WITNESS: Yes, I was.

10 MR. CHRISTOPHER: Also for the record, you will
11 probably be in receipt in the next day or so, dependent on the
12 U.S. mail, another subpoena that I think you scheduled you
13 officially for an interview on October 4th, next Monday.
14 Understand for the record that your being here today, we
15 consider you to be in compliance with that subpoena. So you
16 can disregard the subpoena that you're about to receive in
17 the mail.

18 THE WITNESS: So noted.

19 MR. CHRISTOPHER: Dick, how familiar are you with
20 the technical specification for the limiting condition for
21 operations which places limits on RCS leakage? I believe
22 it's Tech Spec 3.4.6.2.

23 THE WITNESS: Prior to the accident I was familiar
24 that there was a tech spec. The actual details I wouldn't
25 be able to pull off the top of my head.

1 MR. CHRISTOPHER: Just for your information if
2 you want to refer to it, I have a copy of it here if you
3 have any questions. Specifically, you'll note that it's
4 Tech Spec 3.4.6.2, Reactor Coolant System Leakage, and it
5 identifies what the reactor coolant system leakage, as
6 unidentified leakage, should be limited to less than one
7 gallon per minute. And under the Action Statement,
8 Section B of the tech specs, it states, "With any reactor
9 coolant system leakage greater than any one of the above
10 limits,"-- specifically, that includes the one gallon per
11 minute unidentified leakage and 10 gallons per minute
12 identified leakage -- let me continue with that. It states,
13 "With any reactor coolant system leakage greater than any one
14 of the above limits, excluding pressure boundary leakage,
15 reduce the leakage rate to within limits within four hours
16 or be in at least hot standby within the next six hours and
17 a cold shutdown within the following 30 hours."

18 So, do you recall that the unidentified leakage
19 limit was required to be maintained at under one gallon
20 per minute?

21 THE WITNESS: That's what the tech spec says.

22 MR. CHRISTOPHER: At that time, were you
23 sufficiently familiar with the actual conduct of a leak rate
24 test to know that that was what the requirements were? I
25 realize that's primarily an operations function.

1 THE WITNESS: Only from the standpoint that when
2 the procedure was generated I probably would have sat in on
3 the PORC meeting when the procedure was reviewed. As far as
4 routine day to day, it might be a number I could have pulled
5 off the top of my head or not.

6 MR. CHRISTOPHER: Because you don't normally do --

7 THE WITNESS: I don't normally do that and I was not
8 normally involved in that function.

9 MR. CHRISTOPHER: Are you at all familiar with
10 the surveillance procedure, that's 2301-3D(1) -- that
11 actually implements the tech spec? That actually goes into
12 the mechanics of how you run the test and what your actions
13 are required to be?

14 THE WITNESS: I'm not familiar with the details
15 of how the calculation was performed. It's a procedure that
16 I did not prepare.

17 MR. CHRISTOPHER: But would that have been the
18 subject of a PORC review? The procedure, itself?

19 THE WITNESS: Yes, it would have.

20 MR. CHRISTOPHER: Fine. I have a copy of that
21 procedure here, and at any time if you'd like to refer to it,
22 please do.

23 The surveillance procedure specifically states in
24 terms of the applicability, it states, "The purpose of the
25 procedure is to insure compliance with TMI-2 Technical

1 Specification 3.4.6.2 ..." and without going into the details,
2 it's specifically in reference to the one gallon per minute
3 unidentified, 10 gallon per minute identified, leak rate.

4 And it states, "By performance of the Technical
5 Specification 4.4.6.2D which states 'reactor coolant system
6 leakages shall be demonstrated to be within the above limits
7 by performance of a reactor coolant system water inventory
8 balance at least one per 72 hours or in steady state
9 operations'..."

10 What I'm particularly interested in is how do you
11 interpret, or what do you understand that 72-hour time period
12 to mean?

13 THE WITNESS: Gives you the frequency at which
14 the surveillance must be performed.

15 MR. CHRISTOPHER: Which to your understanding
16 would be what?

17 THE WITNESS: At least once every 72 hours, or
18 once every three days. Just like other surveillances are
19 once a month, or once every 30 days, this is once every
20 three days.

21 MR. CHRISTOPHER: So it would be your understanding
22 that you would only have to run the test once every 72 hours.

23 THE WITNESS: By tech specs, that's my understanding.

24 MR. CHRISTOPHER: Okay. Have you ever personally
25 run a leak rate test?

1 THE WITNESS: No, I have not.

2 MR. CHRISTOPHER: Would you be in a position, if
3 you were asked to run a test, to know how to run one?

4 THE WITNESS: I don't really know.

5 MR. CHRISTOPHER: Do you know if there is a require-
6 ment that all surveillance tests be logged in the CRO log?

7 THE WITNESS: I don't remember if that requirement
8 existed in any administrative procedures or not.

9 MR. CHRISTOPHER: You don't recall that nor or as
10 it pertains to back then?

11 THE WITNESS: As it pertains to back then.

12 MR. CHRISTOPHER: Do you know of any procedure or
13 other document that would allow plant personnel, operators or
14 other maintenance personnel performing a surveillance of
15 sorts, that would allow them to not record or to discard a
16 bad surveillance result? Particularly as it pertains to the
17 leak rate tests?

18 THE WITNESS: Would you repeat the question?

19 MR. CHRISTOPHER: Are you aware of any allowance
20 in any procedures or technical specifications that would allow
21 plant personnel to discard records of bad or unacceptable
22 surveillance tests?

23 THE WITNESS: I don't recall any such document.

24 MR. CHRISTOPHER: And have you ever reviewed,
25 yourself, the logs as they pertain to the surveillance tests?

1 That would primarily be the CRO logs?

2 THE WITNESS: No, that was not one of my job
3 functions.

4 MR. CHRISTOPHER: Do you know who was responsible
5 for reviewing those logs?

6 THE WITNESS: Responsible for reviewing those
7 logs in regards to what?

8 MR. CHRISTOPHER: For determining, verifying their
9 accuracy, that the appropriate entries were being made, those
10 type of things.

11 THE WITNESS: I'm not sure who had the line
12 responsibility for that function.

13 MR. CHRISTOPHER: But you personally had no
14 responsibility for reviewing them?

15 THE WITNESS: I personally did not have that
16 function.

17 MR. CHRISTOPHER: Okay. Are you familiar with --
18 and I think you may have answered this -- are you familiar
19 with Administrative Procedure 1012, particularly, shift
20 relief and logs? Does that procedure on its face -- does
21 that bring any recollection to you?

22 THE WITNESS: I'm familiar with the procedure.
23 As far as the specific details, it's too long ago for me to
24 recall what the requirements were outlined in that procedure.

25 MR. CHRISTOPHER: Okay. I'm looking at AP 1012

1 and the stated scope of the procedure. I'll read to you in
2 part for your recollection. It describes the various shift
3 records and logs involved, any instructions required to
4 maintain these records to conform to technical specifications,
5 and to insure adherence to the requirements of the FSAR.

6 So generally, there is -- I understand that maybe
7 you don't recollect at this point -- it would appear that
8 this is the procedure that requires the maintenance of
9 surveillance records, et cetera.

10 And let it also be known for the record that
11 Section 2.2 of the procedure states, "The Supervisor of
12 Operations shall be responsible for the review, approval and
13 storage of the logs and records." But independently, you
14 don't have any recollection that that would have been the
15 case or if, in fact, that was done. Is that correct?

16 THE WITNESS: From my vantage point, I would
17 speculate that it was done, but --

18 MR. CHRISTOPHER: But you weren't personally
19 involved in --

20 THE WITNESS: I was not personally involved in
21 that, no.

22 MR. CHRISTOPHER: -- in any recording of shift
23 operations logs, et cetera.

24 THE WITNESS: No.

25 MR. CHRISTOPHER: I wanted to ask specifically a

1 couple of questions regarding -- and I don't know that you're
2 in a position to answer this, and if you're not please state
3 so -- regarding the method by which entries are made in
4 operations logs, and particularly, control room operator logs.
5 I realize you don't make those entries, but in your day-to-
6 day familiarity with the plant, you may be able to shed some
7 light on this, because there is some confusion on my part.

8 Section 3.3.17 of this same procedure, AP 1012,
9 under Subcategory 3.3, Control Room Logs, states,
10 "Accomplishment of Testing: record title and number of the
11 test performed and the start and completion times, or times
12 of suspension of the test. And performance of all periodic
13 tests and inspections required by the technical specifications
14 shall be recorded."

15 In reviewing the control room logs, I have never
16 found a case where the initiation of a leak rate test was
17 recorded. I have always only found the end of a leak rate
18 test. Do you have any knowledge as to why the beginning --
19 the start and the end of the tests aren't recorded in the logs?

20 THE WITNESS: No, I don't.

21 MR. CHRISTOPHER: Are you aware of any test results
22 being thrown away? Personally aware of leak rate test results
23 being thrown away?

24 THE WITNESS: I remember that there were some that
25 were considered invalid computer printouts for leak rate that

1 were found in the trashcan.

2 MR. CHRISTOPHER: Do you recall what time period
3 that was?

4 THE WITNESS: I know it was pre-1979.

5 MR. CHRISTOPHER: Do you recall who brought to your
6 attention that these test results were in the trashcan?

7 THE WITNESS: No, I do not.

8 MR. CHRISTOPHER: Do you recall if there was any
9 discussions surrounding the policy of throwing away these
10 test results?

11 MS. PENNY: Are you aware there was a policy?

12 THE WITNESS: I'm not aware of any policy.

13 MR. CHRISTOPHER: Regarding whether or not you
14 could throw away bad leak rate tests, or invalid leak rate
15 tests.

16 MS. PENNY: Could we go off the record for a
17 second?

18 (Discussion off the record.)

19 MR. CHRISTOPHER: Back on the record. There was
20 discussion off the record between Ms. Penny and Dick Bensel
21 regarding the previous question.

22 My next question is, are you aware of whether or
23 not there was a policy established for throwing away bad or
24 invalid leak rate test results?

25 THE WITNESS: I'm not aware of any policy.

1 MR. CHRISTOPHER: A set, formalized policy.

2 THE WITNESS: I would not consider some of those
3 bad test results as much as invalid computer runs. I'd like
4 to clarify that, too.

5 MR. CHRISTOPHER: But invalid -- the only tests
6 that we know of that were considered invalid were those tests
7 that had leak rates in excess of one gpm, at this point.

8 THE WITNESS: Is that a statement you're making?

9 MR. CHRISTOPHER: That's just a statement I'm
10 making.

11 MS. PENNY: Did you want to clarify that?

12 THE WITNESS: I -- from my vantage point, I don't
13 consider that a really legitimate statement.

14 MR. CHRISTOPHER: Are you aware of any tests that
15 were run, with a result that was under the one gallon per
16 minute leak rate that were considered invalid and were rerun?

17 THE WITNESS: I'm not sure what all was considered
18 invalid. All I know is -- my opinion is they were also some
19 invalid that were negative leak rates.

20 MR. CHRISTOPHER: Correct.

21 THE WITNESS: That's what I really wanted to
22 clarify. As far as what was considered invalid, I don't
23 really know what the details of that were.

24 MR. CHRISTOPHER: I'll get into some negative leak
25 rates a little later. I understand.

1 Are you aware of any discussions or decisions
2 related to the decision not to record the start of the leak
3 rate tests in the log books?

4 THE WITNESS: No.

5 MR. CHRISTOPHER: You're not aware if there was
6 a conscious decision made to not log the start time of the
7 tests because they were getting so many bad test results?

8 THE WITNESS: No.

9 MR. CHRISTOPHER: Do you know whether or not --
10 you've said you did not know if there was a policy, or you
11 were not aware of a policy of throwing away bad or invalid
12 test results. Would you consider from your knowledge at the
13 time it a common practice that test results were discarded
14 that were considered unacceptable?

15 THE WITNESS: No.

16 MR. CHRISTOPHER: You would not consider it a
17 common practice?

18 THE WITNESS: I would not consider it a common
19 practice.

20 MR. CHRISTOPHER: Are you aware of other surveil-
21 lance procedures, notwithstanding the leak rate test results
22 program, that if an invalid test was found for one reason
23 or another, that they threw those away, also?

24 THE WITNESS: No, I'm not aware of any practice
25 such as that.

1 MR. CHRISTOPHER: Do you have any idea as to what
2 was supposed to happen officially with results of
3 surveillance tests that did not meet the technical specifica-
4 tion requirements?

5 THE WITNESS: The results of surveillance tests
6 did not meet the technical specifications requirement?

7 MR. CHRISTOPHER: Right.

8 THE WITNESS: You could not say the component was
9 operable, and you'd enter the applicable Action Statement
10 in the tech specs.

11 MR. CHRISTOPHER: Okay. And with these bad or
12 invalid tests that were, as you've heard, thrown in the
13 trashcan at some point, do you know why they did not enter
14 into the Action Statement, on those particular tests?

15 THE WITNESS: No, I do not.

16 MS. PENNY: What is your understanding? I don't
17 think you've clarified it.

18 THE WITNESS: My understanding was that if they
19 were thrown away it was related to a bad computer run. It
20 didn't reach the point of being considered test results.

21 MR. CHRISTOPHER: How did they actually, then,
22 determine whether or not -- make a determination as to whether
23 or not a test would be valid or not?

24 THE WITNESS: I wasn't close enough involved to
25 the actual performance of those tests to give any specific

1 details.

2 MR. CHRISTOPHER: Do you know if they did have to
3 go out and try to make a determination whether the test was
4 valid or not, whether they would, in some formal fashion
5 or informal fashion, document what they did to determine
6 whether the test was valid or not valid?

7 THE WITNESS: I don't recall.

8 MR. CONNOLLY: You indicated that the tests were
9 thrown -- were discarded because of invalid computer runs.
10 What do you mean by an invalid computer run?

11 THE WITNESS: My experience with that whole
12 situation is very limited and I don't have any specifics.
13 But from my own interpretation and understanding, it would be
14 either the plant was just totally unstable, was not stable
15 while they were running the leak rate, or something happened
16 inside the computer that the program didn't function
17 properly.

18 MR. CONNOLLY: Did you have anything to do with
19 the programming of that computer?

20 THE WITNESS: No, I did not.

21 MR. CHRISTOPHER: Do you know who did program the
22 computer for running the tests?

23 THE WITNESS: I would say it was probably Bill Fels.

24 MR. CHRISTOPHER: I think I may have asked this
25 but let me restate it because I don't remember your answer.

1 Are you personally aware of individuals throwing away these
2 bad test results?

3 THE WITNESS: I am not personally aware of any
4 one individual that did that.

5 MR. CHRISTOPHER: Are you aware of whether or not
6 supervisors such as shift foremen, shift supervisors, were
7 aware of the fact that these tests were being thrown away?

8 THE WITNESS: I'm not personally aware of that,
9 either.

10 MR. CHRISTOPHER: You don't recall being in any
11 discussions or hearing any discussions where the subject of
12 whether to keep them or throw them away may have been
13 discussed?

14 THE WITNESS: No.

15 MR. CHRISTOPHER: Do you know if the reason for
16 these test results being thrown away was so that the NRC
17 would not see the bad test results?

18 THE WITNESS: The thought never entered my mind.
19 I don't recollect that in any kind of discussion.

20 MR. CHRISTOPHER: You recall not discussions,
21 overhearing or being engaged in any discussion surrounding
22 the concern that the NRC may see these unacceptable results
23 and question why the plant was running?

24 THE WITNESS: No, I do not.

25 MR. CHRISTOPHER: Do you recall any time when the

1 plant was actually placed into the Action Statement because
2 of excessive leakage after a test was run?

3 THE WITNESS: I personally don't recall any time.

4 MR. CHRISTOPHER: Do you have any idea of how
5 many unacceptable tests were run that were thrown out?

6 THE WITNESS: No, no idea.

7 MR. CHRISTOPHER: Do you know who would actually
8 make the decision as to whether a test was invalid or not?
9 When the operator runs the test, punches it into the computer
10 for his one-hour period and let's say he comes out with a
11 1.8 unidentified. What now does he have to do with that
12 particular test?

13 Right now all we have is that he ran a leak rate
14 test and his result is in excess of the one gallon per minute
15 unidentified leak rate. Irregardless of what the amount is.
16 Now what should he do at that point?

17 THE WITNESS: The operator would give that to the
18 shift foreman or shift supervisor.

19 MR. CHRISTOPHER: Okay.

20 THE WITNESS: And then they'd analyze it.

21 MR. CHRISTOPHER: And you don't know to what
22 extent they analyze it or what kind of review they would do?

23 THE WITNESS: No, I do not. I do know that after
24 a point in time, based on discussions between Seelinger and
25 Haverkamp, there's agreement reached that leak rates would

1 be rounded off, and the specific details of how that worked
2 I don't remember either. So that would have played into
3 their judgment as to what they did with your example
4 calculation.

5 MR. CONNOLLY: Would you identify Seelinger and
6 Haverkamp?

7 THE WITNESS: Jim Seelinger at that point in time
8 would have been Unit Superintendent, Technical Support for
9 Unit 2, and Don Haverkamp was the NRC inspector.

10 MR. CONNOLLY: Do you remember the timeframe of
11 that agreement between Seelinger and Haverkamp?

12 THE WITNESS: I would place the timeframe 1978.
13 I'm hazy on that.

14 MS. PENNY: And you stated this was an agreement?
15 What is your recollection?

16 THE WITNESS: There was a discussion and I would
17 say it was an agreement.

18 MR. CONNOLLY: What brought about the discussion?

19 THE WITNESS: I don't remember any specific
20 details as to what brought it about. I wasn't that
21 intimately involved with the performance of the leak rates to
22 know what prompted the discussion.

23 MR. CONNOLLY: How did it come to your attention
24 regarding this discussion between Seelinger and Haverkamp?

25 THE WITNESS: I'm not sure if it would have been

1 related to either a PORC, sitting in on a PORC meeting and
2 the discussion came up there, or if it would have been a POD
3 or if it would have been a staff meeting. It's too long ago
4 to remember where that came from. It's just one of those
5 things that sticks in my mind that I remember.

6 MR. CHRISTOPHER: Do you recall discussing --
7 there was a great deal of discussion among operators and other
8 individuals in general of the problem with leakage in general
9 and specifically, problems with getting a good unidentified
10 leak rate. Do you recall sitting in on any formalized
11 meetings or having any conversations with supervisory level
12 personnel regarding the plant's problems with getting good
13 leak rates?

14 THE WITNESS: I don't recall doing that.

15 MR. CHRISTOPHER: Not in the PORC or a POD, plan
16 of the day type meeting? Any formalized discussions regarding
17 the difficulty in getting a good leak rate.

18 THE WITNESS: I don't recall any of those discussions.

19 MR. CHRISTOPHER: Prior to the accident, and let's
20 say in January, February and into March, was it common
21 knowledge that there was a great deal of difficulty in getting
22 a good unidentified leak rate?

23 THE WITNESS: I, at this point, am not sure.

24 MR. CHRISTOPHER: Can you recall if you personally
25 were aware of and were concerned about the plant's apparent

1 inability to get a good unidentified leak rate?

2 THE WITNESS: It's really pretty much out of my
3 area of cognizance. I can't remember being concerned about it.

4 MR. CHRISTOPHER: Are you familiar -- you mentioned
5 this a little while ago -- with the plant getting negative
6 leak rates?

7 THE WITNESS: I knew it happened. How often it
8 happened I don't have any -- .

9 MR. CHRISTOPHER: Would a negative leak rate, in
10 effect, imply that the plant was making water?

11 THE WITNESS: I know from hearing other people
12 talk, based on the accuracy of the instrumentation feeding
13 the computer to perform the calculation, I could see how it
14 could happen.

15 MR. CHRISTOPHER: But I guess my question is,
16 would it be possible for that plant to make water -- if
17 everything else was correct and there were no malfunctions in
18 the various plant systems or the way the computer was run,
19 could you accept that the plant was, in effect, making water
20 in that system?

21 THE WITNESS: I know that we added hydrogen to the
22 make-up tank to control oxygen in the primary we system, and
23 the means we did that was, in effect, making water. Now,
24 whether you can water in sufficient quantities to affect the
25 leak rate calculation I don't know. It's beyond my expertise.

1 MR. CHRISTOPHER: Would you accept a negative leak
2 rate as a valid leak rate?

3 THE WITNESS: I've never been in the position. If
4 it met the acceptance criteria in the surveillance procedure,
5 then the people who performed that surveillance would have to
6 make that determination.

7 MR. CHRISTOPHER: But could you accept as a valid
8 leak rate -- remember, since we're talking about valid and
9 invalid tests here, could you accept a negative leak rate as
10 a valid test result?

11 THE WITNESS: I don't --

12 MR. CHRISTOPHER: Please understand, I guess I'm
13 asking for your professional engineering judgment and not
14 tying you to that being the name of --

15 THE WITNESS: My professional engineering
16 judgment would tell me that if it was within the accuracy
17 of the instrumentation feeding the calculation, you would
18 accept it. And what that would be, I don't know.

19 MR. CHRISTOPHER: If I told you that there were
20 39 out of 170 leak results that they accepted negative leak
21 rates, would that be an indicator to you of maybe problems
22 with the program, or problems with the surveillance procedure
23 itself? Does that seem like an excessive number of acceptances
24 of a negative leak rate?

25 MS. PENNY: You have two questions there. Which

1 do you want?

2 MR. CHRISTOPHER: Both.

3 In other words, there are 40 out of 170.

4 MS. PENNY: Thirty-nine.

5 MR. CHRISTOPHER: Okay, 39, I'm sorry, you're
6 right. 39 out of 170 that were negative leak rates. Is that
7 indicative of a problem, in your mind, with the surveillance
8 procedure or with the validity of the leak rate test?

9 THE WITNESS: I'm not in the position to make the
10 judgment on that. Somebody would have -- .

11 MR. CHRISTOPHER: Okay. You personally have never
12 thrown away leak rate test results; is that correct?

13 THE WITNESS: That's true.

14 MR. CONNOLLY: Dick, you mentioned that you knew
15 about the occurrences of negative leak rates.

16 THE WITNESS: I can't put any specifics on that
17 I can't remember where I even heard that discussion. I just
18 know that it happened.

19 MR. CONNOLLY: And you also indicated that you
20 were aware that hydrogen was added to the make-up tank in
21 order to bleed out the oxygen; is that correct?

22 THE WITNESS: That's true.

23 MR. CONNOLLY: Where did you learn that information
24 from?

25 THE WITNESS: That's part of training that nearly

1 everybody that's been here went through.

2 MR. CONNOLLY: Were you involved in the addition
3 of hydrogen to the make-up tank?

4 THE WITNESS: No.

5 MR. CONNOLLY: Who would have been involved in
6 the addition of hydrogen to the make-up tank?

7 THE WITNESS: Operations Department would have done
8 that in accordance with plant procedures.

9 MR. CHRISTOPHER: The tech spec statement, as you
10 have said, states that you have to get a good leak rate every
11 72 hours or every three days.

12 MS. PENNY: He stated that by reading it.

13 MR. CHRISTOPHER: By reading it. Do you interpret
14 that tech spec to mean that if anytime you received a leak
15 rate that was not in compliance with the tech spec that you
16 would have to enter the Action Statement?

17 In other words, the operators were running multiple
18 tests within the 72-hour time period.

19 MS. PENNY: Allegedly. He's not aware of that.

20 THE WITNESS: I'm not aware of how often the leak
21 rate was actually performed.

22 MR. CHRISTOPHER: But if a leak rate test was
23 performed at time 0 and your result was in excess of the
24 technical specification, would you be required to enter into
25 the Action Statement at that time?

1 THE WITNESS: The way I've interpreted that today
2 I would say yes.

3 MR. CHRISTOPHER: Okay. Did you ever enter in or
4 recall talking to Jim Floyd or George Kunder about the
5 interpretation of this particular technical specification?

6 THE WITNESS: I remember hearing discussions.
7 Specifically who it was with and what my involvement was,
8 I don't recall.

9 MR. CHRISTOPHER: Can you just recall what the
10 discussion was about?

11 THE WITNESS: I know it was relative to entering
12 the Action Statement, and when it took place I'm not sure.

13 MR. CHRISTOPHER: Do you recall entering into any
14 discussions again with Jim Floyd or George Kunder regarding
15 this problem of getting good leak rates, question one;
16 regarding the policy of -- the practice of throwing away
17 bad test results? Do you recall any discussions to that effect
18 with those individuals?

19 THE WITNESS: Not specifically with those
20 individuals.

21 MR. CHRISTOPHER: Do you recall having those
22 discussions with any individuals?

23 THE WITNESS: I may have been involved in
24 discussions along those lines in a PORC meeting. I just plain
25 don't recall.

1 MR. CHRISTOPHER: Are you aware of any instance --
2 this is prior to the accident, of course, -- where a shift
3 supervisor requested to shut down the plant to repair
4 excessive leakage and that request being denied?

5 THE WITNESS: No.

6 MR. CHRISTOPHER: You never heard of that.

7 Prior to the accident, were you aware of any
8 discussions in which management or other supervisors
9 discussed excessive leakage from the code safeties and/or
10 the PORV?

11 THE WITNESS: I don't remember discussion of any
12 leakage that would have put us beyond the requirement of
13 tech specs.

14 MR. CHRISTOPHER: But do you recall any discussions
15 regarding the fact that you apparently had excessive leakage
16 from one or both of those valves?

17 THE WITNESS: I don't know what you mean by
18 excessive leakage.

19 MR. CHRISTOPHER: Excessive leakage would be --
20 the plant knew that they were having problems getting --
21 I guess what I'm trying to get at is the plant was having
22 problems getting a good unidentified leak rate.

23 MR. PENNY: Supposedly. Do you know that?

24 THE WITNESS: I do not specifically remember being
25 aware of that.

1 MR. CHRISTOPHER: Are you aware of any discussions
2 as to whether or not there was, in fact, apparently excessive
3 leakage from the code safeties or the PORV prior to the
4 accident?

5 THE WITNESS: I remember discussions -- I remember
6 there was leakage by a code safety valve. Whether I would
7 determine that as excessive or not, I think that might be
8 extreme. I don't remember anything that put us beyond the
9 requirements of the tech specs.

10 MR. CHRISTOPHER: Do you recall any discussions
11 regarding increasing tailpipe temperatures?

12 THE WITNESS: I don't remember any discussions of
13 an increasing trend. I knew that the tailpipe temperatures
14 were reading high, but that was it.

15 MR. CHRISTOPHER: Is there any correlation between --
16 correct me if I'm wrong -- those higher than normal tailpipe
17 temperatures, regardless of whether you considered them
18 excessive or not, those higher than normal tailpipe temperatures
19 do you consider that an indicator of leakage from the code
20 safeties and/or the PORV?

21 THE WITNESS: It's an indicator of leakage by
22 one of those three valves.

23 MR. CHRISTOPHER: Or could it be both?

24 THE WITNESS: Somebody would have to analyze that.

25 MR. CHRISTOPHER: Just by the temperatures itself,

1 you could not really tell if it was one or both, I guess.

2 THE WITNESS: I'm not sure. I wasn't involved in
3 that.

4 MS. PENNY: Were you aware that the tailpipe
5 temperatures were higher than normal?

6 THE WITNESS: I was aware that they were higher
7 than normal.

8 MR. CONNOLLY: How did you become aware of that
9 fact?

10 THE WITNESS: There was a daily status report
11 that was published where they always put the tailpipe
12 temperatures on that.

13 MR. CONNOLLY: Do you remember any discussions
14 regarding the increase in tailpipe temperatures?

15 THE WITNESS: I don't recall any.

16 MR. CHRISTOPHER: Were you personally concerned
17 or did you feel that there was excessive leakage from those
18 valves at the time, such that it would have caused you to
19 bring it to someone's attention?

20 THE WITNESS: No.

21 MR. CONNOLLY: In your position at the time, which
22 was lead electrical engineer -- is that correct -- would you
23 have been involved in the problem of excessive leakage and
24 increasing tailpipe temperatures?

25 THE WITNESS: Not --

1 MR. CONNOLLY: Your responsibilities as lead
2 engineer would not have been involved in those areas?

3 THE WITNESS: No. The typical people who would
4 have been involved in those areas would have been the
5 mechanical or I&C types and plant management.

6 MR. CHRISTOPHER: Who would those individuals
7 have been?

8 THE WITNESS: The I&C would probably be Ivan
9 Porter or somebody that was working in his group, and the
10 mechanical would have been Tom Morck or somebody in that area.

11 MR. CHRISTOPHER: Do you know what the main reason
12 was during -- prior to the accident, let me preface that,
13 they were continuously cycling the pressurizer. Do you
14 know what the main reason was for this continuous cycling
15 of the pressurizer?

16 MS. PENNY: Were you aware that they were
17 continually cycling --

18 THE WITNESS: I'm not even sure if I recollect
19 the continuous cycling of the pressurizer.

20 MR. CHRISTOPHER: You're not aware of whether
21 they were continuously cycling the pressurizer or not.
22 Or what the reason for them doing it was.

23 THE WITNESS: No.

24 MR. CHRISTOPHER: You're not aware of either.

25 THE WITNESS: Not that I can remember.

1 MR. CHRISTOPHER: Are you aware of or do you know
2 whether or not all water additions to the RCS are required
3 to be recorded in the CRO log? And I don't mean just during
4 the leak rate test itself; I mean any and all water additions
5 to the RCS system.

6 THE WITNESS: That would be whatever the operations
7 procedure said and what the procedures required for entering
8 in logs. I don't remember what those requirements were.

9 MR. CHRISTOPHER: But you're not aware of whether
10 or not they're supposed to record all water additions.

11 THE WITNESS: Not off the top of my head, no.

12 MR. CONNOLLY: Would you have been involved in
13 any in the addition of water?

14 THE WITNESS: No.

15 MR. CHRISTOPHER: Are you aware at all or are you
16 familiar with the computer program as to how it was set up
17 to run the leak rate test?

18 THE WITNESS: No.

19 MR. CHRISTOPHER: You had no involvement in that?

20 THE WITNESS: No, I didn't.

21 MR. CHRISTOPHER: So you would not be able to
22 make a determination as to whether or not any potential
23 problems with getting a good leak rate could be affiliated
24 with the computer program?

25 THE WITNESS: No.

1 MR. CHRISTOPHER: Are you aware of instances where
2 operators added hydrogen to the make-up tank for the express
3 purpose of manipulating leak rate test results?

4 THE WITNESS: No.

5 MR. CHRISTOPHER: Have you heard, since the
6 accident that operators were doing that?

7 THE WITNESS: No.

8 MR. CHRISTOPHER: You never discussed with any
9 operator or other individual that operators found that they
10 could possibly affect the leak rate test by adding hydrogen
11 during the test?

12 THE WITNESS: No.

13 MS. PENNY: But you have heard that allegation
14 since the accident.

15 MR. CHRISTOPHER: I understand you've heard the
16 allegation. But have you had any discussions with operators,
17 individuals who actually ran the test that they, in fact,
18 did do that?

19 I understand that you have heard the allegation
20 because of the notoriety that it's gotten. But did you
21 personally ever have any discussions with an operator who
22 admitted to you that he had added hydrogen to the make-up
23 tank for the purpose of affecting the leak rate test results?

24 THE WITNESS: No.

25 MR. CHRISTOPHER: Have you heard of any operators

1 who actually were supposed to have done that?

2 THE WITNESS: Not for the express purpose of
3 altering the leak rate.

4 MR. CHRISTOPHER: Do you have any idea as to why
5 or how a hydrogen addition during the test would affect the
6 program?

7 THE WITNESS: The actual physics or chemistry
8 effect I never really completely understood, other than that
9 I know that hydrogen will scavenge oxygen in the environment
10 in the reactor, but the actual effect that would have, I have
11 never seen it proved one way or the other if it really has an
12 effect on the accuracy of the leak rate. I've seen documents
13 but I never really analyzed it.

14 MR. CHRISTOPHER: So prior to the accident, you
15 don't recall being told or in any way made aware that hydrogen
16 could affect the leak rate test?

17 THE WITNESS: I don't recall anything. I know
18 before the accident I was aware that hydrogen did scavenge
19 oxygen, but as far as its effect on the leak rate, I don't.

20 MR. CHRISTOPHER: Have you been made aware since
21 that time that hydrogen would actually affect the test result?

22 THE WITNESS: I've been aware that people feel that
23 it does. As far as somebody sitting down and proving to me
24 if you add this many cubic feet of hydrogen to the make-up
25 tank it's going to affect the leak rate calculation by

1 .5 gallon per minute, I am not aware of that.

2 MR. CHRISTOPHER: Do you recall who you discussed
3 that with -- this possibility or this theory?

4 THE WITNESS: Well, I briefly skimmed through a
5 discussion of that in the report that the company put
6 together in the Hartman allegations.

7 MR. CHRISTOPHER: That's the Faegre & Benson
8 report?

9 THE WITNESS: Yes.

10 MR. CHRISTOPHER: But you were not during that time
11 or now personally aware of the fact that hydrogen could
12 possibly affect the test result.

13 THE WITNESS: Now I am personally aware of the fact
14 that it could possibly affect the test result. Prior to the
15 accident, it was not something I daily even thought about.
16 I just didn't consider it.

17 MR. CHRISTOPHER: And you never discussed this
18 possibility with any Operations personnel, and that would
19 include supervisors, shift foremen or above, the operations
20 under Jim Floyd?

21 THE WITNESS: No.

22 MR. CHRISTOPHER: Do you have any knowledge as to
23 whether or not any of those individuals were aware that
24 operators could add hydrogen to the make-up tank to affect
25 the test results?

1 THE WITNESS: I don't know.

2 MR. CHRISTOPHER: You don't know if they knew
3 about that or not.

4 THE WITNESS: I don't know what they knew or
5 talked about with their people.

6 MR. CHRISTOPHER: What parameters would the
7 operators be actually looking at to decide when to add
8 hydrogen to the make-up tank, do you know?

9 THE WITNESS: I don't know. I would imagine that
10 would have to do with the oxygen concentration, but I
11 don't remember.

12 MR. CONNOLLY: That brings up a question in my
13 mind. What was your relationship at that time, or your
14 position at that time, with the Operations Department on a
15 daily basis?

16 THE WITNESS: Mainly, it was resolving problems
17 that were identified to me with electrical systems or safety
18 features actuation systems.

19 MR. CONNOLLY: Could you elaborate on what you
20 mean by electrical systems and safety systems?

21 THE WITNESS: Diesel generators, station batteries,
22 converters, rectifiers, motors, motor-operated valves, things
23 along those lines.

24 As far as routine operations, I was not directly
25 involved.

1 MR. CONNOLLY: More or less, then, you were involved
2 in maintenance and repair, then, of electrical equipment.

3 THE WITNESS: Pretty much, or if somebody called
4 with a question or a problem related to something I was
5 cognizant of.

6 MR. CHRISTOPHER: Do you recall being asked to do
7 any maintenance type review of plant systems in relation to
8 problems with getting good leak rate tests?

9 THE WITNESS: No.

10 MR. CHRISTOPHER: Are you aware of water being
11 added to the make-up tank and not being recorded for the
12 purpose of affecting the leak rate test result?

13 THE WITNESS: No.

14 MR. CHRISTOPHER: You're not -- you have never
15 personally witnessed an operator add water to the make-up tank
16 and not record the water addition to affect the test result?

17 THE WITNESS: No. It's just plain out of my area
18 to be in a position to do that.

19 MR. CHRISTOPHER: So you're not aware of any
20 supervisory individuals who were aware of that type of
21 practice?

22 THE WITNESS: No.

23 MR. CHRISTOPHER: Have you ever heard of individuals
24 such as Bernie Smith or Ken Hoyt or any of the other shift
25 supervisory personnel indicate that they were aware that

1 operators were doing that?

2 THE WITNESS: No.

3 MR. CHRISTOPHER: Or that they condoned the fact
4 that operators were doing that?

5 THE WITNESS: No.

6 MR. CHRISTOPHER: Then again, beyond them, did you
7 ever enter into any discussions with persons such as Jim
8 Floyd or Gary Miller which would indicate that they knew
9 that that was occurring?

10 THE WITNESS: No.

11 MR. CHRISTOPHER: Are you aware of pressure being
12 exerted on operators to get good leak rate test results?

13 THE WITNESS: No.

14 MR. CHRISTOPHER: Did any operator, as an individual,
15 make comments to you that they were under a great deal of
16 pressure to get leak rate test results; that they felt
17 intimidated or threatened if they did not get good test results?

18 THE WITNESS: Not that I can recall.

19 MR. CHRISTOPHER: You don't recall having any
20 discussions one way or the other about the test results?

21 THE WITNESS: No.

22 MR. CHRISTOPHER: Do you recall ever discussing
23 with any of the operators the problems with actually getting
24 good leak rate test results?

25 THE WITNESS: I don't recall any.

1 MR. CHRISTOPHER: You just would have no reason to
2 talk to them about that kind of problem?

3 THE WITNESS: No.

4 MR. CHRISTOPHER: So you're aware of no individual
5 operators that were directly ordered to manipulate the
6 test results by either the addition of hydrogen or water.

7 THE WITNESS: I'm not aware of any such action.

8 MR. CHRISTOPHER: This is an information question.
9 If you had continuing, increasing leakage from the code
10 safeties or the PORV, that leakage is going into the reactor
11 coolant drain tank, correct?

12 THE WITNESS: Yes.

13 MR. CHRISTOPHER: And that is identified leakage,
14 is that correct? That is considered identified.

15 THE WITNESS: I don't remember how that was
16 accounted for. I'm not that cognizant.

17 MR. CHRISTOPHER: Do you have any knowledge as
18 to how an increase -- if there was increasing leakage from
19 these valves to the drain tank, would that have an effect on
20 the ability to get a good leak rate? Do you know?

21 THE WITNESS: I'm not that familiar with the
22 details of how it's performed.

23 MR. CHRISTOPHER: Do you know how operators actually
24 added hydrogen to the make-up tank? What manipulation do they
25 have to go through to actually make a hydrogen addition?

1 THE WITNESS: What I remember from the system,
2 all I remember is two solenoid valves in series that would
3 have to be opened.

4 MR. CHRISTOPHER: And those were in the control
5 room?

6 THE WITNESS: The remote control for those valves,
7 yes. Wait a minute. I know one of them was. I'm not sure
8 if they both were.

9 MR. CHRISTOPHER: Would the operators read off the
10 patch panel how much pressure -- would they be watching
11 pressure to know how much hydrogen to put into the system?

12 THE WITNESS: I don't know.

13 MR. CHRISTOPHER: You don't know what their
14 parameters were for how much hydrogen you'd have to add.

15 THE WITNESS: I'm not that familiar with the
16 details.

17 MR. CHRISTOPHER: Okay. Can you recall or are you
18 familiar with a Licensee Event Report Number 78-62 of
19 October 19, 1978?

20 THE WITNESS: I'm familiar with it because I've
21 been refreshed a few times recently.

22 MR. CHRISTOPHER: I'm sure you have.

23 Well, let me refresh you again, and here is the
24 LER. The narrative should be attached to the back, also.
25 Do you recall that LER now?

1 THE WITNESS: I recall it now.

2 MR. CHRISTOPHER: Do you recall what caused that
3 LER to be initiated?

4 THE WITNESS: I'm so confused I'm not sure if I
5 do or don't.

6 MR. CHRISTOPHER: Do you recall if it was initiated
7 because an NRC inspector walked into the control room and
8 found a leak rate that was in excess of 1 gallon per minute
9 and started asking why the plant was operating? Specifically,
10 it would have been Don Haverkamp.

11 THE WITNESS: I think that's probably where it
12 came from, but -- .

13 MS. PENNY: You're guessing?

14 THE WITNESS: I'm guessing.

15 MR. CHRISTOPHER: You weren't present when that
16 occurred?

17 THE WITNESS: I was not present when that happened.

18 MR. CONNOLLY: But you were a member of the PORC
19 at that time?

20 THE WITNESS: Yes. There are a lot of things in
21 PORC and I can't specifically remember the details of one
22 thing from another.

23 MR. CONNOLLY: You said you were confused. What's
24 leading you to your confusion?

25 THE WITNESS: From looking at reports, from

1 different investigations. You reach the point where you've
2 been through some of this stuff so much, particularly things
3 like this where your only involvement was sitting in a PORC
4 meeting where you weren't specifically involved in digging up
5 the details of what happened, where you're just sitting there
6 in an overview function, insuring that particularly in something
7 like this, that you feel that the corrective action that you're
8 taking is proper. That's really what my involvement with this
9 was.

10 MR. CONNOLLY: Can you remember specifically the
11 PORC meeting regarding the discussion of this LER?

12 THE WITNESS: No, I can't.

13 MR. CONNOLLY: Can you remember specifically the
14 events leading up to this LER?

15 THE WITNESS: I can't remember any specific details.
16 Just something I wasn't involved in.

17 MR. CONNOLLY: To put it back in historical
18 perspective, during this timeframe, how often would the PORC
19 be involved in an LER?

20 THE WITNESS: The PORC reviewed every LER before
21 it was submitted to the NRC.

22 MR. CONNOLLY: And during this timeframe, how many
23 LERs can you recall there were that might have been issued
24 to the NRC?

25 THE WITNESS: The ones I -- I don't have a good

1 feel for it. I remember that we had a few, anyway. The
2 typical ones I was involved with was when we did the monthly
3 ES testing and a component failed to go to the proper position.
4 Those were the type I typically had to write and had direct
5 involvement with.

6 MR. CHRISTOPHER: How long would a PORC meeting
7 usually last, Dick?

8 THE WITNESS: Anywhere probably from 15 minutes
9 to 10 hours, depending upon what we were doing.

10 MR. CHRISTOPHER: How often during the week would
11 you meet?

12 THE WITNESS: I really varied. Just prior to the
13 accident, I'm not sure how often we were meeting. I think
14 our frequency was down somewhat from what it used to be.

15 MR. CHRISTOPHER: So you, at this time, can't
16 recall any of these particular discussions regarding this
17 particular LER as it pertains to that meeting.

18 THE WITNESS: No.

19 MR. CHRISTOPHER: You cannot recall how they
20 arrived at the decision that it was, in effect, a technical
21 specification violation?

22 THE WITNESS: No, I can't recall.

23 MR. CHRISTOPHER: Or how the PORC interpreted the
24 72-hour requirement for the performance of a leak rate test.

25 THE WITNESS: I can't recall the details of the

1 discussions. The only thing that I can go by is what's
2 written here in black and white.

3 MR. CONNOLLY: You, yourself at the time -- I'm
4 asking an opinion -- in a discussion like this coming up
5 concerning the leak rate test, how active would you have
6 been involved in this? First of all, was the leak rate test
7 within your expertise field?

8 THE WITNESS: It was not in my area of expertise.

9 MR. CONNOLLY: If this matter was brought in front
10 of the PORC committee for review, what would your participation
11 be in the review of the LER?

12 THE WITNESS: It would have been a review primarily
13 to insure that, based on my engineering judgment, the correc-
14 tive action we were taking was proper to insure that we don't
15 do the same thing again.

16 MR. CONNOLLY: Who in the PORC committee would
17 have had the expertise involvement in the LER?

18 THE WITNESS: As far as the actual --

19 MR. CONNOLLY: As far as running the leak
20 rate test.

21 THE WITNESS: As far as actually generating this
22 piece of paper and doing the research?

23 MR. CONNOLLY: Not only the research, but who
24 would have knowledge of the system or what was involved and
25 the particularities of the problem.

1 MR. CHRISTOPHER: Let me help him just a little
2 bit here. This is the attendance listing for the PORC meetings
3 on two occasions; the 17th, 18th and 19th. During these
4 meetings on this occasion and one other occasion, November
5 1st and 2nd, this item was discussed, and according to one
6 of the attachments, a decision -- the PORC set forth there
7 its finding.

8 MS. PENNY: How do you know it was discussed?
9 Can you show him that?

10 MR. CHRISTOPHER: What we have to look at is you
11 look at PORC Actions, Violations, and then you go to the
12 attachment and it identifies the LER and a brief statement
13 as to a finding or what basically they did during the
14 meeting on that particular LER.

15 MS. PENNY: And that front page indicates this
16 item was discussed on the -- what dates?

17 MR. CHRISTOPHER: You can't tell whether it was
18 actually the 17th or 18th, because they were somewhat
19 continuing meetings. It could have been on either date.

20 MS. PENNY: How can you tell they were continuing?

21 MR. CHRISTOPHER: Just by our previous interviews
22 as to how the PORC meetings were being performed. They
23 don't go by specific topics. So it's our understanding from
24 our interviews that this item, based on the statement,
25 reportable subject matter being reportable occurrences and

1 violations and seeing -- going to the attachments under the
2 topics, the reportable occurrence and the violation being
3 discussed.

4 MS. PENNY: So you're concluding that, based on --

5 MR. CHRISTOPHER: We're concluding that it was
6 discussed during those periods.

7 MS. PENNY: Okay.

8 MR. CHRISTOPHER: My question to you is this.
9 Looking at this list of individuals for the 18th and the 19th,
10 by name, which of those individuals -- if this was discussed
11 on that date -- would have been the individuals that would
12 have had the primary decision-making involvement?

13 THE WITNESS: As far as the person -- well, each
14 PORC member has the same decision-making involvement as far
15 as agreeing that the corrective action we're taking is proper.

16 As far as the guy that had the lead in presenting
17 the problem to the PORC --

18 MR. CHRISTOPHER: It's usually component-specific,
19 correct?

20 THE WITNESS: Yes. In this case, it seems to me
21 that this was highly involved with operations, so I would --
22 I can't remember who had the lead so I would be speculating.

23 MR. CHRISTOPHER: Who would you speculate that
24 would be, off this list?

25 THE WITNESS: On this day I would speculate Floyd,

1 thought it could have been somebody else.

2 MR. CHRISTOPHER: I understand you're speculating.
3 How about on this date?

4 THE WITNESS: Could have been Seelinger, could
5 have been Morck, could have been Basila, or it could have
6 even been Bensen.

7 MR. CHRISTOPHER: Is there any way, by looking
8 at the LER, that you can tell who had the lead responsibility?

9 THE WITNESS: The person whose name is down here
10 is an individual from Licensing out of Reading.

11 MR. CHRISTOPHER: Jim Steir, that's correct.

12 THE WITNESS: They had responsibility for actually
13 writing the LERs, but who he got his input from -- .

14 THE WITNESS: He usually got his information, as
15 I understand it, from a cognizant engineer, as you would put it.
16 Is there any way from looking at the LER or the narrative
17 that you can tell who the cognizant engineer is? Is there
18 a code? In other words, a code or block that would identify
19 that?

20 THE WITNESS: No.

21 MR. CHRISTOPHER: Okay. The narrative of the LER --
22 let me read to you a statement from the LER. It states,
23 "Unidentified leakage was subsequently reduced to within the
24 allowable limits at 0735 on October 18th, 1978." Do you
25 recall at this time how that leakage, was reduced to within

1 allowable limits, at that specific date and time?

2 THE WITNESS: No.

3 MR. CHRISTOPHER: How would they have to -- what
4 would they have had to have done to determine that they had
5 reduced the leakage to within allowable limits? From a
6 common sense viewpoint.

7 THE WITNESS: Well, I just plain wasn't involved,
8 so again, I'd have to be speculating on the answer to that
9 question, if you want me to do that.

10 MR. CHRISTOPHER: Yes, please do.

11 THE WITNESS: They'd either have to do a visual
12 inspection of the system and see whether they had valve
13 packing leaking, something like that, and tighten down the
14 packing to get rid of it or whatever and then redo the
15 calculation.

16 MR. CHRISTOPHER: Rerun the leak rate test.

17 THE WITNESS: Yes.

18 MR. CHRISTOPHER: Okay. Now this is going to go
19 back to one of the comments you made before. Do you recall
20 that the basis for stating that the plant was back into
21 compliance was a leak rate test that, in fact, still exceeded
22 the 1 gallon per minute unidentified leakage?

23 THE WITNESS: I don't recall that.

24 MR. CHRISTOPHER: Was it at that time you discussed
25 the policy of rounding off?

1 THE WITNESS: I'm not sure when that came into
2 effect. All I remember is that that discussion took place.
3 The time, place and date I don't remember.

4 MR. CHRISTOPHER: You don't recall if it took place
5 in reference to this particular incident?

6 THE WITNESS: No. It may have.

7 MR. CONNOLLY: You don't recall how that discussion
8 was brought to your attention; is that correct?

9 THE WITNESS: I don't remember if it was in a
10 PORC meeting where it came up, or some other meeting or
11 whatever. It's too long ago.

12 MR. CONNOLLY: Were you present during the
13 discussion between Seelinger and Haverkamp?

14 THE WITNESS: Not that I remember.

15 MR. CHRISTOPHER: I'm looking at the leak rate
16 test for 10/18/78, the time is 0735. The test was run from
17 0736 to 0836. The net unidentified leak rate is 1.2939
18 gallons per minute. After that is a handwritten comment that
19 says, "OK by round-off." There are initials and the time
20 is 1200 and the date is 10/18/78. Can you interpret who
21 those initials are, by your familiarity with anyone in the
22 plant?

23 THE WITNESS: Looks like Floyd.

24 MR. CHRISTOPHER: Jim Floyd. And that's your
25 best guess. Could it be Jim Seelinger's? I've never seen

1 his initials so I don't know.

2 THE WITNESS: He's neater than that.

3 MR. CHRISTOPHER: You don't recall seeing these
4 before?

5 THE WITNESS: I think those are the ones I saw in
6 front of the Grand Jury.

7 MR. CHRISTOPHER: Do you have any idea as to why
8 these particular tests -- particularly this one at 0735 in
9 the morning on the 18th -- is not included in the official
10 records of the leak rate tests that were actually performed?

11 THE WITNESS: I have no idea.

12 MR. CHRISTOPHER: Particularly in view of the fact
13 that it was that leak rate test apparently that was used to
14 justify getting back into compliance with the technical
15 specifications. You have no idea?

16 THE WITNESS: I have no idea.

17 MR. CHRISTOPHER: And you don't recall any
18 discussions surrounding the round-off or how the plant got
19 back into compliance.

20 THE WITNESS: No.

21 MR. CHRISTOPHER: Or any discussions relative to
22 this particular LER.

23 THE WITNESS: I don't recall.

24 MR. CHRISTOPHER: Do you have any recollection as
25 to how the operators were instructed as a result of this LER?

1 THE WITNESS: It's probably delineated on there
2 through a PORC action item, and I'm not sure if I remember
3 what happened from looking at this or whatever, from the time.
4 But I think the way they were instructed was the thing was
5 placed in a review book they had to sign off that they had
6 read and understood it. But I'm speculating.

7 MR. CHRISTOPHER: Is that the normal way that
8 it would be done? In other words, there wouldn't be a
9 formal sit-down session and verbal discussion on the LER;
10 it would be placed in what's called an LER file and the
11 operators would be required to read it?

12 THE WITNESS: I'm not even sure what the real
13 title of that document was.

14 MR. CHRISTOPHER: I used LER file for lack of a
15 better word.

16 THE WITNESS: I can't recall if that was a routine
17 practice or if it varied from one LER to the next or one
18 occurrence to the next.

19 MR. CHRISTOPHER: The commitments in the PORC
20 action states, "Insure the following is documented by Ops
21 review of LER 78-62. The appropriate personnel will be
22 instructed on the requirements of the applicable sections
23 for the technical specifications, and the requirements will
24 immediately invoke applicable Action Statements when the
25 provisions of the LCOs are not met."

1 But you don't recall how they were instructed.
2 This requires that -- directs that they be instructed.

3 THE WITNESS: I just didn't get involved in that
4 kind of detail.

5 MR. CHRISTOPHER: Okay. Do you know, is WJM,
6 would that be William Marshall, do you know?

7 THE WITNESS: His first name isn't William;
8 it's Walter.

9 MR. CHRISTOPHER: Walter Marshall. Would WJM be
10 his initials normally?

11 THE WITNESS: Yes. He's the only person I know
12 of with those initials.

13 MR. CHRISTOPHER: Would that indicate -- would
14 this initialling in this fashion on the PORC action item,
15 would that indicate that he possibly was the cognizant
16 engineer for the LER?

17 THE WITNESS: I'm not sure if that means he was
18 the cognizant engineer for the LER. He's the guy who was
19 responsible for insuring that this was performed.

20 MR. CHRISTOPHER: That's what I was trying to
21 find out. Okay.

22 You have no idea how many leak rate tests were
23 being run by the operators on their individual shifts. Is
24 that correct?

25 THE WITNESS: No.

1 MR. CHRISTOPHER: You don't know if there was one
2 test run or 10 tests run during a shift. And you don't know
3 how many, if any, tests were ever thrown away.

4 THE WITNESS: I never personally witnessed that
5 taking place.

6 MR. CHRISTOPHER: Have you ever heard of or are
7 you personally aware of operators jogging water into the
8 make-up tank during a test? And by jogging I mean just
9 tweaking a little bit of water in at a time?

10 THE WITNESS: No.

11 MR. CHRISTOPHER: Do you know if that would affect
12 the leak rate test if you did that?

13 THE WITNESS: Again, it gets into the accuracy of
14 the test. I would be speculating to say that I think it
15 probably could.

16 MR. CHRISTOPHER: Have you ever seen this? This
17 is a Unit 1 maintenance memorandum. Have you ever seen this
18 before? It's not a very good copy.

19 THE WITNESS: No.

20 MS. PENNY: What's the date on that?

21 MR. CHRISTOPHER: It's a little hard to tell. I
22 have it in another file but right now I can't tell you what
23 exactly that date is.

24 MS. PENNY: Is it from this time period, do you
25 think?

1 MR. CHRISTOPHER: It was from the seventies --
2 it's in the 1978 time period. April. It's 1977 or 78. I
3 can't tell.

4 Can you read for me the malfunction there, and
5 give me your interpretation of what that means?

6 THE WITNESS: "Make-up tank level recorder is
7 not responding correctly. Put in 100 gallons, recorder went
8 up 8 inches or 240 ..." -- or 24 -- "...gallons. If you
9 could change make-up tank pressure four pounds" -- or --
10 "if you change make-up tank pressure four pounds, level
11 changes 18 inches."

12 MR. CHRISTOPHER: How would you interpret that?

13 THE WITNESS: Must have been a malfunction with
14 the level transmitter.

15 MR. CHRISTOPHER: When they talk about adding
16 pressure to the make-up tank, what -- can you tell me what
17 he's talking about?

18 THE WITNESS: Normally, the make-up tank is
19 maintained under pressure. If I remember Unit 1 correctly,
20 it's even more important for Unit 1 than Unit 2 because of
21 the positive suction head requirements for the make-up pumps

22 MR. CHRISTOPHER: How did they maintain that
23 pressure?

24 THE WITNESS: Well, if the plant's at power, it's
25 with hydrogen; if the plant is shutdown it's with nitrogen.

1 MR. CHRISTOPHER: So if you were operating at
2 the time, you'd be talking about hydrogen overpressure, in
3 effect, I guess.

4 THE WITNESS: Yes.

5 MR. CHRISTOPHER: Do you know who WJF is?

6 (Pause.)

7 THE WITNESS: That's really asking for a wild
8 guess.

9 MR. CHRISTOPHER: You don't know who the initials
10 WJF would stand for. Okay.

11 Are you familiar with TCN 79-070? It was issued
12 just a week or two prior to the accident, on March 16, 1979.
13 It changed the calculational procedure for obtaining leak
14 rates.

15 THE WITNESS: Yes.

16 MR. CHRISTOPHER: Can you tell me who initiated
17 and why this TCN was initiated?

18 THE WITNESS: Well, Tom Morck apparently initiated
19 it. The actual logic as to what really got the thing started,
20 I don't remember. I remember there was a change in the way
21 water was compensated, converted from pounds mass to gallons
22 per minute based on the temperature that the water was at.
23 And I remember correcting that I think for the make-up system.

24 MR. CHRISTOPHER: Do you recall who actually
25 identified that deficiency in the surveillance procedure, to

1 start with, not accounting for the temperature and density
2 changes?

3 THE WITNESS: No.

4 MR. CHRISTOPHER: The fact that Tom Morck initiated
5 this, would that indicate that he himself identified that?

6 THE WITNESS: I'm not sure if he would have been
7 the guy who identified it or if somebody else brought it to
8 his attention.

9 MR. CHRISTOPHER: So it's correct that the TCN
10 made corrections to the procedure like correlating the
11 inventory in the RCDT to the RCS conditions. That's essen-
12 tially what it did, as I understand.

13 THE WITNESS: That shows how bad my memory is.

14 MR. CHRISTOPHER: Are you aware that the procedure
15 failed to -- that the change failed to make the same correc-
16 tion for the MUT, make-up tank?

17 THE WITNESS: I am now.

18 MR. CHRISTOPHER: At that time, you were not aware
19 that it did not make that correction for the make-up tank?

20 THE WITNESS: No.

21 MR. CHRISTOPHER: Can you tell me how that TCN--
22 first, would that TCN have been reviewed by a PORC?

23 THE WITNESS: Well, it didn't go the two-man
24 route. That's obvious from looking at the number of signatures
25 on it. I can vaguely remember some discussion about this

1 change when I signed it. I can't remember if it was sitting
2 down in the full PORC meeting. I thought it was but I'm not
3 really sure if somebody walked it around.

4 MR. CHRISTOPHER: What do you mean, the two-man --

5 THE WITNESS: Well, with temporary changes to a
6 procedure, if they don't affect the intent of the procedure
7 you can apply the two-man rule by Section 6 of the tech specs.
8 A member of the plant management staff and an SRO.

9 MR. CHRISTOPHER: This would indicate that it had
10 a full PORC review, then?

11 THE WITNESS: Yes. Whether it was a sit-down
12 meeting or not, I can't say.

13 MR. CHRISTOPHER: Do you know how this procedure
14 change got through the PORC without anyone ever identifying
15 that deficiency, in that it did not account for the change
16 in the make-up tank?

17 THE WITNESS: Well, from my vantage point, I was
18 convinced that the change they were making to the procedure
19 was correct, and I didn't go back and review the entire
20 procedure. So that's how I concurred with it.

21 MR. CHRISTOPHER: Do you know if any members of
22 the PORC actually identified the fact that the procedure was
23 in error but ignored it because it actually worked in their
24 favor in terms of getting a good leak rate?

25 THE WITNESS: No.

1 THE WITNESS: No.

2 MR. CHRISTOPHER: The error was not purposely
3 ignored, then, because it worked in the plant's favor in
4 getting a good leak rate, to your knowledge?

5 THE WITNESS: To my knowledge, it sure wasn't.

6 MR. CHRISTOPHER: Are you familiar with Emergency
7 Procedure 2202 1-5? It's the pressurizer system failure.

8 THE WITNESS: I'm not intimately familiar with it.

9 MR. CHRISTOPHER: Do you recall that it requires
10 the EMOV relief isolation valve to be closed when the relief
11 valve discharge temperatures exceed 130°?

12 THE WITNESS: I don't recall that prior to the
13 accident.

14 MR. CHRISTOPHER: I do not have the procedure here.
15 I have read it and it does require that, at 130, when you
16 exceed 130°. But I don't have the procedure here for you
17 to review.

18 Were you aware at the time you were operating
19 prior to the accident just what those tailpipe temperatures
20 were?

21 THE WITNESS: Since I looked at the daily status
22 report, I probably was.

23 MR. CHRISTOPHER: Do you recall now what they were?

24 THE WITNESS: No.

25 MR. CHRISTOPHER: You don't recall that they were

1 approximately 180°, fluctuating in excess of that at periodic
2 times?

3 THE WITNESS: It's just something I didn't look at
4 that close.

5 MR. CHRISTOPHER: Do you recall any discussions
6 as to whether or not this particular procedure should be
7 invoked because the plant was running with the tailpipe
8 temperatures in excess of 130°?

9 THE WITNESS: I don't recall anything.

10 MR. CHRISTOPHER: You don't recall any decisions
11 or discussions regarding whether or not the block valve
12 should be closed, or whether the discharge line temperature
13 should be placed on the analog recorder?

14 THE WITNESS: No.

15 MR. CHRISTOPHER: You don't recall any discussions
16 relating to a concern in this area, then?

17 THE WITNESS: Not as far as entering that procedure.

18 MR. CHRISTOPHER: You just don't recall any
19 particular individuals having any great concerns over that
20 at the time, or any realization that the plant may be in
21 violation of the procedure?

22 THE WITNESS: Not that I can -- not that I recall
23 being aware of.

24 MR. CHRISTOPHER: That would be Gary Miller, Jim
25 Floyd.

1 THE WITNESS: Would have been the SRO level and
2 unit superintendent level.

3 MR. CHRISTOPHER: But you don't recall any
4 particular concern over that aspect, at the time.

5 THE WITNESS: No.

6 MR. CHRISTOPHER: Are you aware of discussions
7 during the plan of the day when it was realized that you
8 were continuing to have increasing leakage off either the
9 code safeties or the PORV based on looking at the tailpipe
10 temperatures and the identified leak rate, and that a
11 decision was made not to take the plant off line until after
12 Unit 1 came back online, to repair that leakage?

13 THE WITNESS: I remember somehow it was identified
14 that one of the code safeties was leaking, and this unfor-
15 tunately was reinforced by the B&W litigation. So I
16 remember that one of the code safeties was leaking and that
17 parts were located and made available for repairing it, and
18 that there was discussion of shutting Unit 2 down after Unit 1
19 was back online to repair that valve.

20 MR. CHRISTOPHER: When would that be?

21 THE WITNESS: When Unit 1 was at zero power physics
22 testing, at the time of the accident.

23 MR. CHRISTOPHER: I think they went into refueling
24 sometime in January.

25 THE WITNESS: Somewhere in that timeframe.

1 MR. CHRISTOPHER: So that the discussion centered
2 on taking the plant off line to repair the valve leakage
3 after Unit 1 came back online?

4 THE WITNESS: That's what I remember, though I
5 can't specifically pin anything to that.

6 MR. CHRISTOPHER: Do you recall who those
7 discussions were with, or what kind of meetings were held
8 when that decision was made?

9 THE WITNESS: The meetings where the decision was
10 made I wouldn't -- I don't remember being involved in them.
11 I just can't say anything specific because I just plain
12 don't remember.

13 MR. CHRISTOPHER: But is it your understanding that
14 the tentative decision and the tentative mode that you would
15 be in would be that you would have to take Unit 2 off the
16 line to repair the leakage once Unit 1 got back online?

17 THE WITNESS: Well, I remember discussions about
18 shutting down to repair a code safety valve.

19 MR. CHRISTOPHER: You don't remember who those
20 discussions were with?

21 THE WITNESS: I just remember hearing that, and
22 who and where it was discussed and at what level, I don't
23 remember.

24 MR. CHRISTOPHER: Okay. Do you recall Dick Fels
25 ever discussing with you -- Bill Fels. Do you recall him

1 ever discussing with you or anyone else the hydrogen effect
2 on a make-up tank?

3 THE WITNESS: No.

4 MR. CHRISTOPHER: Besides the alleged addition of
5 hydrogen or water to the make-up tank during the test, are
6 you aware of operators doing any other type of activities
7 during the test to affect the leak rate test results?

8 THE WITNESS: No.

9 MS. PENNY: Of course, there you weren't aware of
10 the operators doing anything with hydrogen, either, were you?

11 THE WITNESS: No, not aware of anybody doing
12 anything to tamper those test results.

13 MR. CHRISTOPHER: Besides those two alleged type
14 of tamperings, are you aware of any other type of manipulations
15 that operators were performing to affect leak rate test
16 results?

17 THE WITNESS: I'm not aware of anything they were
18 doing to affect test results.

19 MR. CHRISTOPHER: And you don't know of and you
20 don't recall any discussions that would indicate that any
21 level of supervision was aware that they were possibly making
22 these hydrogen and water additions for the purpose of
23 affecting leak rate test results.

24 THE WITNESS: No.

25 MR. CHRISTOPHER: Pete, do you have any additional

1 questions?

2 MR. CONNOLLY: Yes. Were you aware of any manage-
3 ment pressure to keep the plant online before Unit 1 came off?

4 THE WITNESS: At my level, I'm not aware of any
5 pressure.

6 MR. CONNOLLY: It's an open-ended question. I
7 just thought maybe you had information relative to whether or
8 not there was any pressure to keep the plant online. You
9 mentioned before the discussion regarding the valve and
10 repairing it after Unit 1 came online. You indicated that
11 you can't recall the specifics of the discussion or how you
12 came across that information.

13 THE WITNESS: No.

14 MR. CONNOLLY: One last question, then. Has
15 anyone admitted to you that they were involved in the
16 falsification of leak rate test data?

17 THE WITNESS: No.

18 MR. CONNOLLY: Has anyone told you of anyone else
19 or any individuals who were involved with falsification of
20 leak rate test data?

21 THE WITNESS: No.

22 MR. CONNOLLY: Are you aware of any falsification
23 of leak rate test data?

24 THE WITNESS: No. I'm not -- I'm not aware of
25 anything. There are some things -- again, in that report,

1 whoever put it together about things not being logged and
2 stuff like that that I saw. But again, I'm not specifically
3 aware of anybody purposely falsifying anything.

4 MR. CHRISTOPHER: What report are you referring to?

5 THE WITNESS: You gave the name earlier.

6 MR. CHRISTOPHER: The Faegre and Bensen report, okay.

7 But you personally are not aware of any of those
8 type of activities.

9 THE WITNESS: No.

10 MR. CHRISTOPHER: And never discussed those with
11 anyone?

12 THE WITNESS: Never discussed them.

13 MR. CHRISTOPHER: Do you have any reason to believe
14 that that was actually happening?

15 THE WITNESS: No, I don't have any reason to
16 believe that anybody purposely falsified anything.

17 MR. CHRISTOPHER: Peter?

18 I think that's all the questions we have at this
19 time. We'll terminate the interview, and the time is five
20 minutes after 3:00.

21 (Whereupon, at 3:05 p.m., the interview was
22 terminated.)

23

24

25

CERTIFICATE OF PROCEEDINGS

This is to certify that the attached proceedings before the
NRC COMMISSION

In the matter of: Investigative Interview of
RICHARD W. BENSEL

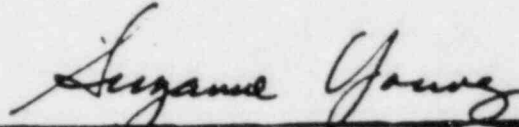
Date of Proceeding: Wednesday, September 28, 1983

Place of Proceeding: Harrisburg, Pennsylvania

were held as herein appears, and that this is the original
transcript for the file of the Commission.

Suzanne Young

Official Reporter - Typed



Official Reporter - Signature

EXHIBIT 35

SWORN TESTIMONY OF RONALD P. WARREN/9-29-83

ORIGINAL

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of:

INVESTIGATIVE INTERVIEW OF:

Ronald P. Warren, Sr.

Docket No.

Location: Harrisburg, Pa

Pages: 1 - 41

Date: Thursday, September 29, 1983

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

INVESTIGATIVE INTERVIEW

OF

RONALD PHILLIPP WARREN, SR.

Americana Host Inn
4751 Lindle Road, Rm. 383
Harrisburg, Pennsylvania

Thursday, September 29, 1983

APPEARANCES:

R. KEITH CHRISTOPHER, Director
PETER J. CONNOLLY, Investigator
Office of Investigations, Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

JANE G. PENNY, Esq.
Killian & Gephart
216-218 Pine Street
Box 886
Harrisburg, Pennsylvania 17108
On behalf of Mr. Warren

P R O C E E D I N G S

(10:06 a.m.)

1

2

3 MR. CONNOLLY: The date is September 29, 1983,

4 the time is 10:06 a.m. We're in Room 383 of the Americana

5 Host Inn, 4751 Lindle Road, Harrisburg, Pennsylvania, for

6 the purpose of obtaining information from Ronald P. Warren

7 regarding the alleged falsification of leak rate test data

8 at Unit 2, Three Mile Island Nuclear Generating Station,

9 Middletown, Pennsylvania, prior to March 28, 1979.

10 Present in the room are myself, Peter Connolly,

11 Keith Christopher. Both of us are from the Office of

12 Investigations, Nuclear Regulatory Commission, Region I,

13 Mr. Ronald P. Warren and his attorney, Jane Penny, of the

14 firm of Killian & Gephart, located at 216-218 Pine Street,

15 Box 886, Harrisburg, Pennsylvania.

16 The interview is being conducted under subpoena.

17 Ron, you were originally scheduled for a subpoenaed interview

18 on September 22nd, 1983. This interview suffices the require-

19 ments of that subpoena.

20 It's my intent to put you under oath for the

21 purpose of asking these questions regarding the false leak

22 rate test data. But before I do that, just so you understand

23 the ramifications of providing information under oath, I would

24 like you to read for us U.S. Code Title 18, Section 1001.

(Pause.)

1 MR. CONNOLLY: Do you understand what the Code
2 states?

3 MR. WARREN: Yes.

4 MR. CONNOLLY: Do you have any questions regarding
5 this?

6 MR. WARREN: No.

7 Whereupon,

8 RONALD P. WARREN, SR.,
9 after being first duly sworn, was examined and testified
10 as follows:

11 MR. CONNOLLY: For the record, would you please
12 state your full name and spell your last name?

13 THE WITNESS: Ronald Phillip Warren, Sr., W-a-r-r-
14 e-n.

15 MR. CONNOLLY: And Ron, what's your home address
16 of record?

17 THE WITNESS: 2261 Joanne Avenue, Hummelstown,
18 Pennsylvania.

19 MR. CONNOLLY: And what is your age?

20 THE WITNESS: Thirty-eight.

21 MR. CONNOLLY: And who are you presently employed
22 with?

23 THE WITNESS: GPU Nuclear.

24 MR. CONNOLLY: And where at GPU Nuclear do you
25 work?

1 THE WITNESS: At Three Mile Island.

2 MR. CONNOLLY: What is your position at Three Mile
3 Island?

4 THE WITNESS: I'm Systems Engineering Supervisor
5 in Unit 2 Plant Engineering.

6 MR. CONNOLLY: How long have you been in your
7 present position at Unit 2?

8 THE WITNESS: Approximately two years.

9 MR. CONNOLLY: Prior to the March 1979 accident,
10 who were you employed with?

11 THE WITNESS: Metropolitan Edison Company.

12 MR. CONNOLLY: And what was your job with
13 Metropolitan Edison?

14 THE WITNESS: I was lead mechanical engineer in
15 Unit 2 at Three Mile Island.

16 MR. CONNOLLY: And when did you commence that
17 position?

18 THE WITNESS: I believe it was around June of 1978.

19 MR. CONNOLLY: Have you been employed with
20 Metropolitan Edison and GPUN?

21 THE WITNESS: Since September of 1977.

22 MR. CONNOLLY: And prior to September 1977, who were
23 you employed with?

24 THE WITNESS: Newport News Shipbuilding and Drydock
25 Company.

1 MR. CONNOLLY: Where is that located?

2 THE WITNESS: Newport News, Virginia.

3 MR. CONNOLLY: In your position at TMI-2 prior to
4 the accident, March 1979, can you describe what your duties
5 were?

6 THE WITNESS: I was responsible for handling
7 mechanical problems or issues that came up as a result of
8 operation or maintenance. I was essentially what was the
9 Plant Engineering Department back then.

10 MR. CONNOLLY: Were you involved, during that
11 time period, in the leak rate tests?

12 THE WITNESS: I don't remember.

13 MR. CONNOLLY: Are you familiar with technical
14 specifications of limiting conditions for operation that
15 places limits on the amount of RCS leakage during operational
16 conditions?

17 THE WITNESS: I'm vaguely familiar with it at this
18 time, and I may have been familiar with it back before the
19 accident.

20 MR. CONNOLLY: At this time I'm going to show you
21 Tech Spec 3.4.6.2 regarding limiting conditions of operation
22 with regards to leakage. Would you please review that for me?

23 (Pause.)

24 THE WITNESS: Okay.

25 MR. CONNOLLY: Reading this document over, do you

1 recall any familiarity with it?

2 THE WITNESS: I vaguely remember it.

3 MR. CONNOLLY: Have you read this document before?

4 THE WITNESS: Yes.

5 MR. CONNOLLY: Are you aware that unidentified
6 leakage shall be limited to one gallon per minute?

7 THE WITNESS: That is what that document says, yes.

8 MR. CONNOLLY: Are you aware that if you exceed
9 this leak rate you have four hours to reduce the leakage or
10 you have to shut the plant down?

11 THE WITNESS: That is what that document says.
12 From reading it, I understand that.

13 MR. CONNOLLY: Are you familiar with RCS
14 surveillance procedure 2301-3D(1) concerning RCS leakage?

15 THE WITNESS: Yes, I vaguely remember that one, too.

16 MR. CONNOLLY: At this time I'd like to show you
17 the first page of that surveillance procedure. Could you
18 please review it for me?

19 (Pause.)

20 MR. CONNOLLY: Do you understand that this
21 surveillance procedure implements the above-stated technical
22 specification regarding the unidentified leakage should be
23 limited to one gallon per minute?

24 THE WITNESS: Yes, that's what it reads.

25 MR. CONNOLLY: Are you aware that the procedure

1 shows that the leakage demonstrated must --excuse me -- are
2 you aware that the procedure shows that the leakage be
3 demonstrated in performance of the test at least once every
4 72 hours?

5 THE WITNESS: Can you repeat that question?

6 MR. CONNOLLY: Are you aware that the procedure
7 requires that the leakage test be performed at least once
8 every 72 hours?

9 THE WITNESS: Yes.

10 MR. CONNOLLY: What do you understand the frequency
11 requirement of 72 hours means? How do you interpret that?

12 THE WITNESS: They have to do a test once every
13 72 hours.

14 MR. CONNOLLY: Have you ever been personally
15 involved in running a leak rate test?

16 THE WITNESS: No, I have not.

17 MR. CONNOLLY: Did you know at the time prior to
18 the accident that the operators were having problems getting
19 good results?

20 THE WITNESS: No.

21 MR. CONNOLLY: Can you yourself describe how one
22 would run leak rate tests?

23 THE WITNESS: No, I really couldn't.

24 MR. CONNOLLY: Do you know if all the surveillance
25 results regarding leak rate tests were logged in the CRO

1 logbook?

2 THE WITNESS: I don't know that for a fact.

3 MR. CONNOLLY: Have you ever seen control room
4 operators recording leak rate tests in the CRO logbook?

5 THE WITNESS: No.

6 MR. CONNOLLY: Do you know who was responsible for
7 reviewing these logbooks concerning the accuracies of the
8 tests?

9 THE WITNESS: I'm not certain who that would be.

10 MR. CONNOLLY: Did you personally have any
11 responsibility for reviewing the CRO logs and attesting to
12 the accuracy of the tests recorded in the logs?

13 THE WITNESS: No, I did not.

14 MR. CONNOLLY: Are you familiar with Administrative
15 Procedure 1012 concerning shift relief and logs which requires
16 that all periodic tests and inspections required by technical
17 specifications be recorded?

18 THE WITNESS: I don't remember that admin
19 procedure anymore. I may have known it back then, before
20 the accident.

21 MR. CONNOLLY: Do you recall if all items entered
22 in the logbook were entered as they occurred, or at the end
23 of the shift?

24 THE WITNESS: I don't know.

25 MR. CONNOLLY: Are you aware of bad leak rate

1 test results not being recorded and being discarded?

2 THE WITNESS: No, I'm not.

3 MR. CONNOLLY: Do you know if there was a conscious
4 decision made not to log the start time of leak rate tests
5 because of so many bad results showing up?

6 THE WITNESS: No, I'm not aware of that.

7 MR. CONNOLLY: Was it common practice to discard
8 bad leak rate tests that came out unacceptable?

9 THE WITNESS: I don't know.

10 MR. CONNOLLY: Do you know what was supposed to
11 happen with test results that did not meet tech specs?

12 THE WITNESS: You were supposed to enter it in
13 the Action Statement.

14 MR. CONNOLLY: How did the operators determine if
15 a test was bad or not? How was that documented?

16 THE WITNESS: I believe that the surveillance
17 procedures had acceptance criteria at the end, and then there
18 was a statement at the end that paraphrased or reiterated the
19 Action Statement. And that told them what they were supposed
20 to do.

21 MR. CONNOLLY: Do you know if during this time
22 period the operators were having difficulty in getting good
23 leak rate tests?

24 THE WITNESS: No, I don't.

25 MR. CHRISTOPHER: Let me ask a question along that

1 line. What is your understanding, or do you know what the
2 requirement was if an operator received a bad leak rate test?
3 By bad I mean that was in excess of one gpm within the 72 hours.
4 Was he required to enter the Action Statement at that time?

5 THE WITNESS: I don't know what the requirements
6 were back then. I assume now that he should have.

7 MR. CHRISTOPHER: I guess at that time -- did he
8 have to immediately enter the Action Statement or did he have
9 whatever time was left of that 72 hours to get another good
10 leak rate before he had to enter the Action Statement?

11 THE WITNESS: That's what I said I don't remember
12 that particular discussion ever coming up.

13 MR. CHRISTOPHER: Okay. So you don't know how
14 they interpreted that.

15 THE WITNESS: No, I don't know their interpretation.

16 MR. CONNOLLY: Are you personally aware of any bad
17 leak rate tests that were discarded?

18 THE WITNESS: No.

19 MR. CONNOLLY: Do you know if the plant was ever
20 placed into an Action Statement because of leakage?

21 THE WITNESS: No, I don't.

22 MR. CONNOLLY: Do you know if there were any levels
23 of management involved in the decision to invalidate bad leak
24 rate test results?

25 THE WITNESS: I don't know.

1 MR. CHRISTOPHER: Did you personally become
2 involved in any discussions regarding excessive leak rates?

3 THE WITNESS: I may have but I don't remember now
4 ever being involved in any discussions.

5 MR. CONNOLLY: Are you aware of negative leak rate
6 results being obtained?

7 THE WITNESS: Could you repeat that?

8 MR. CONNOLLY: Are you aware of negative leak rate
9 test results being obtained during the procedures?

10 THE WITNESS: I have read some reports;
11 specifically, a management-generated report by a law firm
12 called Faegre and Bensen. And in that report, they discussed
13 negative leak rates, and a lot of what I read in the report
14 I know now, but I can truthfully say at the time I read the
15 report a lot of it was a surprise to me. I wasn't aware of
16 a lot of the things regarding leakage.

17 I'll try to clarify that, you know, where I felt
18 that I picked it up in the Faegre and Bensen report, as we
19 go on.

20 MR. CONNOLLY: Okay. Can you see any opportunity
21 or means to obtain a negative leak rate? What plant conditions
22 would allow obtaining a negative leak rate?

23 THE WITNESS: Well, the one thing that the Faegre
24 and Bensen report stated that made sense to me was the
25 instr: ent inaccuracies. And in that report, they stated that

1 their study had shown that that could show a fluctuation of
2 up to 7 1/2 gallons per minute.

3 MR. CONNOLLY: Were you involved in personally
4 throwing away any bad leak rate test results?

5 THE WITNESS: No, I was not.

6 MR. CONNOLLY: Were you involved in leak rate test
7 procedures at all?

8 THE WITNESS: Leak rate test procedures?

9 MR. CONNOLLY: Excuse me, leak rate tests.

10 THE WITNESS: I was not involved in leak rate tests.

11 MR. CHRISTOPHER: With respect to that negative --
12 we talked a minute ago about negative leakage. Thirty-nine
13 out of 170 tests were accepted as valid with negative leak
14 rates. Do you consider that to be an indicator of problems
15 with the leak rate surveillance procedure itself, or as an
16 indicator that the surveillance procedure may not be a good
17 procedure?

18 THE WITNESS: Well, I think you can look at it in
19 two ways. One, it could be an indication that there's a
20 problem with the procedure or the way the test was being
21 conducted. The other way, if you look at the instrument
22 inaccuracies and say well, you've got a certain amount of
23 instrument inaccuracy, you could also say that it was
24 acceptable.

25 MR. CHRISTOPHER: But if you looked at -- putting

1. yourself back in that time, if you looked at the results and
2 saw that you had 29 out of 170 that were negative, would that
3 have caused you a problem with running the test at that time?

4 THE WITNESS: I really don't know, putting myself
5 back in that time, because there's been so much that I've read
6 since then. I never contemplated this part of instrument
7 inaccuracy before, so I probably would have said back at that
8 time that it showed that there was some problem.

9 MS. PENNY: But you had no familiarity with leak
10 rates back at that time to make that kind of analysis?

11 THE WITNESS: No, I did not. Like I said, that
12 report was kind of a revelation in some areas to me.

13 MR. CONNOLLY: Are you aware of leak rate problems
14 and the policy of throwing away bad leak rate tests being
15 discussed at either a PORC or a POD or other meetings?

16 THE WITNESS: No, I don't remember that.

17 MR. CONNOLLY: If -- how would a bad leak result
18 be reported? Do you know if they were recorded?

19 THE WITNESS: I don't know.

20 MR. CONNOLLY: Section 6.4.4 of the surveillance
21 procedure states that if leakages are found -- we'll eliminate
22 that question.

23 Did you ever enter into discussions with Jim Floyd
24 or anyone else about the policy of not logging bad leak rate
25 test results and the problem of getting good leak rates?

1 THE WITNESS: No, I did not.

2 MR. CHRISTOPHER: Did you have any discussions with
3 anyone at that time regarding problems with getting good
4 leak rates or excessive leakage?

5 THE WITNESS: No.

6 MR. CONNOLLY: Are you aware of any instances where
7 a shift supervisor requested a shutdown of the plant in order
8 to examine excessive leakages, and that request being denied?

9 THE WITNESS: No, I'm not aware of that.

10 MR. CONNOLLY: Have you heard of that happening?

11 THE WITNESS: I don't remember.

12 MR. CONNOLLY: Prior to the accident, were you aware
13 of any discussions in which management or other supervisory
14 personnel discussed excessive leakage from the code safety
15 valves and/or the PORV, and these effects on your ability to
16 get good leak rate tests?

17 THE WITNESS: Could you repeat that question?

18 MR. CONNOLLY: Were you aware of any discussions
19 in which management or other supervisory personnel discussed
20 excessive leakage from the code safety valves and from the
21 PORV and the effects on your ability to get good leak rate
22 test results?

23 THE WITNESS: No, I'm not aware of that.

24 MR. CHRISTOPHER: Would excessive leakage or
25 increased leakage from the code safeties and/or the PORV, in

1 your mind, affect your ability to get a good unidentified
2 leak rate?

3 THE WITNESS: It should not, because that was all
4 unidentified leakage, or that should all have been identified
5 leakage.

6 MR. CONNOLLY: Were you aware of increasing
7 tailpipe temperatures?

8 THE WITNESS: I was aware of it somewhere along
9 the line, and it probably was -- it was probably after the
10 accident. I don't believe I remember that being discussed
11 before the accident.

12 MR. CHRISTOPHER: Prior to the accident you don't
13 recall any specific concerns in the plan-of-the-days over
14 increasing tailpipe temperatures?

15 THE WITNESS: No, I do not.

16 MR. CHRISTOPHER: Would increasing tailpipe
17 temperatures be indicative of leakage from the code safeties
18 or the PORV, or both?

19 THE WITNESS: Yes, I believe it would.

20 MR. CHRISTOPHER: But you could not, on the face
21 of the discharge line temperatures, tell whether it was the
22 code safety or the PORV, is that right?

23 THE WITNESS: No.

24 MR. CONNOLLY: Do you know if all water additions
25 to the RCS are required to be recorded in the CRO logs?

1 THE WITNESS: I don't know that. .

2 MR. CHRISTOPHER: Not just those during the leak
3 rate test, but all water additions in the 24-hour period to
4 the RCS inventory. Not limited to just the leak rate period.

5 THE WITNESS: I'm not aware of that requirement.
6 There might be a requirement like that, though.

7 MR. CONNOLLY: Are you aware of water additions
8 that were not recorded?

9 THE WITNESS: No, I'm not.

10 MR. CHRISTOPHER: Do you work with Bill Fels
11 very much?

12 THE WITNESS: Now I don't work with him at all.
13 Back before the accident we were in the same group, the
14 Technical Support Group, but we really didn't have too much
15 interface.

16 MR. CHRISTOPHER: Who did you guys report to?

17 THE WITNESS: George Kunder.

18 MR. CHRISTOPHER: Do you recall any discussions
19 with Bill Fels regarding the computer program that was used
20 to conduct the leak rate test program?

21 THE WITNESS: No, I don't remember.

22 MR. CHRISTOPHER: You're not aware of any problems
23 that were discussed with the computer program as it pertains
24 to the leak rate test procedure?

25 THE WITNESS: At this time, I don't remember that.

1 MR. CHRISTOPHER: Are you aware of hydrogen
2 additions being made to the make-up tank?

3 THE WITNESS: There again, I read about it in a
4 report by Faegre and Bensen, and I don't remember if I knew
5 about it before then.

6 MR. CHRISTOPHER: Prior to the accident, were you
7 personally aware that operators were making hydrogen additions
8 to the make-up tank for the express purpose of attempting to
9 manipulate the leak rate test results?

10 THE WITNESS: No, I was not.

11 MR. CHRISTOPHER: Did you hear or discuss with any
12 operators the fact that they could possibly affect leak rate
13 test results by the addition of hydrogen?

14 THE WITNESS: No, I did not.

15 MR. CHRISTOPHER: Was it ever explained to you how
16 hydrogen could conceivably affect the make-up tank?

17 THE WITNESS: That was one of the revelations that
18 I saw in Faegre and Bensen. I was not aware of the possible
19 loop seal and level instrumentation.

20 MR. CHRISTOPHER: But prior to seeing the report,
21 you were not aware of what could possibly allow hydrogen
22 to affect make-up tank results?

23 THE WITNESS: No, I was not.

24 MR. CHRISTOPHER: And you did not enter into any
25 discussions with anyone regarding that possible effect, prior

1 to the accident?

2 THE WITNESS: No, I did not.

3 MR. CHRISTOPHER: Are you aware of any supervisors
4 who are aware of that possible effect -- shift operations
5 type in particular?

6 THE WITNESS: No, I'm not.

7 MR. CHRISTOPHER: Are you aware of any shift
8 supervisors who have admitted to you that they were aware
9 that hydrogen was being added to the make-up tank by operators
10 in order to affect leak rate tests?

11 THE WITNESS: No, I am not.

12 MR. CHRISTOPHER: Are you aware of any management
13 individuals such as Jim Floyd, Gary Miller or others, who
14 were aware that they were attempting to add hydrogen to the
15 make-up tank in order to attempt to manipulate the leak
16 rate test results?

17 THE WITNESS: No, I'm not.

18 MR. CONNOLLY: Are you aware of unrecorded water
19 additions being made during the test in order to affect leak
20 rate test results?

21 THE WITNESS: No, I'm not, other than what I read
22 in Faegre and Bensen.

23 MR. CONNOLLY: What was it that you read in Faegre
24 and Bensen about the addition of water?

25 THE WITNESS: I believe that they speculated now

1 that -- or they said that Mr. Hartman said that he added
2 water to the make-up tank.

3 MR. CONNOLLY: Are you aware of supervisors who
4 might have been aware of this practice?

5 THE WITNESS: No, I'm not.

6 MR. CONNOLLY: To your knowledge, was there
7 pressure on the operators to get good leak rate test results?

8 THE WITNESS: No, there was not.

9 MR. CONNOLLY: Do you know if operators were directed
10 to manipulate test results by the addition of hydrogen or
11 water to the make-up tank?

12 THE WITNESS: Could you repeat that?

13 MR. CONNOLLY: Were you aware if operators were
14 directed to manipulate the tests by the addition of hydrogen
15 or water?

16 THE WITNESS: No, I'm not.

17 MR. CONNOLLY: Do you recall any instances that
18 action statements were entered because of excessive leakage?

19 THE WITNESS: No, I do not.

20 MR. CONNOLLY: What effect did the code safety
21 valves and the pressurizer leakage have on your ability to get
22 a good leak rate test?

23 THE WITNESS: They should not have any effect.

24 MR. CHRISTOPHER: Do you recall being personally
25 concerned at that time with apparent, continued increasing

1 leakage from one or both of those valves during that time?

2 THE WITNESS: I had heard about one of the leaking
3 pressure relief valves, but I don't remember specifically in
4 what timeframe I heard about it. It could have been before
5 the accident.

6 MR. CHRISTOPHER: But you don't recall at that time
7 being personally concerned enough about it to discuss with
8 either George Kunder or someone else your feeling that maybe
9 the plant should be shut down to repair it -- what you feel
10 would be excessive leakage?

11 THE WITNESS: Like I said, I don't even remember
12 whether or not I heard it back then in that timeframe.

13 MR. CONNOLLY: Do you know if operators instructed
14 auxiliary operators to add hydrogen to the makeup tank for
15 the purpose of affecting leak rate test results?

16 THE WITNESS: No, I don't.

17 MR. CHRISTOPHER: Were you a member of the PORC?

18 THE WITNESS: Yes, I was.

19 MR. CHRISTOPHER: Were you the PORC chairman for
20 any portion of time?

21 THE WITNESS: I was a PORC chairman for a time
22 period after the accident, but I'm not sure that I was before
23 the accident. I was a PORC vice chairman for a while under
24 both Jim Seelinger and George Kunder.

25 MR. CHRISTOPHER: I forget his first name, but

1 was Mr. Hilsbish -- ?

2 THE WITNESS: He was PORC vice chairman before me.

3 MR. CHRISTOPHER: Are you familiar with LER 78-62
4 which was issued on 10/19/78, and it was issued as a result
5 of the technical specification violation for unidentified
6 leakage.

7 THE WITNESS: That was shown to me by the grand
8 jury and maybe by the FBI that visited me before the grand jury.

9 MR. CHRISTOPHER: Do you have any recollection of
10 that LER?

11 THE WITNESS: It was very vague.

12 MR. CHRISTOPHER: I know you've read it. I'll let
13 you go over it for a few minutes again. That's LER 78-62.

14 (Pause.)

15 You are sufficiently familiar with that?

16 THE WITNESS: Yes.

17 MR. CHRISTOPHER: Do you recall what event initiated
18 that LER?

19 THE WITNESS: No, I do not.

20 MR. CHRISTOPHER: How would you first have become
21 aware of the preparation and review of this LER?

22 THE WITNESS: It may have been a superintendent's
23 event report. I'm just speculating now, and that may have
24 come down to the PORC. It may have been somebody from the
25 control room who referred it down there, I really don't know.

1 MR. CHRISTOPHER: Do you recall or do you remember
2 anyone telling you that the reason this LER was initiated was
3 because an NRC inspector went into the control room and found
4 a leakage in excess of 1 gpm?

5 THE WITNESS: I don't remember that.

6 MR. CHRISTOPHER: You don't have any recollection
7 of that?

8 THE WITNESS: I don't have any recollection.

9 MR. CHRISTOPHER: Have you heard discussions to
10 that effect at any time in the past two or three years?

11 MS. PENNY: It's a fair statement that the grand
12 jury discussed that with you, is it not?

13 THE WITNESS: I think they did discuss it with me.
14 I don't remember now what their discussions were, but --

15 MR. CHRISTOPHER: But you're not aware of that
16 being the initiating event for this LER, that type of activity?

17 THE WITNESS: No.

18 MR. CHRISTOPHER: How would the PORC review have
19 reviewed this LER? Explain to me how the PORC review would
20 have examined this item.

21 THE WITNESS: It's been a while since I've been
22 on PORC, but to the best of my recollection the LER would
23 have been generated in Reading by the licensing personnel
24 up at Reading, and then it would have been transmitted down
25 to the Island, okay, and we would have had a PORC meeting in

1 which we each had a copy of the LER and we would go over it
2 and see that it was -- there was an appropriate description of
3 the event and what the possible causes were and the corrective
4 action. And then when we were satisfied with it, we would
5 call back up to Licensee and give our concurrence that we
6 agreed with the LER. And then Licensee would transmit it
7 through their Reading management chain to get it signed off
8 prior to being sent to the NRC.

9 The PORC -- just as part of background -- the
10 PORC consisted of members from Engineering and Operations and
11 radiological control people, so there was a broad area, so
12 that we tried to have as much expertise so that we could
13 adequately review these type of documents.

14 MR. CHRISTOPHER: Do you recall any particular
15 discussions relevant to this LER at the time?

16 THE WITNESS: No, I don't.

17 MR. CHRISTOPHER: Do you recall how the PORC
18 arrived at its interpretation, the fact that it was in
19 violation of technical specifications?

20 THE WITNESS: No, I do not.

21 MR. CHRISTOPHER: Do you recall if there was any
22 conversation during this meeting related to the excessive
23 leakages and the problems with getting a good unidentified
24 leak rate?

25 MS. PENNY: Just a minute. You don't recall a

1 meeting?

2 THE WITNESS: I do not recall the meeting and
3 I do not recall the discussions that you're talking about.

4 MR. CHRISTOPHER: Do you recall who would have
5 been the cognizant engineer responsible for preparing the
6 LER with Licensee in Reading?

7 THE WITNESS: No, I don't. Back then we did not
8 really have cognizant engineers; we had mechanical and
9 electrical engineers.

10 MR. CHRISTOPHER: Whose department would this --
11 you had an engineer, let's call him a cognizant engineer,
12 or an individual who was assigned lead responsibility to work
13 with the Licensee people in tracking down the LER and putting
14 it together. Is that correct?

15 THE WITNESS: I don't remember that the specific
16 people were tasked with each LER.

17 MR. CHRISTOPHER: My understanding of the way
18 LERs were prepared at that time is the Licensee people -- in
19 this case I think it was Jim Stier -- actually draft and write
20 the LERs.

21 THE WITNESS: Correct.

22 MR. CHRISTOPHER: He has indicated to us that his
23 LER was based only on what information he received from an
24 individual he referred to as a cognizant engineer who was
25 responsible for the item at the plant itself. I'm trying to

1 determine what department would have had -- because of the
2 nature of the LER and the nature of the event -- what department
3 would have had the lead responsibility in dealing with it.

4 THE WITNESS: To that question I don't know the
5 answer.

6 MR. CHRISTOPHER: If I showed you -- and I guess
7 I'm going to ask for your opinion because you know the players.
8 If I showed you a list of individuals who attended PORC
9 meetings in which we believe this item was discussed, would
10 you be able to give us an opinion as to who may have had the
11 so-called lead responsibility for the LER? We believe it
12 was probably discussed in one or both of these meetings,
13 and this is the list of attendees.

14 MS. PENNY: That's either 10/18 or 10/19.

15 (Pause.)

16 THE WITNESS: As far as an opinion, it could either
17 have been Tom Morck or Jim Floyd. I don't really know.

18 MR. CHRISTOPHER: Let me go back to the PORC
19 action items. This is the PORC action item, which is a
20 follow-up to the LER. First, do you who the initials WJM
21 refer to?

22 THE WITNESS: I believe that stands for Bubba
23 Marshall.

24 MR. CHRISTOPHER: Would that indicate that he was
25 the cognizant engineer for the follow-up, or that he was the

1 engineer responsible for insuring that this action item was
2 carried out?

3 THE WITNESS: He was the individual tasked by
4 PORC to insure that the item was coming out.

5 MR. CHRISTOPHER: The action item states that
6 in part, the appropriate personnel will be instructed on the
7 requirements of the applicable sections for the TS --
8 referring to the tech spec -- and the requirements to
9 immediately invoke applicable action statements when the
10 provisions of the LCOs are not met.

11 Do you recall how the operators were instructed
12 on this particular LER?

13 THE WITNESS: No, I do not.

14 MR. CHRISTOPHER: Do you know how they routinely
15 received information on LERs?

16 THE WITNESS: No, I don't.

17 MR. CHRISTOPHER: There's a list here which is
18 entitled "A Document Review to Unit 2 Control Room," dated
19 11/10/78 with all the Operations personnel initialing it
20 and also identifying the LER number. Do you know what this
21 would have been for?

22 THE WITNESS: I believe -- and I told the grand
23 jury this -- that this was the sign-off sheet that the people
24 had read the PORC action item. And that's what I used, I
25 believe, and I'm not sure anymore because of the time lapse.

1 But I believe I used this sign-off sheet to sign off the LER
2 as being complete.

3 MR. CHRISTOPHER: So it would be a matter of
4 the routine that the operators would be required to review
5 the LER in the control room? Is that how it would have
6 worked?

7 THE WITNESS: You'd really have to ask the
8 Operations people. I'm not sure what their administrative
9 processes were.

10 MR. CHRISTOPHER: On the other PORC action item
11 there's a handwritten note, I believe it's signed by
12 Mr. Hilsbish, and it states, "Due to plant's problems in
13 test program, this item has been over-scheduled. This item
14 will be implemented no later than 12/18/78." Do you have
15 any recollection --

16 MS. PENNY: Can we go off the record a minute?

17 (Discussion off the record.)

18 MR. CHRISTOPHER: Do you have any recollection of
19 what initiated this document?

20 THE WITNESS: No, I do not.

21 MR. CHRISTOPHER: You don't know what they meant
22 by plant problems in test program?

23 THE WITNESS: No.

24 MR. CHRISTOPHER: Do you know who these initials,
25 WJF, stand for?

1 THE WITNESS: I believe that stands for Bill Fels.

2 MR. CHRISTOPHER: Do you know why that action item
3 was crossed out?

4 THE WITNESS: No, I do not.

5 MR. CHRISTOPHER: I believe the narrative of the
6 LER states, unidentified leakage was subsequently reduced to
7 within the allowable limits at 0735 on October 18, 1978.
8 And in the narrative to the LER it essentially states the
9 same thing and states in the middle of the line, "action is
10 being taken to reduce the unidentified leakage to within
11 allowable limits," and this was accomplished at 0735 on
12 October 18, 1978. That's in the narrative. Do you know what
13 that action was?

14 THE WITNESS: No, I do not.

15 MR. CHRISTOPHER: Are you aware of what should
16 have been done to get back into compliance with the tech
17 spec? How would you have expected it to get back into
18 compliance with the tech spec?

19 THE WITNESS: I'm not exactly certain what actions
20 they took to get back in compliance. I don't know.

21 MR. CHRISTOPHER: Okay. You're not aware of
22 whether or not they ran another leak rate test to determine
23 what the leakage was on that particular day?

24 THE WITNESS: No, I don't know that.

25 MR. CHRISTOPHER: Were you aware that the basis

1 for the statement that you were back into compliance was a
2 leak rate test that was rounded off to a whole number?

3 THE WITNESS: No.

4 MR. CHRISTOPHER: I have a copy of the leak rate
5 test here dated 10/18/78 and dated 0735. Just take a quick
6 look at it, and it identifies the unidentified leakage as
7 1.2339 gallons per minute, which on its face would still be
8 in excess of the tech spec requirement.

9 Then there's a handwritten note on the side that
10 states, "OK by round-off." There are some initials, the
11 time is 1200, the date is 10/18/78. Do you recall ever
12 seeing this before?

13 THE WITNESS: No, I don't.

14 MR. CHRISTOPHER: Do you know whose initials
15 these are?

16 THE WITNESS: I don't recognize the initials.

17 MR. CHRISTOPHER: Okay, I was just curious.
18 Would the permission to round off this number -- would that
19 have to come through the PORC? Would something like that be
20 the subject of a PORC review?

21 THE WITNESS: I don't remember that it ever was.

22 MR. CHRISTOPHER: So you have no knowledge that
23 the basis for the statement that you were back into compliance
24 was a round-off of the numbers?

25 THE WITNESS: No, I do not.

1 MR. CHRISTOPHER: Were you aware that the computer
2 program was modified to automatically round off to whole
3 numbers during that time?

4 THE WITNESS: No, I was not.

5 MR. CHRISTOPHER: Do you know if all leak rate
6 tests are supposed to be kept, good ones, bad ones? Should
7 they have kept all of the leak rate tests that they ran?

8 THE WITNESS: I don't know of any requirement
9 stating that. I don't know what their practice was up in
10 the control room.

11 MR. CHRISTOPHER: Do you have any -- the leak
12 rate I just showed you -- do you have any knowledge of why
13 that particular test is not recorded as an official leak
14 rate test?

15 THE WITNESS: No, I do not.

16 MR. CHRISTOPHER: Do you know if it was or was not,
17 back at that time, recorded as an official leak rate test?

18 THE WITNESS: I don't know that.

19 MR. CHRISTOPHER: Do you know who would be
20 responsible for actually keeping a record of the leak rate
21 tests that would have been run?

22 THE WITNESS: I believe Operations would have.

23 MR. CHRISTOPHER: Any particular level of
24 supervision?

25 THE WITNESS: No, I don't know.

1 MR. CHRISTOPHER: And you say you do not recall the
2 operators being instructed on what the PORC interpretation of
3 the tech spec requirement for the LER was?

4 THE WITNESS: No, I don't know what their specific
5 instructions were.

6 MR. CHRISTOPHER: Do you know how many leak rate
7 tests were being run by the operators on any given shift?

8 THE WITNESS: No, I don't.

9 MR. CHRISTOPHER: You don't know if there was
10 one run per shift, or one every 72 hours or multiple tests
11 run within a 72-hour period?

12 THE WITNESS: I was not aware of anything like
13 that before the accident. But again, from the reports that
14 I've seen, Mr. Hartman stated that he ran more than one
15 during a given time period.

16 MR. CHRISTOPHER: Were you aware of operators
17 jogging water into the make-up tank during the course of
18 a leak rate test for the purpose of getting a good leak rate
19 result?

20 THE WITNESS: That, again, I think I picked up
21 in the Faegre and Bensen report.

22 MR. CHRISTOPHER: But at the time prior to the
23 accident, in those months prior, you have no knowledge that
24 operators were attempting to manipulate leak rate test results
25 by jogging water additions into the make-up tank without making

1 the addition noted in the computer?

2 THE WITNESS: No, I was not aware of that.

3 MR. CHRISTOPHER: If you made a water addition to
4 the make-up tank during the running of a leak rate test and
5 did not tell the computer that you had made that addition,
6 would that affect the result?

7 THE WITNESS: Yes, I believe it would.

8 MR. CHRISTOPHER: And it would have the effect of
9 decreasing the unidentified leakage?

10 THE WITNESS: I believe it would.

11 MS. PENNY: But you have no particular expertise
12 in that area, do you?

13 THE WITNESS: No, I do not.

14 MR. CONNOLLY: Excuse me, I want to get back to the
15 PORC for a minute. Reading the minutes of the meeting,
16 it indicates RPW,VC What does the VC stand for?

17 THE WITNESS: Vice chairman.

18 MR. CONNOLLY: And as vice chairman, what was your
19 function?

20 THE WITNESS: I served in lieu of the chairman
21 when he was not there.

22 MR. CONNOLLY: And what was the function of the
23 chairman?

24 THE WITNESS: The chairman was to insure that the
25 PORC was convened, that there was an adequate number of

1 individuals there to insure a quorum and to oversee the
2 committee actions of that day.

3 MR. CONNOLLY: How did the PORC run? The matter
4 was discussed -- was there a vote on action to be taken?

5 THE WITNESS: As I recall, there was a lot of
6 discussion regarding items, but usually there was general
7 agreement that -- of the entire group before anything was
8 approved. And where there was PORC disagreement, I believe
9 they were logged in the PORC minutes.

10 MR. CHRISTOPHER: How often would the PORC meet?

11 THE WITNESS: To the best of my recollection, we
12 met several times a week.

13 MR. CHRISTOPHER: Would they meet for an hour,
14 two hours?

15 THE WITNESS: It depended on the business that
16 had to be conducted. Sometimes they lasted several hours,
17 going up to maybe a whole day, and sometimes they only lasted
18 for a very short time period.

19 MR. CHRISTOPHER: Do you recall at any of the PORC
20 meetings where, again, a discussion took place regarding
21 continued problems with valve leakage and the effect it was
22 having on your ability to get good unidentified leak rates?

23 THE WITNESS: No, I don't.

24 MR. CONNOLLY: Are you familiar with TCN 79.076,
25 March 16, 1979, that changed the calculation procedure for

1 leak rate tests?

2 THE WITNESS: I am vaguely familiar with that, yes.

3 MR. CONNOLLY: Would you like to review that document
4 at this time?

5 THE WITNESS: Okay.

6 (Pause.)

7 MR. CHRISTOPHER: Do you know what caused the
8 TCN to be initiated?

9 THE WITNESS: I don't remember now.

10 MR. CHRISTOPHER: You don't remember -- would it
11 have been normally initiated because some individual engineer
12 recognized a deficiency in the program?

13 THE WITNESS: It could have been initiated for
14 that reason.

15 MR. CHRISTOPHER: But you don't know how actually
16 initiated the TCN as an individual?

17 THE WITNESS: I believe Tom Morck initiated this
18 TCN.

19 MR. CHRISTOPHER: By his initiating it, would that
20 be because he's the one who identified the problem with the
21 surveillance procedure, and because someone brought it to his
22 attention?

23 THE WITNESS: I don't know. It could have been
24 either way.

25 MR. CHRISTOPHER: Do you recall that TCN being

1 reviewed by the PORC?

2 THE WITNESS: I don't remember the details of
3 this TCN.

4 MR. CHRISTOPHER: Do you recall at all reviewing
5 the TCN at that time?

6 THE WITNESS: Not at that time.

7 MR. CHRISTOPHER: You'll note that you have signed
8 off on the TCN as contacted, Ron Warren, and then your
9 signature and it's dated 3/16/79. And under that there's
10 an Approved, and I cannot make out the signature. It says,
11 "Unit Superintendent." I don't know who that signature
12 belongs to. What does it mean when it says "contacted"?

13 THE WITNESS: That means that I concurred with this
14 TCN, and that is my signature.

15 MR. CHRISTOPHER: But you don't have any
16 independent recollection of discussions or reviewing the TCN
17 at the time?

18 THE WITNESS: Not at this time, no.

19 MR. CHRISTOPHER: Is it correct that the TCN made
20 corrections to the procedure by correlating the inventory in
21 the RCDT to the RCS operating conditions?

22 THE WITNESS: Yes.

23 MR. CHRISTOPHER: Is it also true that that TCN
24 did not make the same correction for additions to the make-up
25 tank?

1 THE WITNESS: That's correct.

2 MR. CHRISTOPHER: Do you have any recollection as
3 to why that deficiency, if you will, was not picked up during
4 the PORC review?

5 THE WITNESS: No, I do not.

6 MR. CHRISTOPHER: Do you recall if any individual,
7 during the PORC review, identified or recognized that
8 deficiency and made comments about it?

9 THE WITNESS: I do not recall any PORC individual
10 making any comments.

11 MR. CHRISTOPHER: You don't recall if it was
12 identified and a decision was made to let the TCN stand as
13 is because it had the result of having a favorable effect on
14 the leak rate test result?

15 THE WITNESS: I don't recall that happening, and
16 knowing the way the PORC ran and the individuals on the PORC,
17 it's inconceivable to me that something like that could have
18 happened.

19 MR. CONNOLLY: During this timeframe that this
20 document was issued, what was your position on the PORC? Do
21 you remember?

22 THE WITNESS: I'm sorry, repeat the question.

23 MR. CONNOLLY: During the timeframe of March 16,
24 1979, what was your position on the PORC at that time?

25 THE WITNESS: I believe I was vice chairman and

1 a PORC member.

2 MR. CHRISTOPHER: Do you recall -- I think your
3 procedures require that your tailpipe temperatures be
4 maintained at approximately 130°?

5 THE WITNESS: I vaguely recall that. I don't
6 remember it.

7 MR. CHRISTOPHER: Do you have any recollection of
8 discussions pertaining to the initiation of an emergency
9 procedure, 2202-1.5, which is for pressurizer system failure,
10 which requires that the EMOV relief isolation valve be
11 closed when the relief discharge line temperature exceeds
12 130°?

13 THE WITNESS: Again, I vaguely recall that, but
14 I don't remember the timeframe.

15 MR. CHRISTOPHER: You don't recall any discussions
16 prior to the accident regarding discharge line temperatures
17 being in excess of 130°?

18 THE WITNESS: No, I can't remember.

19 MR. CHRISTOPHER: And specifically, around 1800
20 or thereabouts?

21 THE WITNESS: No, I can't remember.

22 MR. CHRISTOPHER: And you don't recall any
23 discussions to the effect that that emergency procedure
24 should be invoked because of these higher temperatures?

25 THE WITNESS: No.

1 MR. CHRISTOPHER: Or that anyone had identified
2 the fact that these procedures should have been evoked because
3 of the higher than normal temperatures?

4 THE WITNESS: No, I don't.

5 MR. CHRISTOPHER: Do you recall if there was any
6 discussion as to what would justify the continued operation
7 and not invoking the procedure because of these higher
8 temperatures?

9 THE WITNESS: No, I don't remember any discussion
10 of that.

11 MR. CONNOLLY: Were you aware of discussions to
12 the effect that management would not shut down Unit 2 to
13 repair the valve leakage until Unit 1 was back online from
14 the refueling outage?

15 THE WITNESS: I do not remember discussions to
16 that effect.

17 MR. CHRISTOPHER: Several individuals have testified
18 that they recall discussions to the effect of, we realize
19 we have some leakage from our safety valves; however, the
20 decision is that we cannot shut the plant down until we get
21 Unit 1 back from refueling. You don't recall any discussions
22 to that effect?

23 THE WITNESS: No, I don't.

24 MR. CHRISTOPHER: Have you since discussed with
25 anyone the fact that that was, in fact, the case?

1 THE WITNESS: I don't remember discussing that
2 with anyone.

3 MR. CONNOLLY: Did Bill Fels ever discuss with you
4 the effect of additional hydrogen on the MUT, or make-up tank?

5 THE WITNESS: No, he did not.

6 MR. CONNOLLY: Are you aware of any of the methods
7 that the operators could have used to obtain good leak rate
8 test results?

9 THE WITNESS: No, I can't remember any of them.

10 MR. CONNOLLY: Has anyone ever admitted to you
11 that they were involved in the falsification of leak rate
12 test results?

13 THE WITNESS: No, no one has ever said that.

14 MR. CONNOLLY: Has anyone ever told you that they
15 know of someone who was involved in the falsification of leak
16 rate tests?

17 THE WITNESS: No.

18 MR. CONNOLLY: Do you have any information at all
19 regarding the falsification of leak rate tests at Unit 2?

20 THE WITNESS: No, I do not.

21 MR. CHRISTOPHER: Do you have any information or
22 knowledge that will indicate that members of supervision and
23 management were aware of the fact that operators were possibly
24 falsifying leak rate test data?

25 THE WITNESS: No, I do not.

1 MR. CHRISTOPHER: Is there anything else that you
2 can tell us about the allegations that you have heard but that
3 we haven't asked you at this time?

4 THE WITNESS: No, there is not.

5 MR. CONNOLLY: I have no further questions.

6 MR. CHRISTOPHER: We will terminate the interview--

7 MS. PENNY: Wait. Did you want to make a statement?

8 THE WITNESS: I don't have a prepared statement so
9 it's going to be kind of disjointed. But I have been asked
10 a lot of questions over a lot of years, and to the best of
11 my knowledge, to all of the investigations I've answered as
12 truthfully as I can. But it's of great concern to me that
13 investigations, you know, you get asked the same questions
14 over and over again, and you go and you start contradicting
15 yourself. And I've tried not to, and I've tried to say I
16 didn't know where I honestly did not.

17 But I consider that this investigation is an
18 invasion of my civil rights, and I felt that I needed to go
19 and say it on the record because I've already been quizzed
20 on this by the grand jury and I've come down here because I
21 got the subpoena. And it's a lot of strain on me and my
22 family to have, you know, to be saying these type of things or
23 be confronted with these investigations.

24 So that's all I wanted to say, that I do consider
25 it an invasion of my civil rights. I don't think that

1 criminals such as thieves, embezzlers and murderers have
2 been -- get investigated to the same extent and by dual
3 investigations such as I've been subjected to.

4 MR. CHRISTOPHER: We appreciate your comments.
5 Thank you. We'll terminate the interview now.

6 (Whereupon, at 11:02 a.m., the interview was
7 terminated.)

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CERTIFICATE OF PROCEEDINGS

This is to certify that the attached proceedings before the
NRC COMMISSION

In the matter of: Investigative Interview of
Ronald P. Warren, Sr.

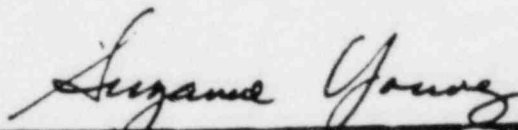
Date of Proceeding: Thursday, September 29, 1983

Place of Proceeding: Harrisburg, Pennsylvania

were held as herein appears, and that this is the original
transcript for the file of the Commission.

Suzanne Young

Official Reporter - Typed



Official Reporter - Signature

EXHIBIT 36

REPORT OF INTERVIEW OF NELSON BENNETT/10-24-83

REPORT OF INTERVIEW

Mr. Nelson K. BENNETT was interviewed by R. K. CHRISTOPHER, Director, Office of Investigations Field Office, Region I, on October 24, 1983 at the Mountain View Inn, Greensburg, Pennsylvania. Present during the interview at BENNETT's request was his attorney, Mr. Smith B. GEPHART, of the firm Killian and Gephart, Harrisburg, PA. BENNETT stated that he currently resides at 135 Cannon Drive, Greensburg, PA, and has resided at that address for approximately the last four years. He stated that he has been employed with the Baily Controls Company in Greensburg, PA, since July of 1979. BENNETT said that his previous employment was at the Three Mile Island (TMI) Nuclear Generating Station where he was employed from November 1973 to July 1979. He said that during this time he was an Instrumentation Foreman in the Maintenance Department. He also clarified that this was primarily a TMI Unit-2 position, although, he did spend a short time at TMI Unit-1 while he was an Instrumentation Technician. He said that his primary function during this period was to perform calibration and repair of various types of instrumentation for TMI Unit-2. He said the majority of his work was reactive in response to various maintenance work orders. He stated that while his department could issue work orders he did not specifically recall issuing any work order with respect to systems that related to the performance of leak rate testing.

BENNETT said that he did not attend any of the plant management plan-of-the-day (POD) meetings to discuss operational matters and has never been a member of the Plant Operating Review Committee (PORC). Further, BENNETT said that he did not recall any discussions with members of the Plant Operating Staff regarding calibration problems as they would have related to the performance of leak rate tests at TMI Unit-2. He also stated that he did not recall having any discussions with plant management in which concerns were expressed about the difficulties being experienced in obtaining leak rates.

BENNETT said that in his position as an Instrumentation Foreman he had no knowledge of, or involvement in, any discussions of excessive or increasing tail pipe temperatures as they related to the plant operation of TMI Unit-2. BENNETT also advised that he periodically worked with William FELS, who he

described as the computer engineer. He said that his relationship with FELS was limited to the installation and start up of the plant computer hardware. He clarified that he did not perform any actual work with FELS with respect to the programming of the computer but merely provided input data to FELS. Specifically, BENNETT said he had no recollection of discussions with FELS regarding the leak rate surveillance procedure 2301-3D1 and recalls no discussions surrounding that procedure. BENNETT further described his relationship with FELS by saying that FELS would periodically ask him for input data and data points so that he (FELS) could put data into the computer for the preparation of various surveillance tests.

BENNETT stated that with regards to the HARTMAN allegations, he is familiar with them primarily by reading the newspapers and has had no direct relationship with HARTMAN or any other operators. He further stated that he has had no discussions with individuals about HARTMAN's allegations and does not specifically recall what the allegations were. After being prompted with the fact that HARTMAN's allegations concerned additions of hydrogen or water to the makeup tank during the course of leak rate tests in order to manipulate test results, BENNETT stated that he had no personal knowledge of operators attempting to manipulate the leak rate tests in such a manner and said he knew of no other individuals who had indicated to him that they had such knowledge. Additionally, he stated that he did not have an understanding as to how the hydrogen addition would effect the makeup tank level. BENNETT continued by specifically stating that he had no knowledge of operators adding water to the makeup tank during the course of leak rate tests without recording those results in order to manipulate the leak rate tests results. He stated that while he did not have personal knowledge of the requirements, he "assumed" that all water additions to the reactor coolant system would have to be recorded in the control room operators (CRO) logs. He clarified that he had no discussions with operators regarding whether or not water additions were always recorded in the CRO logs. When questioned about his knowledge concerning licensee event reports (LER) at TMI Unit-2 he responded by stating that he had no knowledge of what an LER was and could not relate any information in reference to any LER as it pertained to leak rate testing. He explained that since he was not a member of the PORC or any other plant management review committee, he would have no knowledge of such items.

With respect to the recording of surveillance tests, BENNETT stated that all surveillance tests that he was familiar with were logged in some fashion but he could not recall a specific format as to how they were actually logged. He stated that he did not know whether or not the operators at TMI Unit-2 should have logged the start and stop times of the tests or just the fact that the tests were performed. He said that while he has performed surveillance tests, he does not recall performing any tests that were conducted over a set period of time that would require such recording.

With respect to the allegation that bad leak rate tests results were thrown away, BENNETT stated that he was aware during the 1978 and 1979 time period that operators were throwing away bad or invalid leak rate test results. He stated that he did not recall specifically how he became aware of the fact that operators were throwing away the tests results but stated that it was "common knowledge". He clarified that he has never seen an operator throw away a test result but reiterated that he had learned that they were throwing the tests away through general day to day knowledge and "lunch room" type conversations. He said that he had no recollection or explanations as to why test results were being thrown away and does not recall any discussions with any individuals concerning this policy on the part of the operators. Further, he stated that he was not aware of who authorized the throwing away of leak rate test results or even if it was a violation to throw the test results away. BENNETT said that he "assumed" everyone knew that they were throwing away the tests results because it seemed to be common knowledge among all of the individual plant employees. He did state that he could not specifically name a supervisory or management individual who actually knew that they were throwing the test results away and does not recall there being any specific concerns over the fact that the tests results were being destroyed. He concluded his discussions in this area by stating that his knowledge of the fact that operators were throwing away test results and was never directly connected to any conversations or concerns relating to problems in obtaining good leak rate test results.

With respect to the recording of negative leak rate tests, BENNETT stated that from an engineering standpoint, it was not possible for the plant to have a negative leak rate; paradoxically, he stated that he would not necessarily

consider the test as an invalid test due to the variables and the inaccuracies involved in the various level measuring devices that would have been part of the tests. He acknowledged that there was "no way that the plant could make water" but again stated that he would not necessarily invalidate a leak rate test because the negative leak rates were being obtained. He said that if he saw negative leak rates in the range of a negative one half gallon he would not have considered these to be a problem or to be indicative of an invalid test program.

BENNETT stated that he has no knowledge in his possession nor has he talked to any individuals who have admitted to him to be in possession of information that the operators and/or plant supervisory personnel were attempting to manipulate the reactor coolant system leak rate tests results in order to keep the plant from shutting down. He also stated that he has no knowledge of a shift supervisor requesting permission to shut down the plant to repair valve leakage and that request being denied by the load dispatcher. He stated that he has no recollection of any discussions or operating decisions relating to a philosophy of keeping Unit-2 running despite leakage until Unit-1 came back on the line from it's refueling outage. He concluded by stating that he had no other information that would be of value in resolving the allegations concerning the falsification of leak rate test data and the interview was concluded at 5:05 PM. This interview was formally recorded on October 26, 1983 at 5:00 PM.

EXHIBIT 37

REPORT OF INTERVIEW WITH JAMES STAIR//8-5-83

REPORT OF INTERVIEW

On August 5, 1983 James STAIR, GPUN Shift Technical Advisor, was interviewed by Investigators R. K. CHRISTOPHER and P. J. CONNOLLY. He advised that he has been employed with Metropolitan Edison/GPUN since January 1977. During the time period in question (1978-1979) he was assigned as a licensing engineer in Reading, Pennsylvania. STAIR said one of his responsibilities was to prepare Licensee Event Reports (LER). He could not recall the specific details related to the preparation of LER 78-62/1T on October 19, 1978. STAIR described what he termed as his normal routine for processing LER's. He said he would generally receive notification of an LER event either in writing or telephoned from the (PORC) Secretary or Chairman. STAIR said that because this was a 14 day LER he probably received a telephone call to initiate the LER action. STAIR recalled that the PORC Secretary at the time was Mark BEZILLA and the PORC Chairman was James SEELINGER.

STAIR said after arriving on site he would receive a brief on the LER incident by the assigned cognizant engineer. He noted it was the cognizant engineer's responsibility to investigate the problem and to provide him (STAIR) the details so he could prepare the LER. STAIR said he would not have reviewed any of the technical data and would have prepared the LER based on information provided to him by the cognizant engineer and not from any personal knowledge of the incident. STAIR could not recall who the cognizant engineer was at the time of the preparation of this LER.

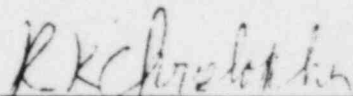
STAIR said after he prepared the draft LER and narrative, the document was provided to the PORC for review; however, STAIR said he could not now recall any information regarding the discussion and disposition of the LER. He did say that as a matter of routine the LER would have been finalized and then forwarded to the NRC for appropriate notification.

STAIR clarified that his primary function in this type of incident was to prepare the LER based on the information provided to him by the cognizant engineer. He said this included the comments in the narrative indicating that

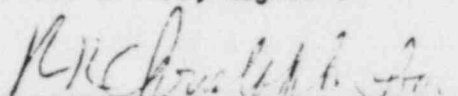
the unidentified leakage had been reduced to within technical specification on October 18, 1978.

STAIR said he was not aware of any discussion or decisions pertaining to the rounding off of leak rate results and had no knowledge relative to the operators allegedly falsifying leak rate test data through addition of hydrogen or water to the make-up tank during the test.

STAIR concluded by stating that at some time in the past an individual (whose name he could not recall) told him the LER was initiated as a result of an NRC inspector finding on unacceptable leak rate test in the control room.



R. K. Christopher, Director
Office of Investigations
Field Office, Region I



P. J. Connolly, Investigator
Office of Investigations
Field Office, Region I

EXHIBIT 38

SWORN TESTIMONY OF IVAN PORTER/9-23-83

ORIGINAL

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

In the matter of:

INVESTIGATIVE INTERVIEW

Docket No.

THE OFFICE OF INVESTIGATION
AND ENFORCEMENT

TESTIMONY OF IVAN D. PORTER, JR.

Location: Harrisburg, PA

Pages: 1 - 38

Date: Friday, September 23, 1983

TAYLOR ASSOCIATES

Court Reporters

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

IN RE:

INVESTIGATION OF:

THE OFFICE OF INVESTIGATION
AND ENFORCEMENT

TESTIMONY OF
IVAN D. PORTER, JR.

American Host Inn
Harrisburg, Pennsylvania

Friday, September 23, 1983

APPEARANCES:

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216-218 Pine Street
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Harrisburg, Pennsylvania 17108
On behalf of Mr. Porter

P R O C E E D I N G S

(11:05 a.m.)

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MR. CHRISTOPHER: On the record. The date is September 23rd, 1983, the time is 11:05, we are in the Host Motor Inn, Room 500 in Harrisburg, Pennsylvania. We're here to elicit information from Mr. Ivan Porter regarding allegations concerning falsification of reactor coolant system leak rate test data at TMI Unit 2.

Presently in the room besides Mr. Porter are Keith Christopher, and Peter Connolly, Investigators from the Office of Investigations, Region I; and Attorneys Smith B. Gephart and Jane Penny for the firm of Killian and Gephart, Harrisburg, Pennsylvania, representatives for Ivan Porter.

Ivan, the first thing that we have to is we put you under oath and then we just go through a series of questions.

Whereupon,

IVAN D. PORTER, Jr.

was duly sworn and was examined and testified as follows:

EXAMINATION

BY MR. CHRISTOPHER:

Q Just for the record, Ivan, would you give us your full name, address, age and current position.

A My name is Ivan D. Porter, Jr., my address is

1 Box 496, R.D. 1, Elizabethtown, Pennsylvania. I am currently
2 startup and test manager for GPU Nuclear, Three Mile Island
3 Unit 1.

4 Q How long have you been in that position, Ivan?

5 A Well, essentially, I would say October 1979.

6 Q So after the accident.

7 A Yes.

8 Q Who is your immediate supervisor now?

9 A Tom Hawkins.

10 A Tom Hawkins. Prior to the accident -- let's say
11 the three, four months prior to March of 1979 -- what was your
12 position at that time?

13 A I was lead instrumentation control engineer at
14 TMI Unit 2.

15 Q Exclusively for Unit 2?

16 A Yes.

17 Q Who did you work for at that time?

18 A George Kunder.

19 Q The allegations here are from Harold Hartman,
20 former control room operator. There are more than this
21 particular allegation but we'll only deal with the allegation
22 of falsification of leak rate tests.

23 He alleges that because of various problems at
24 the plant, oscillating plant parameters, excessive leakages,
25 that the operators were routinely unable to comply with the

1 tech spec requirement for unidentified leakage. The
2 technical specification states that you have to have an
3 unidentified leak rate of 1 gallon per minute, and an
4 identified leak rate of 10 gallons per minute every 72
5 hours or the plant has to shut down.

6 Are you familiar with that technical specification
7 and its requirements?

8 A Basically, yes.

9 Q Now, you're not an operator, --

10 A No.

11 Q -- and so you don't actually perform the tests.

12 Is that -- ?

13 A That's true.

14 Q What would be the extent of your involvement in
15 the conduct of that test, if any?

16 A Normally, I would not have involvement in it.

17 Q How would you become aware specifically of problems
18 with the leak rate testing program?

19 A It would either be they need specific assistance
20 from me -- say, for instance, daily meetings or I guess
21 just hearsay.

22 Q Were you aware -- now remember, we're going to
23 speak totally of the time period prior to the accident now.
24 Were you aware at that time that they were having problems
25 obtaining good leak rate?

1 A I'm sure I was, yes.

2 Q Can you recall how you became aware that this
3 was going on? Through discussions, formalized meetings, or
4 did someone tell you informally? Can you recall how you first
5 became aware of it?

6 A No, not first became aware of it. The record
7 shows that I attended POD meetings and stuff of that type.

8 Q So as I understand, your answer is that since the
9 time of the event, the allegation, including today, you have
10 not had any discussions with any operators or formal operators
11 or other personnel in the company that would indicate that
12 they as individuals had knowledge that the operators were
13 adding hydrogen for the purpose of manipulating leak rate
14 test results?

15 A No.

16 Q Okay. And you personally never witnessed any
17 operator add hydrogen to the makeup tanks for the purpose of
18 affecting leak rate test results?

19 A No.

20 Q One of the other allegations is that besides
21 water being added to the makeup tank, -- I'm sorry, that
22 hydrogen was added to the makeup tank -- is that water was
23 being added to the makeup tank and not recorded in the RCS
24 inventory. The allegation is that this was done for the
25 express purpose of manipulating leak rate test results.

1 Are you now personally aware, or were you back
2 then personally aware that operators were adding water to
3 the makeup tank for the purpose of affecting leak rate test
4 results?

5 A No, sir.

6 Q And since that time, have you discussed with
7 anybody whether or not operators were, in fact, adding water
8 in order to affect leak rate test results?

9 A I've had discussions on this whole topic, as
10 everybody else has. But no, I have never asked an operator
11 and nobody has ever told me that they were aware that an
12 operator did do that.

13 Q Did any operator, by name, ever specifically admit
14 to you that he was manipulating leak rate tests by either
15 adding hydrogen or water?

16 A No, sir.

17 Q Realizing that you weren't actually involved in
18 the taking of -- performance of leak rate tests, were you
19 aware of any shift foreman, shift supervisor or other
20 management individual, which could be, let's say, a Jim
21 Floyd to Gary Miller to Joe Logan or Jim Seelinger, those
22 types of individuals, who were aware of the fact that
23 operators were manipulating the leak rate test results by
24 adding hydrogen and water, and either directed it or condoned
25 operators to perform in such a fashion?

1 A No. Totally unaware of this until it came out.

2 Q So as far as you know, supervisors were not aware
3 that operators were manipulating leak rate test results.

4 MR. GEPHART: If they were manipulating leak
5 rate test results.

6 THE WITNESS: No.

7 BY MR. CHRISTOPHER:

8 Q Did you ever have any discussions with your
9 supervisor at that time, George Kunder, Jim Floyd, about the
10 problems of getting good leak rates? Why the operators
11 couldn't get good leak rates?

12 A Possibly, probably, but I don't recall.

13 Q Are you personally familiar with the surveillance
14 procedure that is used to conduct the test? I think it's
15 2301-3(d)(1). I have a copy if you'd like to take a look
16 at it.

17 A More or less. I understand the process involved.
18 That was not my procedure and I didn't perform, so as far
19 as the step-by-steps that are in there, I'm not familiar
20 with it, no.

21 Q Were you aware in enough detail to know that the
22 procedure warned against any additions of water or chemical
23 additions to the RCS inventory during the test?

24 A I would -- yes.

25 Q You'd be aware of it but, it would not affect you

1 since you did not perform the tests.

2 A Well, I'm aware -- I know that you have to, you
3 know, control stuff like that and it would upset the leak
4 rate. Yes.

5 Q Because of the problems that they were having in
6 getting good leak rate test results, the operators -- several
7 of the operators we've interviewed, going back several years,
8 having indicated that there was a lot of discussion about
9 why they couldn't get good leak rate test results. Do you
10 recall any meetings or any work that you were asked to
11 perform regarding instrumentation readings? Anything that
12 you were asked to do that would help assist to correct the
13 problem of getting leak rate test results?

14 A I don't recall it no, but it's possible that it
15 happened.

16 Q As an instrumentation man, you wouldn't do any
17 work with the computer in a computer program.

18 A No. Not normally. Not with a program, certainly.

19 Q Would you have done any work on -- they used to
20 take makeup tank level readings from a voltage --

21 A That's probably the patch panel.

22 Q And apparently there was some -- at one time you
23 would have to manually go and read it from the patch panel.
24 Would you be familiar with how they changed that so that that
25 level was automatically fed into the test when they changed

1 the test program? In other words, they changed it so that
2 the operators wouldn't physically have to go over and read the
3 levels at the beginning of the test --

4 A I understand what you're saying, and no, I don't
5 recall how it would happen.

6 Q So you don't recall ever specifically being
7 involved in any maintenance activity or instrumentation
8 calibration type activity that would have been related to
9 an attempt to correct problems with the leak rate test?

10 A I don't recall it for that purpose, but I was
11 involved in a lot of instrumentation calibration through
12 that period of time. What prompted it to happen I don't
13 recall.

14 Q If you were going to be involved in recalibrating
15 equipment for that purpose, what would be the type of equip-
16 ment that you would normally have expected to have to work
17 with, knowing the type of systems that are involved in trying
18 to obtain a leak rate?

19 A Pressure instruments, temperature instruments and
20 level instruments for the most part.

21 Q And again, you don't recall any specific direction
22 to research problems with various aspects of the test to try
23 to come up with a resolution as to why they couldn't get a
24 test result?

25 A No, I don't.

1 A The plant has been characterized by everyone as
2 an oscillating plant with a lot of peaks and valleys. Are
3 you aware of operators trying to perform the leak tests in
4 such a manner that they could be aware of the various plant
5 oscillations in order to get a good leak rate test result?

6 A No.

7 Q Were you ever told or was it ever explained to
8 you --

9 A Could I go back to that one for a minute?

10 Q Sure.

11 A You mean trying to make an oscillation work for
12 you rather than just make sure that you didn't get an
13 oscillation that upset the test.

14 Q Right.

15 A Okay. No, I'm not aware of them trying to take
16 advantage of an oscillation.

17 Q In other words, when you run the test, it has to
18 be within a one-hour period of steady state operation. But
19 there were a lot of, I think they're referred to as peaks
20 and valleys in the plant parameters. And if you get the
21 test at the right time, as I understand, it would have a
22 positive effect -- or a negative effect if you hit it at the
23 wrong time -- on the ability to get a good test.

24 What I'm specifically interested in is were you
25 aware of any discussions within the operations particularly

1 at the supervisory level, that would get into any type of
2 instructions as to how to take advantage of those oscillations
3 in order to get good leak rate test results?

4 A No.

5 Q Were you ever told, or did you ever find out why
6 hydrogen actually would affect the makeup tank level?

7 A I know now, yes.

8 Q Based on what? How do you know that?

9 A Now -- the fact it's come up again with the
10 routing of the reference leg in Unit 1. And that's the
11 same with any dry reference leg instrument, is you get air
12 and water both in and move the water out --

13 Q Are you referring to the loop seal that --

14 A If you want to call it that, yes.

15 Q -- that could have occurred by the way the piping
16 was designed.

17 A Yes.

18 Q Up until this time at Unit 1, you weren't aware
19 of or you didn't have an understanding as to how hydrogen
20 may have affected it.

21 A I understood how it could. I didn't understand
22 that anybody had actually determined that the route the
23 tubing was routed such could occur, and in fact, if they
24 had, did occur. But I understand the physical relationship
25 that can cause it to happen, yes.

1 Q But back prior to the accident, you don't recall
2 any discussions as to why they were able to add hydrogen and
3 affect the makeup tank level?

4 A Not that I recall, no.

5 Q Are you aware of any supervisory individuals --
6 by supervisory I mean shift foreman, shift supervisor or
7 above -- who actually directed an individual operator to
8 manipulate a leak rate test result by the addition of hydrogen
9 or water?

10 A No.

11 Q And has any shift supervisor ever discussed with
12 you the fact that he knew the operators were doing that
13 and condoned it in order to keep the plant running?

14 A No.

15 Q Are you aware of any specific supervisor who was
16 aware that they were doing that and took no action to stop it?
17 Again, I'm talking about operations type individuals.

18 A No. It sounds like the same question, but no.

19 Q Are you aware of the comments by a lot of the
20 operators that there was a lot of pressure exerted on the
21 operators to get good leak rates?

22 A No.

23 Q Then you're not aware of any of the operators
24 undergoing any type of direct management pressure -- hey,
25 you're going to get fired, or, you've got to get a leak rate --

1 A Absolutely not.

2 Q Do you feel that -- did you ever sense, back at
3 the time prior to the accident, that the operators felt
4 intimidated if they did not get this good leak test result,
5 or that there would be some adverse action taken against them
6 if they didn't?

7 A Absolutely not.

8 Q And you're not personally aware of any supervisor
9 actually directing an individual to falsify a leak rate
10 test result?

11 A No.

12 Q Were you aware of the practice of the operators
13 throwing away bad leak rate test results?

14 MR. GEPHART: Now or before the accident?

15 MR. CHRISTOPHER: This is all before the accident.

16 BY MR. CHRISTOPHER:

17 Q In other words, the plant was operating January
18 up through March in a fairly stable condition, and a few
19 months prior to that. This is during the normal course of
20 the routine. Did you know that the operators were throwing
21 away test results if they did not meet the one gallon per
22 minute?

23 A I don't recall. I don't recall that I did, but --
24 If the question is was I aware that they had all gone to
25 the file, that's possible. I don't know.

1 Q I'm sorry?

2 A If the question is was I aware they weren't all
3 getting filed, it's possible I was aware of it. But I don't--

4 Q Are you familiar enough with the operators'
5 procedures requirements in terms of keeping records to know
6 whether or not they were being required to keep all of those
7 bad test results?

8 A I guess no, I'm not that familiar with whether
9 they were required to keep those records. I probably
10 shouldn't add anything, but I think in this regard it would
11 depend on why they decided they'd had the bad result.

12 Q Did you have any understanding as to what actually
13 the technical specification required? The tech spec states
14 that you shall get a good leak rate every 72 hours, and if
15 you run a leak rate test that exceeds the one gallon per
16 minute, you have to run -- you have four hours to get a good
17 leak rate or then enter the action, the action statement.

18 Do you know how the operators interpreted the
19 technical specification requirements, particularly with
20 respect to the one good leak rate every 72 hours?

21 MR. GEPHART: Are you asking how all of the
22 operators interpreted the tech spec?

23 MR. CHRISTOPHER: I'm asking if he has any
24 knowledge as to how the tech spec was interpreted with
25 regard to the 72-hour requirement.

1 MR. GEPHART: Do you mean by individuals or do you
2 mean everybody?

3 MR. CHRISTOPHER: I'm just looking for a general
4 understanding, what the general understanding was of the
5 technical specification requirement. Since he does run it,
6 I wouldn't expect him to have his own personal opinion as
7 to what it would be.

8 THE WITNESS: Well, I'm well aware, as I've been
9 reminded recently, of the LER that was misinterpreted. So
10 I'm not sure what more I -- what more would you like me to
11 say on that. I guess I don't recall, on a daily basis,
12 of being aware of their interpretation of it.

13 BY MR. CHRISTOPHER:

14 Q I guess what I was really coming to that with that,
15 is there a lot of instances where, for one reason or another,
16 whether the test was valid or not, they were exceeding the
17 one gallon per minute tech spec requirement. And I was
18 concerned as to whether or not you know at any time whether
19 it was recommended that they actually, prior to the LER --
20 excluding the incident with the LER -- where it was recommended
21 that the plant actually enter into the action statement.

22 A I'm not aware of that, no.

23 Q What, in your opinion, Ivan -- just an opinion, I
24 guess -- would be -- if the code safeties were leaking and
25 with PORV, what effect would that have on your ability to get

1 a good leak rate? Do you see that as having any effect
2 at all?

3 A Well, if any leakage has an effect on your ability,
4 in this case it goes to the drain tank and you can quantify
5 it.

6 Q I guess one of the things that -- and maybe this
7 is a good time for you to give me a little lesson. I'm
8 trying to understand -- I understand that if you have leakage
9 from the code safeties, then the PORV, that is, ineffect,
10 identified leakage. It's all gone to the drain tank.

11 A Yes.

12 Q If you have leakage that continues to increase
13 from one or both of those sets of valves so you're having a
14 continued increase in your identified leakage, how would that
15 affect your ability to get an unidentified leak rate that
16 met the tech spec requirement, or would it?

17 A It would seem like it wouldn't. But I --

18 Q I realize this is more of an operational question.

19 A Yes. Of course, you're asking about the specific
20 one in question, too, and then they did have the procedure
21 change in regard to the drain tank and the density corrections.
22 I guess that wasn't in the procedure properly prior to the
23 procedure change.

24 Q Right. That's right.

25 A But once that problem was taken care of, I don't

1 understand why that would create an increasing problem.

2 Q Well, as I understood the TCM, it still only
3 corrected half the problem.

4 A I guess I wasn't aware of that.

5 Q Okay. In line with that, do you recall any
6 discussions or attending any meetings regarding the continually
7 increasing tailpipe temperatures as an indication of excessive
8 valve leakage? Either from the code safeties or the --

9 A We were looking at those temperatures and I --

10 Q Who was "we"?

11 A Well, "we" is just the group of people who
12 attended PODs and stuff.

13 Q POD is the --

14 A Well, the plan of the day meeting. Or just the
15 people you interface with in your daily business. I wasn't
16 specifically responsible for trying to interpret the data and
17 figure it out, and I can't tell you now who I discussed it
18 with.

19 Q Who would normally attend those kind of meetings?

20 A Oh, they had, -- as I recall, one of the lead
21 engineers was required to go. I think they took turns. The
22 shift supervisor --.

23 Q The operations shift supervisor?

24 A Yes.

25 Q Would the operations superintendent, Jim Floyd,

1 Gary Miller, Jim Seelinger, would those type of individuals
2 usually attend those meetings?

3 A Not Gary Miller.

4 Q Not Gary Miller. What level of management would
5 normally attend those kind of meetings?

6 A Normally, up to Seelinger and quite frequently
7 up to Joe Logan.

8 Q When did this excessive continual rise in tailpipe
9 temperature actually become an issue of concern prior to the
10 accident? Do you recall?

11 A If I hadn't been through this process I wouldn't
12 know. Now I understand it was starting early March or
13 something like that.

14 Q Are you aware of any individual -- probably an
15 operations type individual -- requesting that the plant be
16 shut down to repair the -- identify and repair excessive
17 valve leakage, and that request being denied?

18 A No.

19 Q Are you at all familiar with that TCN, the
20 technical change notice?

21 A Well, I've seen it just going through the grand
22 jury process.

23 Q Can you explain what the significance of the TCN
24 is in terms of how it affected the leak rate test?

25 A Well, I haven't, since I've seen it, tried to

1 crunch back through the numbers or anything like that. I
2 understand it's to correct the density change between the
3 RCS system and the temperature you had in the drain tank to
4 relate the leakage back to what -- the leakage has to be
5 normalized, and it's normalizing that leakage.

6 Q The -- were you aware that this -- this TCN had
7 to go through a PORC review; is that correct?

8 A Yes.

9 Q I understand today that -- by looking at the TCN --
10 while it did compensate for the temperature and the density
11 change for the RCDT, it still had no effect on the water
12 being added to the makeup tank, so we still had the same --

13 A That TCN.

14 Q That TCN.

15 A I don't think that had anything to do with the
16 makeup tank.

17 Q Basically, it kind of helped one side but not the
18 other, as I understand it.

19 A What's --

20 Q By not accounting for the density change for the
21 makeup tank additions.

22 A Well, I -- I guess I thought that was probably
23 already in the procedure, but I've heard that it wasn't.

24 Q Back to the tailpipe, increasing tailpipe
25 temperatures, I think the technical specification states

1 something to the effect that when your tailpipe temperatures
2 exceed 130 degrees that you were to implement an emergency
3 procedure. I think it's specifically 2202-1.5, Section 6.33.
4 Which requires that the discharge line be placed on the
5 analog recorder.

6 Do you recall ever or why that was never
7 implemented? We know now that that was never done.

8 A I believe that the B&W guidance -- are you sure
9 that's a technical specification requirement, or a procedures
10 requirement?

11 A It's in emergency procedures.

12 Q Yes, but there's an important difference whether
13 it's in the tech specs or in the plant procedures.

14 A It's a plant procedure.

15 Q Yes, but I don't think that's a tech spec limit,
16 and I think it was determined that the B&W guidance was
17 improperly interpreted.

18 Q Do you know how they arrived at that conclusion?

19 A No, not -- date, times and people involved, no,
20 I can't help you with that.

21 Q In other words, in some type of contact between
22 B&W and the plant, their decision was that even though they were
23 exceeding the 130^o they would not have been required to do
24 that? Is that what you understand? That's new to me.

25 A I think -- as I said, I think the intent of it was

1 misinterpreted when it got into the procedure, but I don't
2 think that's a tech spec.

3 Q I think you're right, I think it's not, it's a
4 plant procedure.

5 Along the same lines with the -- you can call it
6 the EMOV or whatever, do you recall any discussions regarding
7 whether or not the block valve should have been closed?
8 This is in these couple of months prior to the accidents,
9 as these valve leakages are increasing?

10 A No.

11 Q Were there any discussions as to the need to
12 close block valves, do you know?

13 A I know I don't recall them.

14 Q Is that something you would not normally have
15 been involved with?

16 A It's something I might have been involved in,
17 depending on when the discussions occurred, but I don't
18 recall discussions that we should close the block valve.

19 Q Those kinds of discussions would normally have
20 been between the shift supervisors and the plant management,
21 or who would have made the decision to actually close a
22 block valve? Under the conditions as we now know them at
23 that time?

24 A The shift supervisor might, or he might talk to
25 his supervisor, or he might confer with the mechanical

1 engineer or it might come up at a meeting. But I don't
2 recall those discussions.

3 Q As I understand, there is a period of time in
4 the plant that you cannot add hydrogen; you have to add
5 hydrogen during various periods. There was a period of time
6 when the operators could not make the hydrogen additions
7 from the control room, and they had to have an auxiliary
8 operator go down to the hydrogen emission stations to
9 actually make the additions. Are you familiar with that
10 at all?

11 A No.

12 Q Okay, there was about a three-month time period
13 that that was the case. So you're not aware of operators
14 having to instruct the auxiliary operators to go down and
15 make these additions.

16 A I don't recall --

17 Q If, in fact, they did.

18 A No.

19 Q How about -- Again, a lot of these are operational
20 type questions, but there were I think out of 170 leak rate
21 tests that were identified, 39 of the test results were
22 negative leakages for the unidentified. Technically, it's
23 impossible to have a negative leak rate since you know you're
24 not making water.

25 Did you ever get involved in any discussions of

1 what the rational basis was for accepting negative leak rates?
2 Or do you know how it was justified to accept a negative
3 leak rate?

4 A If you don't have leakage, the precision of the
5 test is such that it's possible to come up slightly
6 negative.

7 Q I guess what bothers me, I would understand that
8 if we had, you know, a relatively small number of 1 to 5 or
9 something. But when you have 39 negative leak rates out of
10 170, to me it just seems there's an indicator that you have
11 a test program that's invalid. And I'm curious as to whether
12 or not that large number of negative leak rates was ever
13 considered to be an indicator that the test problem was
14 invalid, was just not a good test program.

15 A I don't remember discussions. I would think that
16 if you had a tight system and it were not leaking, you've
17 got almost a 50-50 chance of coming up negative.

18 Q How much negative leakage would you be willing
19 to -- do you think you could rationally accept on a leak
20 rate -- ?

21 A Is this an opinion?

22 Q Yes. Do you think you could rationally accept
23 a negative 1 1/2 gallons a minute, or do you think it would
24 have to be a fraction of a gallon? How close do you think
25 you'd have to be before you would have to say this is just

1 not valid?

2 MR. GEPHART: You're talking strictly unidentified?

3 MR. CHRISTOPHER: Yes, strictly unidentified.

4 I'm trying to just understand what the rationale
5 would be to have a lot of negative leak rates. And we all
6 understand that the program is -- you know, there's going to
7 be deviations in the program, so it is possible to come out
8 with a negative leak rate of some amount. And maybe I would
9 accept .15 or .25 as a negative leak rate.

10 I'm not sure -- and again, this is my opinion --
11 could I accept anything exceeding one gallon per minute as
12 a negative leak rate.

13 BY MR. CHRISTOPHER:

14 Q As an individual with your background, could you
15 in your own mind justify accepting the negative leak rate
16 in certain excesses?

17 MR. GEPHART: I think you're asking for a lay
18 opinion.

19 MR. CHRISTOPHER: Yes, I am. That's all I'm
20 asking for. And again, this is an investigative interview
21 versus formal testimony. That's all I'm asking for, just
22 an opinion.

23 MR. GEPHART: If you have one.

24 THE WITNESS: Probably, if I got greater than
25 a few-tenths negative, I would repeat the test, myself. My

1 own self. And obviously, if you get more than 1, then
2 you're -- my own opinion. But nobody came over and asked me.

3 BY MR. CHRISTOPHER:

4 Q Okay, that's all I'm asking.

5 How familiar are you -- you already mentioned
6 that it's been shown to you a lot -- are you with that LER
7 78-62 regarding the first time that someone identified that
8 they had actually exceeded the tech spec?

9 A I've read it.

10 MR. GEPHART: Why not separate your question into
11 how familiar were you before the accident as opposed to today.

12 MR. CHRISTOPHER: Yes. I understand that you've
13 been through these interviews four or five times, and I know
14 it's very difficult to sometimes separate what you know today
15 versus what you knew back then. I know that. And I'm trying
16 to deal with that time period, as difficult as it is.

17 THE WITNESS: I think the meeting minutes indicate
18 that I attended the FORC meeting --

19 MR. CHRISTOPHER: It does.

20 THE WITNESS: So at that time, I guess I was
21 familiar with it. But if this was the first time I was
22 interviewed, I'd tell you I don't remember the meeting.
23 I don't remember the meeting, but everybody said yup, you
24 were there, so I guess I was.

25

1 BY MR. CHRISTOPHER:

2 Q Okay. But you can't at this time independently
3 say I can recall entering into a discussion with the other
4 PORC members as to what we had to do to get back into
5 compliance or what actions would actually have been taken
6 to get back into compliance?

7 A I don't remember the discussion, no.

8 Q Or what actually led to the formal initiation of
9 the LER. In other words, someone had to initially identify
10 it, that type of thing.

11 A No.

12 Q Okay. Are you aware of how the plant got back
13 into compliance? Do you recall that? Can you recall what
14 type of actions were taken to get back into compliance?

15 A No, I can't remember.

16 Q Normally, what would you have to do to correct --
17 once you've entered into this LER and the action statement,
18 of course, you have to identify what it takes to get back
19 into compliance. What normally would you expect the
20 operators would do to --

21 A What I've seen through this process was, I
22 believe, a memo and a PORC action item. A PORC action item
23 would be a formal way of creating something of that type.

24 Q And the PORC action item identified several
25 changes that had to be made, as I recall.

1 A Once again, if I hadn't been up to the grand jury
2 two months ago, I wouldn't remember that PORC action or
3 anything else. But I have seen that stuff here in the last
4 couple of months.

5 Q Do you know that the basis for getting back into
6 compliance was another leak rate test that was run, I think,
7 at 7:35 in the morning on the 18th; that that result still
8 was in excess of one gallon per minute unidentified, and it
9 was accepted based on rounding off to one gallon per minute.

10 A I believe the LER response to the narrative had
11 that in it, but I was not aware of the value, no.

12 Q The LER only states action was taken. It states
13 action was taken to reduce the unidentified leakage to within
14 allowable limits, and this was accomplished at 0735 on
15 October 18, 1978. In addition, it was discovered that errors
16 in inputting data to the computer indicated an unidentified
17 leakage to be greater than actually was occurring.

18 It goes on, appropriate personnel would be
19 instructed under the requirements and applicable sections.

20 A And having read that recently, yes, I'm aware of
21 it, but I was not aware that that number was greater than 1.

22 Q Let me just show you -- this is for 7:35 in the
23 morning on October 18th, and you'll see that the net
24 unidentified leak rate is 1.239 gallons per minute. And
25 it's okayed by round-off, and I believe these initials are

1 those -- I believe they are Jim Floyd's. I'm not 100 percent
2 sure of that.

3 Do you recall any discussions or any justifications
4 at that time as to what would allow them to round this off
5 to one gallon per minute?

6 A I'm aware that that was being done for some period
7 of time, but I really think I became aware of that after
8 the charges surfaced. I don't recall being aware of it
9 at the time.

10 Q You weren't involved in any discussions or
11 rationalizations as to what would allow you to accept or
12 allow you to make the decision to round off.

13 A Not in that timeframe, no.

14 Q Okay. Do you know how that LER was actually
15 submitted, what caused it to be submitted? Whether it was
16 licensee who identified, or whether it had something to do
17 with the NRC inspector picking it up in the control room and
18 asking questions about it?

19 A No. I've heard the rumors that it was an NRC
20 inspector but I don't recall being aware of that.

21 MS. PENNY: When did you hear those rumors?

22 THE WITNESS: Oh, --

23 MR. GEPHART: Since the accident?

24 THE WITNESS: Oh, yes. Yes. In fact, it was
25 fairly recently.

1 Q You're saying back at that time -- I know how
2 difficult this is to go back to that time. But at that time
3 you weren't aware of what actually initiated the fact --
4 the LER.

5 Do you have any knowledge as to how many tests
6 the operators were running during the shift in order to get
7 good leak rates? Did they have -- to your knowledge, did
8 they have a set policy as to how they would approach the
9 getting of a good leak rate test, how many they would run?

10 A I don't recall being aware of it -- a set
11 number or a program, no.

12 Q Are you aware of any specific prohibitions against
13 add hydrogen to the makeup tank during the test?

14 A No.

15 Q Would there be any reason to prohibit it, as far
16 as you know?

17 A No.

18 Q This is another opinion question. Would you
19 consider hydrogen as a chemical emission?

20 A Probably I wouldn't, but -- .

21 Q Okay. Do you know if auxiliary operators can,
22 on their own, take the addition -- and I mentioned to you
23 that there was a time period, and this is an established
24 fact, that the operators could not make hydrogen additions
25 from the control room, so it would have to be done by

1 auxiliary operators. Do you know if the auxiliary operators
2 were permitted to make hydrogen additions to the system on
3 their own by -- make their own reading from a particular
4 gauge and whatnot and say hey, I think we need to add a
5 hydrogen, or would they have been required to only act as
6 directed by a licensed operator?

7 A I would think either as directed or else they
8 would at least have to call the control room and then tell
9 them they were going to do it. I'd be surprised if they
10 just did it.

11 MS. PENNY: But you are guessing.

12 THE WITNESS: I don't know.

13 BY MR. CHRISTOPHER:

14 Q Yes. Again, it's an operational type issue, and
15 you've got a lot of experience indealing with the plant and
16 you know how they operate just about as well as anybody else.

17 A As I say, I would expect that the aux operator
18 would call the control room and notify them.

19 Q Okay. We talked, again, about it and let me
20 repeat this so I understand it, the increasing tailpipe
21 temperatures and increasing leakage from either the code
22 safeties or the PORV, whichever it was. And I'm still trying
23 to understand, if it's possible, if this increasing leak rate,
24 identified leak rate, had an impact on capability to get the
25 unidentified leak rate.

1 A I'm aware that Hal Hartman charges it did. I
2 think as we discussed before, if you're properly quantifying
3 the leakage I don't see why if it gets somewhat larger that
4 compounds the problem.

5 Q I really don't understand that part of it, but
6 I'm not technically oriented so I'm looking for someone who
7 can explain it to me.

8 MR. GEPHART: Call Mr. Hartman.

9 BY MR. CHRISTOPHER:

10 Q We talked about this roundoff of the leak rate.
11 I saw that the order or instruction to round that off was
12 actually inputted into the computer program during this
13 October period. And in about I think 10 days later, it was
14 reversed. In other words, the order said no longer can you
15 round off this leak rate.

16 Are you aware of any of the circumstances
17 surrounding why that order to round off the leak rate result
18 was reversed?

19 A I don't recall that, if I was.

20 Q One of the other allegations was that the
21 operators were jogging water into the makeup tank. In other
22 words, instead of making one large addition during the test,
23 they would, in essence, tweak a little bit of water in as
24 time goes on in order to keep the level up. It would not
25 show that dramatically in the strip chart. Are you aware of

1 any instances where that occurred, as an attempt to manipulate
2 the test results?

3 A No.

4 Q I mentioned to you earlier on -- and this was
5 changed, as I understand it, -- that the operator usually
6 had to manually take a reading from a voltmeter from the
7 drain tank as part of his leak rate calculation.

8 A Are you sure you said drain tank earlier?

9 Q Yes.

10 MR. GEPHART: Patch panel, I think you said.

11 THE WITNESS: Somehow it stuck in my mind that
12 you said makeup tank earlier.

13 BY MR. CHRISTOPHER:

14 Q If I did, I should have said the drain tank.
15 And the program was changed so that they could automatically
16 input the --

17 A I have a feeling you said makeup tank earlier
18 because I was thinking I was surprised that that parameter
19 wasn't already in the computer.

20 Q Okay, if I said makeup tank I should have said
21 drain tank.

22 A Okay. I remember the discussion, anyway.

23 Q Are there two different voltages that you could
24 read off of that, at that time, that you know of?

25 One of the indications was that if an operator

1 took a higher reading, voltage reading from the tank, it
2 would indicate that more water had been collected than what
3 actually had been.

4 A I even designed that panel.

5 (Pause.)

6 I would not think the drain tank temperature,
7 however, -- I'm trying to remember if we had one voltmeter
8 down there. I think we had one voltmeter you could patch in,
9 but -- If you can, I can't tell you how right now.

10 Q You're not aware of any directions or discussions
11 or recommendations to operators that -- to take a higher
12 voltage for that purpose, then? If that, in fact, were done?

13 A I'm not aware of any instructions to manipulate
14 to get a good leak rate.

15 Q Did you ever just recall -- again, back at that
16 time -- you worked for George Kunder I believe you said.

17 A Yes.

18 Q Okay. Specifically, can you recall you and George
19 discussing and trying to arrive at a decision or a conclusion
20 to the problem of leak rates?

21 A I don't remember discussing leak rates with
22 George. One thing, for what it's worth, though, I didn't
23 start working for George until December. He came down from
24 Unit 1 I think at the same time that Jim Seelinger went over
25 and that Jim Logan became superintendent and so forth.

1 Q Who did George replace, do you recall?

2 A Jim. Jim Seelinger was technical superintendent.
3 George became technical superintendent.

4 Q Oh. And prior to that, you reported directly to
5 Jim Seelinger?

6 A Yes.

7 Q Okay, fine.

8 MR. GEPHART: That was December 1979?

9 THE WITNESS: Yes.

10 MS. PENNY: 1978.

11 MR. GEPHART: 1978?

12 MS. PENNY: Yes. The accident happened in 1978.

13 MR. CHRISTOPHER: Oh, that's right. In 1978,
14 I'm sorry.

15 THE WITNESS: Yes.

16 BY MR. CHRISTOPHER:

17 Q Unit 1 was down at the time because they had
18 a refueling outage; is that -- during the time of the
19 accident, Unit 1 was down.

20 A We were coming out of refueling, yes.

21 Q How long had they been down, do you know?

22 A Two months?

23 Q Approximately two months?

24 A Yes.

25 Q Did you hear of any discussions, did you enter into

1 any discussions with individuals at a management level wherein
2 the leakage, the valve leakage was discussed, to varying
3 degrees, as it related to a decision as to whether or not
4 the plant should shut down to repair that leakage, and the
5 decision being that we would not shut down until Unit 1 came
6 back on the line?

7 A I think I may have, yes, but not -- I mean, it's
8 more desirable to have the second plant up before you take
9 the second one out for maintenance.

10 Q Can you recall in what context a meeting like
11 that would have been in? Was it informal conversation, was
12 it in such as you said, a POD meeting?

13 A No, I don't remember that.

14 Q Do you have any recollection of what individuals
15 would have sat in on a meeting like that or discussed that
16 type of planning? Again, we're going back a long way, I
17 know it's tough to answer.

18 A No. But that type of thing I would say would
19 be Joe Logan and supervisory other people.

20 Q And Joe Logan was -- I'm always confused about how
21 Joe Logan fits into the supervisory chain because --

22 A He's the plant superintendent.

23 Q But he was there -- I understand he was in training
24 for a good period of the time that he was actually --

25 A Yes, I think approximately a year, then he assumed

1 the plant superintendent's job on the 1st of December of the
2 1st of January, something like that.

3 Q Would that be a unilateral decision on the part of
4 a plant superintendent, or would that be a decision that's
5 made, you know, as an overall management decision? Do you
6 know?

7 A Do I know? I would think that would be the type
8 of thing that would be discussed up and down the chain.
9 I would think.

10 MS. PENNY: Do you recall hearing that discussed
11 prior to the accident?

12 THE WITNESS: I think I did, yes.

13 BY MR. CHRISTOPHER:

14 Q But you can't recall specifically in what
15 fashion it was discussed -- a POD, a PORC meeting, management
16 meeting, or anything like that?

17 A No, it's just been too long.

18 Q But normally, that would -- normally, the
19 individuals present at something like that would be a plant
20 superintendent, possibly the Unit 1 superintendent if you
21 were trying to coordinate activities, those type of things.

22 A Possibly.

23 Q The -- Ivan, I realize that in the role that
24 you're in, instrumentation, that most of the questions that
25 we asked you, they were asked in an opinionated nature because

1 you're not directly involved in that activity. But in the
2 position that you held, you would expect that any type of
3 peculiar problems that they were having with obtaining the
4 RCS leak rates, good RCS leak rates as it pertained to any
5 particular system, may have ultimately fallen on your
6 shoulders, as an attempt to try and correct.

7 I'm really interested in what was the degree of
8 awareness, if you will, and concern as to what -- as to the
9 problems that they were having with getting good leak rates,
10 what kind of things were you being asked to do in support of
11 the operators in order to help them get good leak rates, if
12 any?

13 A I don't specifically remember, but I'm sure that
14 if you'll look you'll find that yes, we did re-calibrate
15 instruments and stuff of that type.

16 Q Did the -- was the feeling that the reason that
17 you could not get unidentified leakage was because of the
18 leakage from the code safeties and the PORV?

19 A I don't know that I recall that.

20 Q Do you know of any particular reason that was
21 ever assessed as to why they could not get good leak rates?
22 I.e., was it a bad program, was it because of the plant
23 oscillations, was it the operators themselves? Was there
24 ever a conclusion reached as to why we could not get a good
25 leak rate, and what we had to do about it in order to get one?

1 A Not that I recall, no.

2 Q I guess I'm just going to sum this up and pick
3 up with a few questions. One, you personally were never aware
4 of the fact that -- of any operator ever adding either
5 hydrogen or water to the makeup tank for the express purpose
6 of manipulating leak rate test results.

7 A No, I am not.

8 Q And you were not aware of any supervisory
9 individuals who were aware as to whether or not that was
10 actually occurring.

11 A No, I am not.

12 Q And by supervisory individuals I mean shift
13 foremen, shift supervisors, operations superintendent and
14 above.

15 And are you not aware of any conscious decision
16 made by management to ignore the fact that the operators
17 were possibly manipulating leak rate test results in order
18 to keep the plant running?

19 A No, I'm not.

20 MR. CHRISTOPHER: Pete, do you have any questions?

21 MR. CONNOLLY: No.

22 MR. CHRISTOPHER: Mr. Gephart?

23 MR. GEPHART: No.

24 MR. CHRISTOPHER: Okay, that concludes the interview.

25 (Whereupon, at 12:05 p.m., the interview was
concluded.)

CERTIFICATE OF PROCEEDINGS

1
2
3 This is to certify that the attached proceedings before the
4 NRC COMMISSION

5 In the matter of: INVESTIGATIVE INTERVIEW OF IVAN D. PORTER

6 Date of Proceeding: Friday, September 23, 1983

7 Place of Proceeding: Harrisburg, Pa.

8 were held as herein appears, and that this is the original
9 transcript for the file of the Commission.

10
11 Suzanne Young

12 Official Reporter - Typed

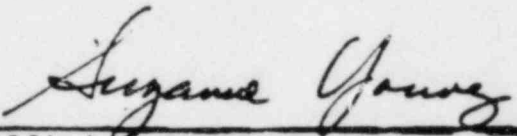
13 
14 Official Reporter - Signature

EXHIBIT 39

SWORN TESTIMONY OF GEORGE KUNDER/9-28-83

ORIGINAL

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

In the matter of:

INVESTIGATIVE INTERVIEW OF:

GEORGE A. KUNDER

Docket No.

Location: Harrisburg, Pa

Pages: 1 - 48

Date: Wednesday, September 28, 1983

TAYLOE ASSOCIATES

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1625 I Street, N.W. Suite 1004
Washington, D.C. 20006
(202) 293-3950

1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION

3 INVESTIGATIVE INTERVIEW

4 OF

5 GEORGE A. KUNDER
6

7
8 Americana Host Inn, Rm. 383
9 4751 Lindle Road
10 Harrisburg, Pennsylvania

11 Wednesday, September 28, 1983

12 APPEARANCES:

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14 Office of Investigations, Region I
15 U.S. Nuclear Regulatory Commission
16 631 Park Avenue
17 King of Prussia, Pennsylvania 19406

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On behalf of Mr. Kunder

P R O C E E D I N G S

(3:45 p.m.)

MR. CONNOLLY: The date is September 28th, 1983.

The time is 3:45 p.m., we're in Room 383 of the Americana Host Inn, 4751 Lindle Road, Harrisburg, Pennsylvania, for the purpose of obtaining information from George A. Kunder regarding the alleged falsification of leak rate test data at Three Mile Island Nuclear Generating Station, Unit 2, Middletown, Pennsylvania, prior to March 28th, 1979.

Present in the room are myself, Peter Connolly, Keith Christopher, both of us from the Office of Investigations, NRC Region I; George A. Kunder, and his attorneys Jane Penny and Steven Snyder of the firm Killian & Gephart, located at 216-218 Pine Street, Box 886, Harrisburg, Pennsylvania.

The interview is being conducted under subpoena. George, it's my intent to put you under oath for the purpose of asking these questions regarding false leak rate test data, and before I do that, just so you understand the ramifications of providing information under oath, I'd like you to read U.S. Code Title 18, Section 1001.

(Pause.)

MR. CONNOLLY: Do you have any questions concerning this section?

MR. KUNDER: No.

MR. CONNOLLY: Do you understand what the section

1 states?

2 MR. KUNDER: I do.

3 Whereupon,

4 GEORGE A. KUNDER,

5 after being first duly sworn, was examined and testified
6 as follows:

7 MR. CONNOLLY: For the record, could you please
8 state your name and spell it, also.

9 THE WITNESS: My name is George A. Kunder.

10 MR. CONNOLLY: What is your present home address
11 of record, George?

12 THE WITNESS: That is 1906 Light Avenue,
13 in Middletown, Pennsylvania.

14 MR. CONNOLLY: And what is your age?

15 THE WITNESS: Thirty-seven.

16 MR. CONNOLLY: And who are you presently employed
17 with?

18 THE WITNESS: I'm employed by GPU Nuclear Corp.

19 MR. CONNOLLY: And how long have you been employed
20 with GPU Nuclear?

21 THE WITNESS: I've been employed with GPU Nuclear
22 since its inception, I believe around the beginning of 1982.

23 MR. CONNOLLY: And prior to GPU Nuclear, who were
24 you employed with?

25 THE WITNESS: I was employed by Metropolitan

1 Edison Company, a sister company of GPU Nuclear.

2 MR. CONNOLLY: And when did you commence your
3 employment with Metropolitan Edison?

4 THE WITNESS: It was on or about September 1968.

5 MR. CONNOLLY: And your present job at GPUN?

6 THE WITNESS: What is my present job?

7 MR. CONNOLLY: Your present job, correct.

8 THE WITNESS: My job is the Unit 2 Manager of
9 Safety Review Group.

10 MR. CONNOLLY: And how long have you been in your
11 present position?

12 THE WITNESS: Since October 1982.

13 MR. CONNOLLY: Prior to the March 1979 accident at
14 Unit 2, what was your employment position with Metropolitan
15 Edison?

16 THE WITNESS: Just prior to the accident, I was
17 the Unit 2 Superintendent, Technical Support.

18 MR. CONNOLLY: And when did you commence in that
19 position?

20 THE WITNESS: That was in December of 1978.

21 MR. CONNOLLY: And prior to that, what was your
22 position?

23 THE WITNESS: I was the Unit 1 Superintendent,
24 Technical Support.

25 MR. CONNOLLY: And when did you commence at Unit 1?

1 THE WITNESS: That was on or about the latter
2 part of 1977.

3 MR. CHRISTOPHER: What did your position
4 responsibilities entail at Unit 2 as the Tech Support
5 Superintendent, George?

6 THE WITNESS: Briefly stated, I was responsible to
7 supervise the Plant Engineering organization, and one of my
8 collateral duties, aside from that, was to coordinate the
9 planning for refueling outages, and I was also the PORC
10 Chairman, Plant Operations Review Committee Chairman, that is,
11 in Unit 2.

12 MR. CHRISTOPHER: What kind of day-to-day functions
13 would you find yourself performing in a position such as
14 that, besides, you know, sitting in at the various PORC
15 meetings, what kind of hands-on type work would you find that
16 you were doing in decision making, and how did you interact
17 with Operations? Just generally kind of tell me what your
18 day looked like, an average day looked like.

19 (Pause.)

20 I'll make it easier for you. How closely, on a
21 daily basis, did you work with the Operations Department?
22 That would be Jim Floyd's group of people.

23 THE WITNESS: I'm not sure how to answer that.

24 MR. CHRISTOPHER: I'm just interested in the
25 extent that you interfaced on a daily basis with the Operations

1 people in discussing various plant problems, plant parameters,
2 that type of thing. Was it something you would see Jim
3 Floyd once a day, once a week, or the shift foreman once a
4 day or once a month or twice a day. I'm just looking at how
5 often you dealt with those folks.

6 THE WITNESS: Well, the nature of my job, being
7 responsible for Unit 2 engineering activities, led me to deal
8 occasionally with Operations personnel in meetings on
9 occasion, verbal communication, and correspondence, receipt
10 of correspondence, possibly generation of correspondence from
11 our department to their department. Many of the activities
12 were not necessarily those involving myself directly, but
13 rather, would also involve personnel who worked for me in
14 performing a variety of engineering tasks that were
15 assigned to our group.

16 MR. CHRISTOPHER: Would you be involved in making
17 daily decisions with respect to different actual operating
18 parameters for the plant?

19 THE WITNESS: Could you be more specific?

20 MR. CHRISTOPHER: Well, just generally. I'm just
21 trying to understand exactly how you interfaced with them
22 before I get into the specific question. On a daily basis --
23 obviously, we're going to talk about leak rates here today,
24 but on a daily basis there were various types of operating
25 issues that come into play. It may be from valve leakage

1 to excessive steam line pressures in a particular steam line
2 and those type of things. Did you deal on a routine basis,
3 in making an operational type decision as to how to respond
4 to those type of problems, with the Operations Department?

5 THE WITNESS: I guess I could best characterize
6 my responsibilities there as really not having responsibility
7 for operational decisions. My role would have been largely
8 advisory to Operations or to the unit superintendent.

9 MR. CHRISTOPHER: Which would have been Jim
10 Seelinger or -- was it Gary Miller. It would have been
11 Gary Miller as Unit Superintendent, correct?

12 THE WITNESS: Are you asking me who the superintend-
13 dent was when I was there?

14 MR. CHRISTOPHER: Yes. Everything has changed
15 so much.

16 THE WITNESS: It was Joe Logan at the time I was
17 at Unit 2.

18 MR. CHRISTOPHER: And prior to that, how did that
19 work? I think we went through this once the other day. Joe
20 actually got in there for a short period of time, as I
21 understand. In terms of functionally being the unit
22 superintendent.

23 THE WITNESS: Well, Joe was the unit superintendent
24 for a short period of time. But specifically, what's your
25 question?

1 MR. CHRISTOPHER: Specifically, before Joe was
2 unit superintendent, who was acting in that capacity?

3 THE WITNESS: To the best of my recollection,
4 Gary Miller was filling the role of unit superintendent.
5 He was, I believe, also filling a dual role in that he was
6 also named as the Manager of both units.

7 MR. CHRISTOPHER: Okay.

8 MR. CONNOLLY: When did Joe Logan take over for
9 Gary Miller?

10 THE WITNESS: I don't specifically recall, but
11 it was right around the same time that I was assigned the
12 Unit 2 job.

13 MR. CONNOLLY: And that was in December 1978?

14 THE WITNESS: On or about that period, yes.

15 MR. CHRISTOPHER: Are you familiar with Technical
16 Specification 3.4.6.2, regarding the limiting condition for
17 operation regarding the reactor coolant system leakage, George?

18 THE WITNESS: I don't remember it that specifi-
19 cally, but I'm aware that there was a tech spec dealing with
20 the reactor coolant system leakage.

21 MR. CHRISTOPHER: Are you aware of or do you recall
22 that that technical specification placed a limit of 1 gallon
23 per minute for unidentified leakage within the RCS system?

24 THE WITNESS: I understood that there was an
25 unidentified leak rate limit of about 1 gpm. I recall that

1 was the general limit applied to PWRs, at least at TMI-1 and
2 Unit 2, yes.

3 MR. CHRISTOPHER: To be specific I have it here in
4 front of me if you wish to refer to it, it specifically states
5 reactor coolant system leakage shall be limited to 1 gallon
6 per minute unidentified leakage. And feel free to refer to it
7 in any fashion that you'd like.

8 How familiar are you with the Action Statement
9 that's required as part of the technical specification,
10 particularly with respect to Part B of the Action Statement?
11 Please take a look at it before you answer.

12 THE WITNESS: I don't have any specific recollec-
13 tion of the language from back at that time, but I'm aware
14 that limiting conditions for operations in the standard tech
15 spec format contain the LCO and then an Action Statement with
16 some type of follow-up action that's required if you cannot
17 meet the most limiting conditions of the LCO.

18 MR. CHRISTOPHER: Would you have been familiar
19 enough with this particular technical specification back at
20 that time to -- trying to place yourself back at that time
21 period -- to know that if you did not meet the technical
22 specification, that you would specifically have four hours
23 to reduce the leakage or begin a cold shutdown?

24 THE WITNESS: No, I don't remember.

25 MR. CHRISTOPHER: You don't remember whether or not

1 you were involved in it at that time? You would not have
2 dealt with it directly at that point in time?

3 THE WITNESS: No, I didn't say that. If you want
4 to read your question back, -- .

5 MR. CHRISTOPHER: What I was trying to get at,
6 were you involved sufficiently in the leak rate test program
7 at that time so that you would have had an in-depth, detailed
8 knowledge as to what the Action Statement would have required
9 you to do if you did not obtain an acceptable leak rate?

10 THE WITNESS: Your question does not spell out
11 in sufficient detail for me to answer it. I can say that
12 in general, I was aware of the fact that we had a specification
13 and they have an action statement. I don't remember to what
14 extent I could recall or know that action statement from
15 memory without referring to the technical specifications,
16 even back at that time.

17 It's normal practice for me to take a look at
18 specific language in tech specs, even when I think I may
19 know it because they are quite cumbersome, they are involved,
20 and to avoid misunderstanding, you know, I would take a look
21 at the actual language.

22 MR. CHRISTOPHER: Are you familiar with the
23 surveillance procedure that actually implements the technical
24 specification?

25 THE WITNESS: Not specifically.

1 MR. CHRISTOPHER: Did you actually run, during
2 this period and let's speak in the months prior to the
3 accident -- did you actually run leak rate tests yourself?

4 THE WITNESS: I don't recall doing any leak rate
5 surveillances myself. It was not, first of all, my job
6 responsibility.

7 MR. CHRISTOPHER: It's primarily an Operations
8 Department responsibility?

9 THE WITNESS: Yes. And I'm assuming you're
10 talking Unit 2.

11 MR. CONNOLLY: Yes, Unit 2. Who would have --
12 whose responsibility would it have been in the Operations
13 Department to run those leak rate surveillances?

14 THE WITNESS: My understanding is that operators,
15 by and large, do that kind of a function.

16 MR. CONNOLLY: Who would review their work?

17 THE WITNESS: Could you be more specific?

18 MR. CONNOLLY: Who would review the results of
19 their surveillance?

20 THE WITNESS: I'm not really sure --

21 MR. CONNOLLY: The operators conduct the
22 surveillance, right, they do their tests. What happens to
23 the test from there?

24 THE WITNESS: Are you asking me what's happening
25 to the specific pieces of paper, or in general, what was the

1 practice?

2 MR. CONNOLLY: Generally, what was the practice?

3 THE WITNESS: I understood the practice to be
4 that the person doing the test would have the whole surveil-
5 lance package reviewed and signed off by normally the foreman
6 or shift supervisor or someone at that level, and then that
7 paper would be turned in.

8 MR. CONNOLLY: Would you be involved in any of
9 that process? Would you, after the shift supervisor or shift
10 foreman signed off on these documents, would you be involved
11 in review of the documents?

12 THE WITNESS: No.

13 MR. CONNOLLY: Where would it go from beyond the
14 shift foreman or supervisor? Where would be the next order
15 that the documents would go?

16 THE WITNESS: The general practice was that the
17 data, surveillance results, whatever was really part of the
18 package would be turned into the GMS coordinator --

19 MR. CONNOLLY: Excuse me, GMS? What do you mean
20 by GMS?

21 THE WITNESS: It's an acronym for generation
22 maintenance system. To the best of my knowledge, that was
23 the term applied to that person.

24 And then that individual would assure that the
25 results, in terms of the completion dates were inputted back

1 into the computer and the records were reviewed for complete-
2 ness presumably, although I don't have any independent
3 recollection of what he really did with the stuff. And then
4 those records would be filed.

5 MR. CONNOLLY: Did you have any role in your
6 position at that time in leak rate tests?

7 THE WITNESS: Could you be more specific?

8 MR. CONNOLLY: Did you have a role in reviewing the
9 results of leak rate tests? Did you have a role in the
10 actual performance of a leak rate test? Did you have a role
11 in insuring that the leak rate tests were done according to
12 procedures?

13 THE WITNESS: No, there was no direct role.

14 MR. CHRISTOPHER: Would you have had any role in
15 preparing the actual leak rate surveillance procedure itself?

16 THE WITNESS: No, I would not.

17 MR. CHRISTOPHER: Are you aware as to whether or
18 not the operators were having problems getting good leak
19 rates; specifically, the unidentified leak rate of 1 gallon
20 per minute?

21 THE WITNESS: I remember understanding there was
22 a concern about the procedure which was referred to my
23 department apparently, because I remember that the mechanical
24 section in my department was responsible to try to resolve
25 that concern.

1 MR. CHRISTOPHER: What was that concern, George?

2 THE WITNESS: The concern was that the procedure,
3 the calculation, was believed to be in error. And it was
4 giving results of unidentified leakage that were higher than
5 what was really characteristic of the plant behavior in terms
6 of leakage.

7 MR. CHRISTOPHER: Was that in reference to the
8 procedure not accounting for the density changes?

9 THE WITNESS: I don't remember what the concern
10 was specifically, but it had to do with the calculation.
11 Since that time, obviously, I'm aware, through past
12 discussions with the early NRC investigation -- but I'm
13 assuming you're still talking about my independent recollec-
14 tion prior to the accident.

15 MR. CHRISTOPHER: What do you understand it to
16 be now? What did you understand that particular problem to
17 be at the time, as you understand it today?

18 THE WITNESS: Do you mean what do I know now?

19 MR. CHRISTOPHER: What do you know now?

20 THE WITNESS: Well, I understand that there was
21 a belief that the specific gravities on one part of the
22 calculation -- and I don't remember which part was at issue --
23 was not being properly accounted for. And the results
24 thereby reflected an incorrect leak rate. I don't remember
25 if it was in the unidentified portion or the identified

1 portion.

2 MR. CHRISTOPHER: Do you recall if what you're
3 discussing is in reference to the technical change notice
4 that was issued in March of 1979 a few weeks prior to the
5 accident? Is this the point in time that you're talking
6 about, or are you talking about some problem with the
7 surveillance procedure at an earlier time? Because there
8 was a technical change notice issued on March 16 of 1979.

9 THE WITNESS: I'm aware of that --

10 MR. CHRISTOPHER: There was another problem
11 earlier. That's why I wanted to make sure which one we're
12 talking about.

13 THE WITNESS: Yes. I don't understand it to be
14 two issues. I understand that there was a TCN that was
15 prepared to correct the problem, and in my prior discussions --
16 I think it was with Tim Martin of the NRC -- after the
17 accident when this issue was being investigated, I recall
18 the subject of that was a TCN.

19 MR. CHRISTOPHER: So it's your recollection that
20 the discrepancy in the procedure was -- that your department
21 was asked to address -- was, in fact, the end result would
22 have been the TCN and the change in the calculational
23 procedure?

24 THE WITNESS: I understand it in more general
25 terms; that the problem was resolved and through the

1 subsequent focus on this matter, I understood that the TCN
2 was prepared.

3 MR. CHRISTOPHER: Okay. Do you know if there's
4 a requirement that all surveillance tests performed by the
5 Operations Department be recorded in the control room
6 operators' log?

7 THE WITNESS: Could you repeat that again?

8 MR. CHRISTOPHER: Do you know if there is a
9 requirement that all surveillance procedures performed by
10 the Operations Department, by the operators, if there's a
11 requirement that those procedures, that those surveillances,
12 be recorded in the control room operators' log?

13 THE WITNESS: I vaguely recall that there was a
14 procedure dealing with the keeping of control room operators'
15 logs, and I don't remember the specific language. But the
16 logging that surveillance items had been performed may be
17 one of those.

18 MR. CHRISTOPHER: Are you aware of any procedure
19 or allowance that specifically addresses whether or not you
20 need to keep the results of surveillance tests that did not
21 meet the technical specification requirements, whether they
22 pertain -- specifically as it pertains to the leak rate test.

23 Is there anything that you know of that would allow
24 an operator to discard the results of a surveillance? Any
25 allowance for that in the procedures and tech specs or

1 anything like that?

2 THE WITNESS: No, I don't remember a policy that
3 discussed the matter in that context, either way, whether
4 you save things or not.

5 MR. CHRISTOPHER: Are you at all familiar -- maybe
6 the procedure you referenced is this AP 1012. It's an
7 administrative procedure. The scope of it is it describes
8 the various shift records and logs involved, any instructions
9 required to maintain records to conform to technical specifi-
10 cations and requirements of the FSAR. Is that possibly one
11 of the procedures that you're generally referring to in the
12 tech specs, of recordkeeping?

13 THE WITNESS: Did you read that for me?

14 MR. CHRISTOPHER: Yes. The yellow highlighted
15 part.

16 THE WITNESS: Yes, this is the procedure that I
17 was familiar with. It's covering the requirements for
18 maintaining the control room log and the kind of things that
19 were intended to be in there.

20 MR. CHRISTOPHER: Are you at any times asked to
21 interpret procedures when there's confusion and those type
22 of things? There's a confusion as to how a step of a procedure
23 should be carried out. In your position, would you routinely
24 have expected to be asked for clarifications as to what a
25 procedure means in a particular step if it fell within your

1 department or within your area of expertise?

2 THE WITNESS: Although I'm not the sole authority
3 on these procedures, --

4 MR. CHRISTOPHER: I understand.

5 THE WITNESS: -- it's not uncommon for me to
6 be asked for interpretations. In some cases I may have had
7 a hand in writing those procedures.

8 MR. CHRISTOPHER: Do you know if you had any
9 involvement in writing this particular procedure?

10 THE WITNESS: I don't remember. I couldn't rule
11 it out but I just don't remember.

12 MR. CHRISTOPHER: Section 3.3.1.17 is under
13 Accomplishment of Testing. It states, "Record title and
14 number of the test performed and the start and completion
15 times, or times of suspension of the test. The performance
16 of all periodic tests and inspections as required by the
17 technical specifications shall be recorded."

18 Would you interpret that for me as it pertains to
19 the performance of a leak rate test?

20 THE WITNESS: Do you mean can I interpret that
21 from independent recollection back at that time?

22 MR. CHRISTOPHER: No. Today. How do you interpret
23 that procedure as it relates to the performance of a leak
24 rate test? Specifically, a leak rate test is run at that
25 timeframe, a one-hour time period at .0 and .1. When you

1 record the test in the control room log, would you record
2 the start time of the test in the log, and then would you
3 record the stop time and the results?

4 THE WITNESS: I'd be speculating to suggest to
5 you that back then I would have handled in such-and-such a
6 way. All I can tell you is that at this point in time, I
7 could view this in more than one way, and that is with respect
8 to leak rates, it's not like the kind of test that involves
9 the start of equipment in the plant where the logging of that
10 test initiation has relevance to understanding the plant
11 behavior and what's happening.

12 In the case of what you refer to as leak rate
13 tests, it's not a test in the context of others; it's a
14 determination. And I can see that one could view that as the
15 moment you got the final results, it could be viewed as a
16 point demand kind of a situation where the operator, if he
17 has tried to comply with this particular item, would log the
18 completion of the test, or the surveillance, that it had
19 been done.

20 I can see that it could be interpreted that at
21 the time that you start the data collection period for this
22 test, that one might log that. I don't see anything in this
23 language that explicitly gives clear guidance to the operator
24 with respect to the leak rate test.

25 MR. CHRISTOPHER: You don't recall being asked for

1 any type of guidance in this area at that time?

2 THE WITNESS: No.

3 MR. CHRISTOPHER: The surveillance procedure --
4 again, this is 2301-3D(1) -- states, it is the procedure
5 which is meant to insure compliance with the technical
6 specification regarding leak rates and it states, "Reactor
7 coolant system leakages shall be demonstrated to be within
8 the above limits..." -- and referring to the 1 gallon per
9 minute unidentified leakage, specifically -- "... by
10 performance of a reactor coolant system water inventory
11 balance at least once per 72 hours during steady state
12 operation."

13 Can you tell me how, at that time, you reviewed
14 the requirements of that 72-hour time period?

15 THE WITNESS: Well, your question presumes I
16 recalled it in that context, and I don't.

17 MR. CHRISTOPHER: How do you recall it?

18 THE WITNESS: My recollection is that I knew that
19 the leak rate determination is performed at an interval or
20 a frequency -- I should say an interval -- that is less than
21 a week but longer than shiftly. I'd be guessing if I could
22 remember it as 72 hours.

23 But that requirement is simply that during steady
24 state operations you perform the leak rate determination
25 every 72 hours, plus or minus 25 percent, which is the

1 language right out of the tech specs. I tend to conceptualize
2 it generally in those terms.

3 MR. CHRISTOPHER: If you received let's call it a
4 bad leak rate within those 72 hours, in that period, what
5 at that time would an operator be expected to do if he
6 received a leak rate result in excess of the tech spec?

7 THE WITNESS: Are you saying that a bad leak rate
8 is a leak rate in excess of --

9 MR. CHRISTOPHER: In excess of 1 gpm.

10 THE WITNESS: And this is an unidentified leak rate?

11 MR. CHRISTOPHER: Unidentified.

12 THE WITNESS: Because there are other leak rate
13 criteria.

14 MR. CHRISTOPHER: I understand. If you received
15 an unidentified leak rate in excess of 1 gpm, which is what
16 the technical specification requires, what would you expect
17 the operator to do at that point?

18 THE WITNESS: Well, I expect first that the operator
19 needs to begin analyzing what that data is telling him.
20 Your hypothetical, unfortunately, does not assume any credit
21 for knowing trends, plant conditions or anything like that.
22 And what an operator would depend, frankly, on a lot of
23 variables. I'm not sure I can address such a hypothetical
24 unless we're doing that in the context of really knowing the
25 conditions.

1 MR. CHRISTOPHER: If you received a result in excess
2 of 1 gallon per minute unidentified, period, nothing else,
3 would he be required to go into the Action Statement at
4 that point?

5 THE WITNESS: You mean ignoring plant conditions
6 and ignoring the operational state of the equipment, computers
7 and that sort of thing?

8 MR. CHRISTOPHER: The surveillance procedures
9 don't directly address things that you can take into account
10 or allowances to throw away, let's say, or disregard a bad
11 leak rate.

12 THE WITNESS: Are you saying that there are an
13 awful lot of things that are implicit in the leak rate
14 surveillance procedure that would bear upon the validity
15 of the program?

16 MR. CHRISTOPHER: I'm trying to decide if an
17 operator got an unidentified leak rate in excess of one
18 gallon per minute, was he required to immediately go into the
19 action statement or did he have some allowance of going to the
20 shift supervisor and the technical advisor and saying this is
21 what I've got; what do we do about it?

22 THE WITNESS: To go immediately into the Action
23 Statement is -- depending on plant conditions may be
24 irresponsible. Your question is still very vague and
25 hypothetical because it ignores the fundamental plant

1 conditions, trends, conditions under which he's doing the
2 leak rate determination. I'm not trying to be evasive; it's
3 just a simple technicality.

4 MR. CHRISTOPHER: Are you aware of any specific
5 operator who took a specific action after he received a leak
6 rate test in excess of one gallon per minute?

7 THE WITNESS: No. I would have no basis to know
8 that, no.

9 MR. CHRISTOPHER: Are you aware of any supervisory
10 individual who took action after he received a leak rate and
11 took some type of action after he received a leak rate in
12 excess of one gallon per minute?

13 THE WITNESS: Again, what conditions are you
14 referring to?

15 MR. CHRISTOPHER: I'm asking if you are aware of
16 a supervisor who received a leak rate that was in excess --
17 a leak rate test result that was in excess of one gallon per
18 minute. And are you aware of what his response was after he
19 received that test that was in excess of one gallon per minute?

20 THE WITNESS: Again, your line of questioning is
21 very vague. I don't know if you're talking about power
22 operations or --

23 MR. CHRISTOPHER: I'm asking you if you know -- are
24 personally aware of any particular incident in which you
25 observed a shift supervisor or shift foreman receiving an

1 unidentified leak rate in excess of one gallon per minute.
2 And if so, what do you recall that individual's response to
3 that finding or that leak rate to be?

4 THE WITNESS: That's a different question, I'm
5 afraid. No, I have not observed any activity like that in
6 Unit 2 that I can recall.

7 MR. CHRISTOPHER: Are you aware of the operators
8 throwing away leak rate test results that were in excess of
9 one gallon per minute, that showed results in excess of one
10 gallon per minute?

11 THE WITNESS: No, I'm not aware of leak rate
12 determinations being thrown away for any specific reason
13 because I have no basis to really know that information.

14 MR. CHRISTOPHER: At that time you never heard that
15 it was not common -- you were not knowledgeable of the fact
16 that operators were throwing away unacceptable leak rate
17 test results.

18 THE WITNESS: I don't know that to be a fact, but
19 I'm not aware of such a thing.

20 Of course, after the allegations had been made,
21 I'm aware that that's an allegation, but I don't have any
22 independent recollection that the --

23 MR. CHRISTOPHER: At that time you were not aware
24 that they were throwing away so-called bad leak rate test
25 results?

1 THE WITNESS: No, I was not aware of that kind
2 of thing.

3 MR. CHRISTOPHER: Is it acceptable to throw away
4 bad leak rate test results, to your knowledge?

5 THE WITNESS: You asked that question and you've
6 been evading making it more specific. When you say bad leak
7 rates, I cannot characterize whether or not something is bad
8 or good or acceptable or not unless I know the conditions under
9 which you're hypothesizing.

10 MR. CHRISTOPHER: Irregardless of the conditions,
11 irregardless of the hypothesis. You have a leak rate
12 unidentified that is in excess of one gallon per minute. Are
13 you authorized to just throw that away and start over. Or
14 do you have some requirement to keep that bad test as a
15 matter of history or as a matter of record, irregardless of
16 whether you rationalized it away or invalidated it for some
17 reason.

18 THE WITNESS: Okay. I can think of instances
19 where it is perfectly acceptable to throw that kind of
20 paperwork away.

21 MR. CONNOLLY: Could you describe those instances?

22 THE WITNESS: I'm not sure I could describe all
23 such instances. They are quite broad perhaps. But as an
24 example of such an instance, it might be I go up to the
25 control room, the plant is shut down, and I, for practice,

1 call up the calculation on the computer and the leak rate
2 numbers that the computer prints out, -- if it can even print
3 it out under those conditions -- would be such that I'd get
4 a number. That number, what it is, would be acceptable in
5 my mind to discard that piece of paper because it has --

6 MR. CONNOLLY: You're describing an instance like
7 that in a shutdown?

8 THE WITNESS: You're interrupting me.

9 MR. CHRISTOPHER: He can do that.

10 THE WITNESS: Can he interrupt?

11 MS. PENNY: He can try. You don't have to let him.

12 THE WITNESS: Well, if you want an accurate reflec-
13 tion of my recollection and my understandings, I do need to
14 complete my response. So to that extent, I'd appreciate to
15 go on. Could you repeat that former question?

16 MR. CONNOLLY: You mentioned instances where leak
17 rate test data could be discarded --

18 THE WITNESS: No. Could you repeat --

19 MR. CONNOLLY: My question is, you were describing
20 one instance regarding a shutdown. What we're concerned with
21 is with operations. Can you describe an instance during
22 operation where it would be, in your opinion, legitimate to
23 discard leak rate test data?

24 THE WITNESS: Pete, we're not communicating. I
25 was not finished with my prior response, and I wanted to know

1 what that question is so I could complete that response. And
2 I've lost my train of thought. I'd appreciate to do that.
3 Unless that's unimportant.

4 (The reporter read the record as requested.)

5 MR. CONNOLLY: The question concerns instances --
6 you described one regarding a shutdown, a hypothetical one
7 regarding a shutdown. An instance during operation. What
8 would be an instance, for example, where you would be able
9 to throw a leak rate test away during operation of the plant?

10 THE WITNESS: Again, are we talking about my
11 understanding of the requirements back at that time?

12 MR. CONNOLLY: Yes, we're talking about that time.

13 THE WITNESS: Okay. Back at that time, my
14 understanding was really not specific to whether or not you
15 throw good leak rates or bad leak rates in the way you've
16 tried to characterize them, away because the requirements
17 were -- I don't recall them as being that specific or really
18 my having an understanding of them in that specific sense.

19 But judging here today, it would be not -- it
20 would not be inappropriate to discard a computer printout
21 showing the leak rate calculation for a situation where the
22 calculation was inaccurate or wrong or there was a problem
23 with the computer or something of that nature. And an
24 example might be if it was known that the input to the
25 computer from some instrument which inputted data which was

1 used in the calculation, and as a result of the inaccurate
2 input the computer calculation was similarly inaccurate. That
3 being the case, the operator would be forced to determine
4 the leak rate through either other means -- fixing the
5 problem, doing it by hand, and there's no policy or specific
6 language that I recall that would have directed an operator
7 in that circumstance or that kind of circumstance to retain
8 that documentation.

9 It would not be inappropriate to save the documen-
10 tation either and annotate it accordingly. But in terms of
11 the requirement or my understanding of the requirement, I
12 don't recall having anymore an explicit understanding than
13 that.

14 MR. CHRISTOPHER: Do you know if there was a
15 conscious decision made by a member of supervision not to
16 log the start time of the leak rate tests because there were
17 so many bad test results being received?

18 THE WITNESS: No. And your answer presumes that
19 we had a lot of bad tests, and I guess I don't know that to
20 be a fact, either.

21 MR. CHRISTOPHER: Just answer the question if you
22 know it.

23 I guess you've generally gone through a description
24 of how operators determine whether a test is valid or invalid
25 by going through these parameters.

(Discussion off the record.)

1 MR. CHRISTOPHER: We've talked about leak rate
2 test results that were being reviewed as to whether they
3 were valid or invalid for various reasons. Are you
4 specifically aware of any leak rate tests that met the
5 technical specification in that it met the one gallon per
6 minute unidentified, that was ever considered invalid?

7 THE WITNESS: I don't remember being aware of
8 specific test results from that period.

9 MR. CHRISTOPHER: Are you generally aware of,
10 looking back at that time, whether or not it was perceived
11 to be very difficult to get a good leak rate as it pertained
12 to the unidentified leak rate?

13 THE WITNESS: I remember that I understood that
14 there was no difficulty per se in understanding what the
15 overall leak rate characteristics were of the plant, but I
16 do recall understanding a difficulty in accounting for that
17 leak rate through the use of the procedures involved.
18 We've discussed that, and that was the concern that was
19 referred to my department. In that context, that's what
20 I recall.

21 MR. CHRISTOPHER: I think you've answered this.
22 You said you are not personally aware of any leak rate test
23 results that were actually thrown away.

24 THE WITNESS: No.

25 MR. CHRISTOPHER: Did you ever hear any discussions

1 indicating, or general comments that would have told you
2 that the so-called bad test results or invalid test results
3 were being thrown away?

4 THE WITNESS: No.

5 MR. CHRISTOPHER: So if you were going to assume
6 that they ran -- looking at it today as you knew it back at
7 that time, if they ran 600 leak rate tests during that
8 year's period, you would have expected to find 600 test
9 results.

10 THE WITNESS: No, I didn't say that. I just don't
11 have any reason to know one way or the other how the specific
12 test results were, in fact, handled. I just understood like
13 everything else, the paperwork was handled according to the
14 general process I described. Exceptions to that, I don't
15 have any basis for independent recollection of specific
16 exceptions to that.

17 MR. CHRISTOPHER: Are you aware of what level of
18 supervision would have to actually invalidate a leak rate?
19 In other words, if it was unacceptable for some reason, could
20 the CRO do it on his own, or would it have to be invalidated
21 by a shift foreman or a shift supervisor? Do you know? If
22 you're going to decide that a test was unacceptable -- or, not
23 unacceptable but not valid. Did it require some particular
24 supervisory level to make that decision?

25 THE WITNESS: The understanding I had was that the

1 control room operators were not only qualified, as well as
2 other levels of licensed operators, were not only qualified
3 to make judgments as to the behavior of the plant, interpret
4 instrumentation, interpret data, but they had the obligation
5 to make such determinations as it affected the safe operation
6 of the facility.

7 To the extent that there was a recognition of a
8 problem with any specific leak rates, that was well within
9 their area of responsibility to determine the validity of
10 that kind of thing.

11 MR. CHRISTOPHER: Do you recall entering into any
12 discussions or attending any meetings where the topic of
13 problems with leak rates was discussed, the problem of
14 obtaining leak rates was brought to light in any fashion?

15 THE WITNESS: Not in a specific --

16 MR. CHRISTOPHER: In the months preceding the
17 accident.

18 THE WITNESS: Not specifically. I don't remember
19 any meetings specific to that topic. I do remember that
20 meetings held for other purposes, such as the plant operations,
21 POD, plan of the day meeting, was the forum in which that kind
22 of a problem could have been discussed. But as to any
23 specific recollection of such discussions, I don't recall any.

24 MR. CHRISTOPHER: Do you know if any recording or
25 record of those type of meetings are kept? I know such as the

1 PORC, there's a PORC meeting history. Such as, say, the POD.
2 Did they record the topics, minutes of those meetings, so
3 to speak?

4 THE WITNESS: We did keep an action item list which
5 was a computerized compilation of tasks related to a variety
6 of topics, typically problems that existed in the plant.
7 I wouldn't classify that as minutes per se because it was an
8 ongoing list where items would be added, and when they were
9 completed would be dropped off the list. So to that extent,
10 that was a record that pertained to the POD activities.

11 MR. CHRISTOPHER: And you don't specifically
12 recall the leak rate testing, leak rate surveillance program
13 or problems with excessive unidentified leakage being a
14 predominant discussion during any of those type of meetings?

15 THE WITNESS: Well, in the context of the concern
16 I expressed to you earlier about the calculation being --
17 or having problems with the calculation. I recall, although
18 not from independent recollection at the time, but through
19 post-accident activities that that particular task was an
20 item that was listed on the POD. But other than that, I don't
21 have any specific recollection of such discussions.

22 MR. CHRISTOPHER: Are you aware of the number of
23 leak rate test results being negative results? In other words,
24 having a minus net unidentified leakage, indicating the plant
25 was making water?

1 THE WITNESS: No, I didn't remember that in the
2 context of the way you stated it. I remember that it was
3 possible to have statistical variation in the results of the
4 leak rate determination where it was possible to get a
5 negative value; typically, a very low value.

6 MR. CHRISTOPHER: By low you mean it would not be,
7 say, negative a gallon and a half per minute, or negative
8 two gallons; it would be in the lower range, close to the
9 minus fractional negative?

10 THE WITNESS: No, I don't mean in any quantifiable
11 way. My experience, which is probably predominantly in
12 Unit 1, is that you can get a negative value. I don't recall
13 it in terms of any quantitative level. But you do get a
14 negative.

15 The -- I don't recall any specific recollection
16 in terms of Unit 2 experience in regard to that, however.

17 MR. CHRISTOPHER: Would you consider it a matter of
18 routine -- maybe routine is not the correct word -- that you
19 would, on numerous occasions, would get a negative leak rate
20 when you'd run the tests? Or would that be something that
21 would happen on only a rare occasion?

22 THE WITNESS: I find it hard to really qualify
23 it. I just know that we experienced those kind of results.
24 But I can't really characterize it in quantitative or such
25 qualitative fashion.

1 MR. CHRISTOPHER: Specifically, for a period of
2 roughly a year prior to the accident there were 170 leak rate
3 tests that were of record. Of those 170, 39 were negative,
4 had a negative leak rate with respect to the unidentified.
5 Do you consider that an inordinate number of negative leak
6 rates, or do you consider that -- one, do you consider that
7 an inordinate number of negative leak rate results for 170
8 tests?

9 THE WITNESS: You presume in your question that I
10 know those statistics to be fact, and I don't.

11 MR. CHRISTOPHER: They are fact.

12 THE WITNESS: Fine.

13 MR. CHRISTOPHER: Assume that they are fact.

14 THE WITNESS: Well, I'm afraid that doesn't help me.
15 I can't really judge, just based on that kind of statistics,
16 whether that's good, bad, consistent with expectation or not.
17 I don't have any basis to really answer the question.

18 MR. CHRISTOPHER: Are you aware of what supervisory
19 or management individuals, if any, would have been aware of a
20 practice of operators throwing away leak rate test results?

21 THE WITNESS: I indicated to you before I'm not
22 aware of the practice, so I couldn't begin to guess as to who
23 may be aware of that kind of thing.

24 MR. CHRISTOPHER: Do you have any idea how often
25 leak rate tests were being run during a shift? During the

1 shifts as an average?

2 THE WITNESS: No, I don't.

3 MR. CHRISTOPHER: Do you know if they were run
4 once every three days as you could possibly interpret the
5 tech spec, or were they run once per shift? Do you have any
6 knowledge as to how often they would be run?

7 THE WITNESS: I thought we covered this ground.
8 I don't remember the frequency in specific terms. Hence,
9 I can't be anymore specific on your extension of that question.

10 MR. CHRISTOPHER: Are you aware of any instances
11 where a shift supervisor requested the plant be shut down,
12 Unit 2, to correct excessive valve leakage and that request
13 being denied?

14 THE WITNESS: No, I'm not aware of that kind of a
15 request.

16 THE WITNESS: Were you aware of any or do you
17 recall any discussions regarding indications of leakage from
18 the code safeties and/or the PORV, as indicated by higher than
19 normal tailpipe temperatures?

20 THE WITNESS: No, I don't recall any specific
21 discussions.

22 MR. CHRISTOPHER: Do you recall if there were any
23 discussions of those types of indications as they related
24 to your ability to get good leak rates?

25 THE WITNESS: No, I don't.

1 MR. CHRISTOPHER: Were you aware of the
2 increasing tailpipe temperatures that you were experiencing
3 in those several months prior to the accident?

4 THE WITNESS: I understood that we had elevated
5 tailpipe temperatures prior to the accident, but I'm not
6 really sure as to the length of time or the timeframe over
7 which those tailpipe temperatures were elevated, nor do I
8 specifically recall the rate of rise, if they were rising.

9 MR. CHRISTOPHER: Do you recall -- you yourself --
10 at that time being concerned with these rising tailpipe
11 temperatures?

12 THE WITNESS: I remember being concerned about the
13 matter of leakage from the code safety valves and knowing
14 that ultimately during the upcoming outage, those valves were
15 targeted for repair. And to that extent, I was concerned.

16 MR. CHRISTOPHER: Were you ever concerned to the
17 extent that you found it necessary to go to any member of the
18 management team and recommend that you not wait until the
19 outage to shut down to repair the leakage?

20 THE WITNESS: I don't remember doing that kind
21 of thing.

22 MR. CHRISTOPHER: Are you aware of any individuals
23 that became sufficiently concerned about that type of problem
24 to do exactly that; to go to a member of the management team,
25 be it yourself or someone else, and recommend that that kind

1 of action be instituted?

2 THE WITNESS: No, I don't recall that there was a
3 belief that the plant shutdown for the repair of the valves
4 would have to be done in a shorter timeframe. It may have
5 been the case that that was of concern. I don't recall it
6 reaching a point where continued safe operation was unwarranted,
7 in view of the fact that I understood we were complying with
8 overall tech specs concerning that. I just understood that
9 that was of concern, and my recollection was in terms of
10 code safety valves having to be repaired at the next outage.

11 MR. CHRISTOPHER: Did you ever have any discussions
12 with the individual who actually prepared the computer program
13 for the performance of the surveillance tests? I believe that
14 probably would have been Bill Fels.

15 THE WITNESS: Bill was, as I recall, reporting up
16 through my office, at least in part, and it would not be
17 uncommon to have a discussion or discussions with him on
18 computer matters. But I don't remember any that were specific
19 to this matter, although I can't --

20 MR. CHRISTOPHER: No specific discussions with
21 him regarding the program as it relates to the leak rate test.

22 THE WITNESS: Right. But I can't discount that
23 such discussions would have occurred during the course of
24 the engineering work on the matter.

25 MR. CHRISTOPHER: So you don't recall that he

1 brought to your attention any consistent problem they were
2 having with the leak rate test program?

3 THE WITNESS: No, I don't remember any.

4 MR. CHRISTOPHER: Are you aware of operators adding
5 hydrogen to the make-up tank for the express purpose of
6 attempting to affect leak rate test results?

7 THE WITNESS: No.

8 MR. CHRISTOPHER: Do you know why hydrogen is
9 supposed to be able to affect the leak rate test?

10 THE WITNESS: No.

11 MR. CHRISTOPHER: Have you ever heard --
12 subsequent there have been studies. Now, have you heard
13 subsequent to the accident of additional events that
14 happened, do you know now why hydrogen can affect the test
15 results? Do you know why hydrogen could conceivably affect
16 the test results?

17 THE WITNESS: No. As⁴ even to this day, I believe
18 it to be an effect that's not possible.

19 MR. CHRISTOPHER: What indications do the
20 operators -- what parameters do they normally monitor in
21 deciding when to make hydrogen additions to the RCS?

22 THE WITNESS: Could you restate that, please?

23 MR. CHRISTOPHER: What parameters would you expect
24 the operators would be watching in making a decision as to
25 what times they would need to add hydrogen to the RCS and how

1 much hydrogen they would actually need to add?

2 THE WITNESS: My recollection was that the dominant
3 parameter was the pressure in the make-up tank, and you would
4 add hydrogen to maintain the pressure as a function of the
5 level in the make-up tank at above a minimum value called for
6 in the -- I believe it was the B&W limits and precautions for
7 that parameter.

8 MR. CHRISTOPHER: So they would essentially know
9 that they had to keep a certain overpressure, if that's the
10 right term, in order to eliminate the free oxygen in the
11 system?

12 THE WITNESS: Yes. Basically, that's correct.

13 MR. CHRISTOPHER: Are all water additions to the
14 RCS supposed to be recorded in the control room log?

15 THE WITNESS: I don't remember anymore if there was
16 a requirement for that or not.

17 MR. CHRISTOPHER: Do you know if, in fact, operators
18 were not logging every water addition that they made to the RCS?

19 THE WITNESS: No, I don't. I don't have any
20 independent knowledge of that.

21 MR. CHRISTOPHER: Are you aware of operators adding
22 water to the make-up tank during the course of a leak rate
23 test and not inputting that operator-induced change into the
24 computer for the purposes of affecting the leak rate test
25 result?

1 THE WITNESS: No.

2 MR. CHRISTOPHER: Are you aware of any supervisory
3 individuals, the shift foreman or shift operations level, that
4 were aware of that?

5 THE WITNESS: No.

6 MR. CHRISTOPHER: Or any other management
7 individuals above that level that were aware of that?

8 THE WITNESS: I have no knowledge of that, nor
9 their practice.

10 MR. CHRISTOPHER: You don't recall any discussions
11 or a general awareness that that was going on at that time?

12 THE WITNESS: No.

13 MR. CHRISTOPHER: Or by supervisory type individuals,
14 yourself or others immediately below you or above you?

15 THE WITNESS: No.

16 MS. PENNY: And you were not aware of that practice,
17 correct?

18 THE WITNESS: That's right.

19 MR. CHRISTOPHER: Did you ever enter into any
20 discussions with any operators, individuals, wherein it was
21 communicated to you that they felt -- they, the operators --
22 felt that they were under a lot of intense pressure to get
23 good leak rates, to the extent that an operator felt that he
24 was being intimidated, that his job may be on the line or
25 that he would suffer some kind of adverse consequences by not

1 performing a good leak rate test?

2 THE WITNESS: No. I'm not aware of that. And I'm
3 assuming good means -- you're not talking about doing a good
4 job at what he's doing. You're referring to getting results
5 that are acceptable and in compliance with the tech specs.

6 MR. CHRISTOPHER: So you're not aware of any
7 unusual pressures being exerted on the operators to get a
8 good leak rate test result.

9 THE WITNESS: No.

10 MR. CHRISTOPHER: And you're not aware of operators
11 being directed to manipulate the leak rate tests in order to
12 get good results in any fashion?

13 THE WITNESS: No, I'm not aware of any such thing.

14 MR. CHRISTOPHER: Do you, from a professional
15 standpoint -- can you determine or make an assumption as to
16 whether or not this leakage that you were having from the code
17 safeties, would that or did that have an effect on your ability
18 to get a good, unidentified leak rate?

19 THE WITNESS: No, it shouldn't have any effect at all.

20 MR. CHRISTOPHER: And why is that?

21 THE WITNESS: Because the leakage from a code safety
22 valve -- assuming you're talking about the through-seat
23 leakage as opposed to leakage to the external portions of
24 the valve -- would ultimately end up in the drain tank where
25 it results in increasing inventory in the drain tank. And my

1 understanding of the methodology of performing a calculation
2 is that that is taken into account, and the manner in which
3 that's done is that that is treated as identified leakage.
4 And that excepts leakage from any other of the leak-offs
5 or leakage pathways, some of which are controlled leakage,
6 from other portions of the RCS.

7 So in that context, assuming that the calculation
8 properly accounts for that, you should not see any change in
9 the unidentified leakage portion because you simply take the
10 total leak rate from the reactor coolant system and you --
11 the methodology is that you subtract from that the identified
12 leakage. And you end up then with the unidentified leakage,
13 which by its very nature is not a measured quantity.

14 MR. CHRISTOPHER: Do you know if there was a period
15 of time in plant operations where the operators could not
16 add hydrogen to the make-up tank from the control room?
17 Because of a malfunction.

18 THE WITNESS: I recall a time early when I came
19 into Unit 2 that there was a concern with the hydrogen
20 make-up, but I don't specifically recall the nature of it.

21 MR. CHRISTOPHER: Would auxiliary operators -- to
22 your knowledge of how the Operations Department worked -- would
23 auxiliary operators be authorized to make hydrogen additions
24 to the make-up tank on their own volition, or would that be
25 required to be, say, approved by a licensed operator?

1 THE WITNESS: I don't really know. I can only
2 draw from my understanding and experience in Unit 1 as to how
3 the auxiliary operators and the operators interact. Normally,
4 the control room operator is responsible for overall direction
5 of that kind of an activity, and he would normally do it.

6 MR. CHRISTOPHER: Do you have an independent
7 recollection, placing yourself back in that time prior to the
8 accident, of LERs -- specifically, LER 78-62 issued in
9 October of 1978 regarding an LCO violation for unidentified
10 leakage? Do you at this time have any independent recollec-
11 tion of that specific LER?

12 THE WITNESS: No.

13 MR. CONNOLLY: Were you at Unit 2 in October 1978?

14 THE WITNESS: No.

15 MR. CONNOLLY: Where were you in October 1978?

16 THE WITNESS: I was in Unit 1.

17 MR. CONNOLLY: What was your responsibility at
18 Unit 1 at that time?

19 THE WITNESS: Unit 1 Superintendent, Technical
20 Support.

21 MR. CHRISTOPHER: So you would have had no review
22 responsibilities over, say, an LER at Unit 2, or in response
23 to an LER at Unit 2?

24 THE WITNESS: No, not specifically.

25 Excuse me, will this take much longer? I'd like

1 to leave at 5:00.

2 MR. CHRISTOPHER: You can stop the interview at
3 any time you want, but we're very close to being done.

4 THE WITNESS: Let's go on.

5 MR. CHRISTOPHER: I think you've answered this.
6 You're not aware of how many leak rate tests operators were
7 running during any particular shift. Is that correct?

8 THE WITNESS: That's right.

9 MR. CHRISTOPHER: Were you aware of or did you
10 hear of operators attempting to jog water into the make-up
11 tank during the course of the leak rate test in order to
12 affect the result? By jogging I mean versus adding one amount
13 in one time, adding a little bit of water over the period of
14 the one hour during which the test was run.

15 THE WITNESS: Well, aside from the fact that you
16 put water in at whatever frequency you want to maintain the
17 level within the operating band, I don't know what the
18 specific practices were.

19 MR. CHRISTOPHER: But you're not aware of operators
20 attempting to jog this water in there for the specific purpose
21 of affecting a leak rate test?

22 THE WITNESS: No.

23 MR. CHRISTOPHER: And I think we brought this up
24 earlier when we referred to the technical change notice that
25 was issued to correct a deficiency in the surveillance

1 procedure. Specifically, it states, to more accurately account
2 for RCS leakage collected in the drain tank. Do you have
3 any independent recollection of -- as to who initiated the
4 TCN, who identified the deficient -- who originally identified
5 the deficiency in the surveillance procedure. Somebody
6 said hey, we've got to make this kind of correction. Do
7 you have any recollection as to how this TCN evolved?

8 THE WITNESS: No, I don't.

9 MR. CHRISTOPHER: And do you recall at that time
10 that while the TCN made corrections to the procedure to correct
11 the inventory in the RCDT to the RCS operating conditions,
12 that it failed to make the same corrections for the MUT
13 additions? Do you recall being aware of that at the time?

14 THE WITNESS: No.

15 MR. CHRISTOPHER: Do you have any recollection of
16 any individuals sitting in a PORC review that recognized that
17 deficiency in the TCN at the time it was issued?

18 THE WITNESS: No, I don't.

19 MR. CHRISTOPHER: You're not aware of individuals
20 recognizing that deficiency and approving it anyway because it
21 actually had the effect of working in the favor -- in favor
22 of the plant in terms of obtaining a good leak rate?

23 THE WITNESS: No, I don't.

24 MR. CHRISTOPHER: Were you aware of any management
25 discussions or did you participate in any discussions to the

1 effect that Unit 2 would not be shut down to correct leakage
2 until Unit 1 was back online from the refueling outage?

3 THE WITNESS: No.

4 MR. CHRISTOPHER: I think earlier you talked about
5 having the repairs for the code safeties scheduled for the
6 next -- was that for the next outage? Is that what you
7 were referring to?

8 THE WITNESS: Yes.

9 MR. CHRISTOPHER: But you're not aware of any
10 discussions that stated we need to keep the plant running
11 until Unit 1 gets back online?

12 THE WITNESS: I don't remember any such discussions.

13 MR. CONNOLLY: Whose responsibility would it be at
14 that time to take Unit 2 off the line, shut Unit 2 down?

15 THE WITNESS: In terms of a planned outage or
16 forced outage or what?

17 MR. CONNOLLY: By example, the problem with the
18 code safety valves.

19 MR. CHRISTOPHER: This is saying who had the
20 authority to take the plant off line at 3:00 o'clock in the
21 morning, in essence.

22 THE WITNESS: The licensed reactor operator has the
23 authority to do such.

24 MR. CHRISTOPHER: Can he do that without the
25 approval of someone, say, be it the load dispatcher or the

1 unit superintendent? Can he unilaterally do that? Could he
2 at that time?

3 THE WITNESS: He's obligated under his authority
4 in order to insure the protection of personnel, the public
5 and the plant, to take emergency action to shut the plant
6 down at any time he deems it necessary in the interest of
7 safety to do so. If you're relating to the code safety valve,
8 my understanding is that there was no immediate or near-term
9 impending need to do so, and that was -- so in that context--.

10 MR. CONNOLLY: Okay. My question is hypothetical.
11 During this time period, who in management position would
12 have had the authority to shut the plant down because of the
13 code safety problems? Who would have made that decision?

14 THE WITNESS: Again, if you're talking about
15 hypothetically, what is the condition with the code safeties
16 that we're talking about?

17 MR. CONNOLLY: Excessive leakage.

18 THE WITNESS: The leakage that we had?

19 MR. CONNOLLY: Yes. You had a leakage problem with
20 the code safeties. We've developed information during the
21 course of our investigation that there were discussions held
22 about keeping the plant online until Unit 1 came back online
23 and then shutting it down to fix the problem with the code
24 safeties. My question is who in management would have made
25 the decision to keep the plant online in that particular

1 example I just gave.

2 THE WITNESS: I don't know.

3 MR. CONNOLLY: Okay. Has anyone admitted to you
4 that they were involved in the falsification of leak rate
5 test data?

6 THE WITNESS: No.

7 MR. CONNOLLY: Has anyone told you that they know
8 of individuals who were involved in the falsification of leak
9 rate test data?

10 THE WITNESS: No.

11 MR. CONNOLLY: Do you have any information regarding
12 any falsification of leak rate test data in Unit 2?

13 THE WITNESS: No.

14 MR. CONNOLLY: That's all.

15 MR. CHRISTOPHER: Okay, that concludes the
16 interview. The time is 5:08.

17 (Whereupon, at 5:08 p.m., the interview was
18 concluded.)
19
20
21
22
23
24
25

CERTIFICATE OF PROCEEDINGS

1
2
3 This is to certify that the attached proceedings before the
4 NRC COMMISSION

5 In the matter of: Investigative Interview of
6 George A. Kunder

7 Date of Proceeding: Wednesday, September 28, 1983

8 Place of Proceeding: Harrisburg, Pennsylvania

9 were held as herein appears, and that this is the original
10 transcript for the file of the Commission.

11 Suzanne Young

12 Official Reporter - Typed

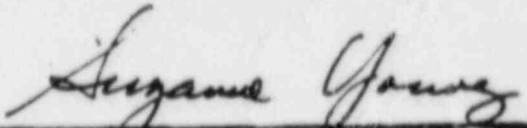
13 
14 Official Reporter - Signature

EXHIBIT 40

REPORT OF INTERVIEW WITH THOMAS HAWKINS/11-16-83

REPORT OF INTERVIEW

Report Number: 1-83-010

On November 16, 1983 Thomas M. HAWKINS was interviewed by Investigator P. J. CONNOLLY at the law offices of Killian and Gephart, Harrisburg, Pennsylvania. Present during the interview were HAWKINS' Attorney, Jane PENNY, a staff member of Killian and Gephart. HAWKINS was questioned concerning his knowledge of the falsification of leak rate tests data at Three Mile Island Units 1 and 2, (TMI-1 and TMI-2) during the time period of the fall of 1978 to April 1, 1979.

HAWKINS is presently employed with General Public Utilities, Nuclear (GPUN) as a manager of start up and test at TMI-1 Nuclear Generating Station, Middletown, Pennsylvania. He has been employed with GPUN and it's associate companies for approximately 18 years. From 1977 until December 1978 HAWKINS was assistant test superintendent for TMI-2, on January 1, 1979 he assumed the position at TMI-1 as supervisor of maintenance.

HAWKINS advised that while he was assigned assistant test superintendent for TMI-2 it was his responsibility to insure that all tests for TMI-2 were timely and properly conducted and reviewed. HAWKINS did recall that during the fall of 1978, prior to TMI-2 becoming operational, the operations department was experiencing difficulties obtaining good leak rate tests. He said he knew this because prior to running start up tests at TMI-2 the plant would have to be in stable condition and thus he routinely discussed plant conditions with control room shift supervisors including, Joe CHWASTYK, Bernie SMITH, Ken BRYAN, Ken HITZS, Bill ZEWE, and Brian MEHLER. He also indicated that he frequently discussed with Jim FLOYD, the plant's superintendent, plant conditions. Though HAWKINS stated that he was aware that there were difficulties with leak rate tests, he advised that the specific problems of those tests were never discussed with him by either the shift supervisor, the plant superintendent or other operations personnel. Besides leak rate tests, he noted that there were other surveillance procedures that delayed his testing program particularly diesel generator procedures.

HAWKINS was aware that plant technical specifications required that unidentified leakage be maintained below one gallon per minute in a 72 hour period; however, he indicated he did not know the specific details of the procedures or the requirements of the technical specification since he was not involved in anyway with leak rate tests.

HAWKINS advised that he was not aware of any information regarding the falsification of leak rate test data at TMI-2. He reiterated that he never performed any leak rate test nor was he involved in the development of either technical specifications or procedures regarding leak rate tests. In regards to additions of hydrogen and water to the makeup tank in order to effect leak rate test HAWKINS indicated that he did not have any specific technical knowledge as to how these items, specifically hydrogen, would effect leak rate tests. HAWKINS further added that he was not aware of any supervisory personnel directing operators to falsify leak rate tests. He also indicated that he was not aware of any bad leak rate tests being discarded nor operators being directed to discard bad leak rate tests. He also indicated that he was unaware of any management pressure upon license operators to obtain good leak rate tests.

As previously mentioned above, HAWKINS advised that he was supervisor of maintenance at Unit 1 commencing in January 1979. He remarked that it was his responsibility as supervisor of maintenance to make final preparations for the upcoming fueling outage which began mid February 1983. He also commented that his responsibilities included the supervision of maintenance work in progress and the planning of maintenance in the refueling outage. HAWKINS advised that in his position as maintenance supervisor he was not aware of any problems with leak rate tests in Unit 1. He advised that he had never heard of any problems with leak rate tests until an inspection by Dr. CHUNG of the NRC in 1983. He did admit that if there was a leakage problem with Unit 1 or problems with leak rate tests he would have known about it. However, he never remembered being informed of any leakage problem or difficulties with leak rate tests.

HAWKINS stated that he was not aware of any hydrogen or water additions to the makeup tanks at Unit 1 to effect leak rate tests. He also advised that during the time period of January 1979 through the end of March 1979, he was not involved with any maintenance work at Unit 2. He did recall that in the early stages of January 1979 he was supervising some last minute paper work being conducted by outside contractors regarding completed start up tests. However, except for this supervision he stated that he had no other dealings with Unit 2.

HAWKINS was unaware of any information regarding a licensee decision to keep Unit 2 on line until Unit 1 was ready to come back from its refueling outage. In conclusion, he reiterated that he was not aware of any leak rate problems in Unit 1 or any falsification of leak rate test data in either Unit's 1 or 2.

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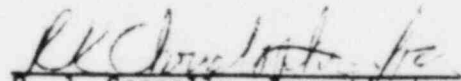

P. J. Connolly, Investigator
Office of Investigations
Field Office, Region I

EXHIBIT 41

LICENSEE EVENT REPORT 73-62/IT/10-19-78

27 Continued:

0735 on Oct. 18, 1978.

NARRATIVE TO LER 78-02/1T

000 hrs. on Oct. 19, 1978, while performing Surveillance Procedure 2301-3D1 it was determined that data obtained subsequent to the last recorded acceptable surveillance performance at 1935 on 10-16-78 showed that unidentified leakage during the interim period exceeded the limits specified in Technical Specification (T.S.) 3.4.6.2 and that the required action statement was not invoked. The largest unidentified leakage during this period was 2.6 gpm. This event was caused by misinterpretation of the requirements of the Technical Specifications. Since the actual frequency of performance of the surveillance procedure was greater than that required by the Technical Specifications, it was not clear to the personnel involved as to which set of data taken came with in the T.S. requirements and when the time requirements of the action statements were applicable. However, action was being taken to reduce the unidentified leakage to with in allowable limits and this was accomplished at 0735 on October 18, 1978. In addition, it was discovered that errors in inputting data to computer caused indicated unidentified leakage to be greater than actually was occurring. The appropriate personnel will be instructed on the requirements of the applicable sections of the T.S. and the requirements to immediately invoke applicable action statements when the provisions of limiting conditions for operation are not met. Input data for the computer program which calculates unidentified leakage has also been clarified.

EXHIBIT 42

REPORT OF INTERVIEW WITH DONALD HAVERKAMP/9-14-83

REPORT OF INTERVIEW

On September 14, 1983 Donald R. HAVERKAMP was interviewed by Investigator P. J. CONNOLLY at Region I. HAVERKAMP was questioned concerning his knowledge of bad leak rate test data at Three Mile Island Unit 2 (TMI-2) Nuclear Generating Station, on or about October 18, 1978. HAVERKAMP recalled that during that time frame he was a reactor inspector at Region I with ancillary duties as project inspector for TMI's Unit 1 and 2. HAVERKAMP recalled that to the best of his memory on Wednesday, October 18, 1978 he became aware that the licensee (General Public Utilities Nuclear (GPUN)) had experienced a leakage problem with TMI-2. He remembered that he, at that time, was conducting a normal inspection of TMI-2 operations when he ascertained that the problem was being analyzed in it's initial stages by TMI-2 Control Room Operators (CRO's). He recalled seeing the bad leak rate test data on the table inside the shift supervisors office. He identified the shift supervisor as Bernard G. Smith. Upon seeing the data, HAVERKAMP recalled that he immediately went to Jim SEELINGER's¹ office for discussion of the matter. He recalled that the data indicated that there was high unidentified leakage for several days prior to the 18th of October exceeding the technical specification requirement which requires unidentified leakage not to exceed one gallon per minute. He remembered that the data indicated that the unidentified leak was closer to two gallons per minute than one gallon. HAVERKAMP remembered before discussing the matter with SEELINGER he questioned the CROs² regarding the bad leak rate tests. They indicated that for two or three days they had ran the test with unidentified leakage exceeding technical specifications. Their justification for not shutting down the plant, was as explained to HAVERKAMP, that the surveillance procedures required only a good test every 72 hours. HAVERKAMP reminded the CROs that the bad leak test requirement was a constant and if it did not fall within the purview of the 72 hour the plant needed to be shut down. Afterwards, HAVERKAMP remembered talking to Jim SEELINGER expressing his concern that the tech specs were not being followed. Subsequently, HAVERKAMP recalled that a good leak rate test was performed on mid day shift of October 18, 1978.

1. TMI-2 Superintendent for Technical Support
2. HAVERKAMP could not recall their names.

HAVERKAMP noted that he did not cite the licensee for the incident because he felt that it was an administrative problem versus a technical problem. He based his conclusion on the fact that he discovered the bad leak rate test during the initial stages of the problem, and the problem had not yet been brought to the attention of the plant superintendent or the Plant Operations Review Committee (PORC). He also averred that he did not cite the licensee for the bad leak rate test due to oscillating plant conditions, caused by increase power, feed water pump variations, several plant trips. He also felt that additional justification for not citing the licensee was that the problem was consequently addressed by the PORC and Plant Superintendent which resulted in the publication of a Licensee Event Report (LER). In addition, he felt that the good leak rate test at mid day shift of October 18, 1978 confirmed that the unidentified leak rate did not exceed one gallon per minute.

HAVERKAMP believed that the leak was discovered the morning of October 18, 1978 in a packing valve and that upon repair of the packing valve leak the unidentified leak rate fell within the technical specification requirement of one gallon per minute. HAVERKAMP admitted that he did not know how the licensee calculated this good leak rate test and he was also unaware if water or hydrogen was added to the make up tank level in order to obtain a good leak rate test. HAVERKAMP opined that the mid day leak rate test on October 18, 1978 was a valid leak rate test.

HAVERKAMP advised that he initially agreed with licensee representatives, particularly SEELINGER, and Jim FLOYD³, to allow a round off of leak rate test data to the nearest whole number. He stated that the justification for this rounding off was his understanding that oscillating plant conditions made it difficult to get an accurate reading for the leak rate test. HAVERKAMP advised that he told SEELINGER and FLOYD that he would contact them with the following week after consultation with Region I personnel whether or not the licensee could round off leak rate test data.

After discussing the issue with regional personnel⁴, HAVERKAMP remembered that it was concluded that the rounding off of leak rate test data was incorrect. HAVERKAMP immediately contacted SEELINGER advising him that the NRC would not agree to rounding off leak rate test data. HAVERKAMP noted that the licensee had initially published a memorandum allowing the rounding off of leak rate test data but upon the subsequent notification by HAVERKAMP regarding NRC's position, the licensee published a second memorandum cancelling the first memorandum

4. Haverkamp could not recall the names of the individual

EXHIBIT 43

TMI-2 LEAK RATE TEST/10-18-78

DATE: /78
TIME: 35:27

REACTOR COOLANT LEAKAGE TEST
SP 2301-3D1

NOTE: IF OPERATOR ACTION DECREASES RCS VOLUME THE DATA ENTRY FOR THAT ACTION MUST BE NEGATIVE

DESIRED INTERVAL (1-8 HOURS)

- 1
ENTER THE INITIAL REACTOR COOLANT DRAIN TANK LEVEL FROM PATCH PANEL DM#64
2.93
ENTER THE FINAL REACTOR COOLANT DRAIN TANK LEVEL FROM PATCH PANEL DM#64
2.99
-ENTER OPERATOR CAUSED CHANGES TO THE RCDT FROM DS 4 (2301-3D1)
0
ENTER OPERATOR CAUSED CHANGES FROM DS 4 (2301-3D1)
0
ENTER IDENTIFIED LEAKAGE FROM DS 3 (2301-3D1) (GPM)
-2.16
-ENTER PRIMARY TO SECONDARY OTSG TUBE LEAK (GPM)
0

TIME	TCA (F)	TIA (F)	TCB (F)	THB (F)	TAVE (F)	PRZR LVL (IN)	MUTK LVL (IN)	RCDT LVL (VOLT)
7:36:15:	568.477	593.445	568.281	593.422	580.906	226.475	64.736	2.930
8:36:15:	568.367	593.383	568.320	593.406	580.867	227.822	58.841	2.990

GROSS LEAK RATE (<30 GPM): 3.6410 GPM

TOTAL IDENTIFIED RCS LEAK RATE (<10 GPM): 2.3471 GPM

NET UNIDENTIFIED LEAK RATE (<1 GPM): 1.2939 GPM

OPERATOR:

APPROVED:

OK by roundoff JEF 1200
10/18/78

EXHIBIT 44

SWORN STATEMENT OF JOSEPH LOGAN/11-18-83

Place: Richmond, VA

Date: 11/18/83

STATEMENT

I, Joseph B. Logan, hereby make the following voluntary statement to R. Keith Christopher who has identified himself to me as an Investigator with the U.S. Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me.

As background information I am currently employed as a Systems Engineer for the Virginia Electric and Power Company (VEPCO). This position is part of the Nuclear Operations Department. I have been with VEPCO since approximately January 1980. Prior to this I was employed by the Metropolitan Edison Company (Met Ed) at the Three Mile Island Nuclear Generating Station. I was employed from January 1978 until December 1979. When hired by Met Ed I was designated to be the Unit 2 Plant Superintendent. From January 1978 until November 1979, which is a period of 11 months, I was in a training status to get my license and had no responsibility or authority over the day to day operation of TMI-2. I did not receive or review the daily plant status report during this time and I had no one reporting to me during this time. During this training period I also spent a significant amount of time at the B&W simulator in Lynchburg, Virginia.

Sometime in December 1978 after completing my license training I assumed the active role of Unit-2 Superintendent responsible for the operation and maintenance of TMI-2. In this position, I reported directly to Gary Miller, the Station Manager. All of the department heads dedicated to the operation and maintenance of TMI-2 reported to me. This included James Floyd, the Operations Supervisor, George Kunder, The Supervisor of Technical Support, and Dick Sieglitz the Supervisor of Maintenance at Unit-2. Sieglitz also reported to Dan Shovlin who was the Station Superintendent of Maintenance.

With respect to keeping abreast of plant status, I attended a daily meeting in the Shift Supervisor's office in the Control Room at Unit-2. This meeting was usually attended by myself, the Shift Supervisor, George Kunder, Dick Sieglitz, Jim Floyd, and usually the Health Physics Supervisor, Dick Dubiel.

On some occasions we would have other members of the plant staff in attendance depending on what plant evolutions were ongoing. I would characterize these meetings primarily as maintenance meetings during which we discussed various plant problems and how they were going to be addressed. I do not recall any formal records being kept of these meetings. These meetings were usually conducted by reviewing the computerized maintenance list and reviewing the computer list which would indicate which technical specification surveillance requirements were either upcoming or overdue. From these lists we would ensure that all of our work and surveillance requirements were kept consistent with plant conditions. These records would have included the surveillance requirements for the performance of leak rate tests; however, these computer records would only indicate if a particular surveillance requirement including the leak rate test was coming up to be done. It would not indicate any problems or variations in the leak rate test procedure. To the best of my recollection, this computer history would be updated daily to maintain the proper input into the computer. This was done by sending the completed surveillance documents to be recorded in the computer. To the best of my recollection, we sent these documents to be inputted the data into the computer. (sic) I do not recall the names of the individuals who received this information. I would like to clarify that whoever received this information on the surveillances, only inputted what was given to them and they had no personal knowledge of the details of the various surveillance tests.

To the best of my recollection, Gary Miller did not attend the plan of the day (POD) meetings. Miller's briefing of plant status usually came from a conference call between Jim Seelinger, the Unit 1 Superintendent, myself, Miller, and Jack Herbein. We normally had a daily conference call during which we discussed each plant's status and any particular problems that had developed. During these discussions I do not recall any discussions pertaining to any problems we were experiencing in obtaining good leak rates and I do not recall that during this time period of January through March 1979 that we ever exceeded the technical specifications for Reactor Coolant System Leakage.

I do recall that during the POD meetings we did on occasion discuss the Leak Rate Surveillance Tests. As I recall, these discussions involved the difficulty being encountered in obtaining consistent leak rate test results. These discussions centered on the fact that despite the periodic difficulties being encountered in obtaining good leak rates and specifically the unidentified leak rate of less than one gallon per minute we were unable to identify any confirmatory data that would indicate or prove that we had a leakage problem. These confirmatory signals included sump pump starts, increasing level in the Reactor Coolant Drain Tank, increased radiation levels in containment, and/or high tailpipe temperatures. We also discussed the problems of obtaining a good leak rate because of the plants inherent instability as it affected the ability to get leak rate test results. By this I mean that it was very difficult to run a leak rate test for one hour and encounter stable enough plant conditions to not affect the leak rate tests. The topic of leak rate tests came up more than once during the POD meetings but I cannot recall how often nor can I recall what individuals, other than George Kunder were involved in these discussions. To the best of my recollection George Kunder was looking into problems we were having with the leak rate tests. To the best of my recollection the discussions with George Kunder involved the suspected problem in the computer program.

Mr. Christopher has questioned me regarding my knowledge of high tail pipe temperatures as they may have affected the leak rate tests. Specifically I do not recall anyone advising me that we had an excessive problem with high tail pipe temperatures, although I do recall discussions of plans to replace one of the valves on top of the pressurizer. The need to replace the valve would have been manifested on a higher than normal tailpipe temperature. Since I was new in my position I relied heavily on the plant staff to keep me informed as to what the abnormal plant conditions were. Since I was newly licensed at the plant and still learning, I did not have the occasion to challenge the knowledge of the plant staff and I placed heavy reliance on their knowledge of the plant. By plant staff, I am primarily referring to the operations staff which consisted of the Operations Supervisor and the shift supervisors and the technical support staff which was headed by George Kunder.

After I actively took over the Unit-2 Superintendents job (approximately December 1978) I do recall having discussions with Lee Rodgers from Babcock and Wilcox concerning indications of leakage from the top of the pressurizer; however, I do not at this time recall whether or not we felt that leakage was coming from the PORV or the code safeties. It is possible leakage was from the PORV but I am not sure whether or not I am confusing this with the transfer of the Unit-2 PORV to Unit-1. I believe that Lee Rodgers from B&W, had a good knowledge of what we needed and what we had at the plant. As best as I can recollect, we were planning on replacing one valve on the top of the pressurizer but I cannot recall whether it was the code safety or the PORV. With respect to any discussions with senior plant management regarding plant leakage, (i.e. Gary Miller or Jack Herbein), I recall no discussions regarding the need to shut the plant down to repair the valve leakage. It is my recollection that as long as the leak rate tests results were below the technical specifications limits there was no requirement to shut the plant down. I do believe, however, that we had ordered replacement valves or spare parts to correct the leakage problem during the next planned shutdown.

I recall that I had some discussions with the shift supervisors and I can't recall who, about problems that were being experienced in obtaining satisfactory, consistent leak rates. The problems included negative leak rates, which was impossible, and positive leak rates which could not be consistently duplicated. These conversations most likely occurred during the POD meetings in the early part of 1979 when I actively took the Unit Superintendent job. I recall that we discussed in general the absence of any confirmatory information to indicate that we had an unidentified leakage problem such as sump starts or raised containment temperature or radiations levels. I personally felt that we did not have any significant unidentified leakage and I attributed the difficulties being encountered to problems with the computer program itself. Additionally, the test was more accurate the longer you ran the test but it was very difficult to have the plant stay completing stable during this time period in order to get a test result that was not affected by various plant evolutions and events.

I never equated problems with getting good leak rates for unidentified leakage with the leakage problems we were having on top of the pressurizer. This was because I considered the pressurizer valve leakage which went into the Reactor

Coolant Drain Tank to be identified leakage since we knew where it was and could measure it. It is my recollection that the operating philosophy at this plant as well as other PWR's was that it was acceptable to have some leakage from the code safeties as long as you didn't exceed the technical specification limits for identified leakage and if the leakage was from the PORVs, it could be isolated by the block valves. So from this aspect, I did not feel this leakage affected the validity of the leak rate surveillance tests.

I also recall that the plant was getting negative leak rate test results which from an engineering standpoint was not possible. I don't specifically recall negative leak rates being accepted as valid but Mr. Christopher has informed me that there were 39 tests that were accepted in this manner. I do not recall this but since I reviewed the daily plant status reports I must have accepted them. Again, I attribute these problems to deficiencies in the computer program and I believe the operators in frustration with the computer accepted the lesser of two evils, which was any leak rates result under 1GPM even if it was a negative result or the alternative to continue the test. In retrospect, since we had all pretty much agreed that the problem was in the computer program, we should have been more aggressive in resolving the problem. While we had good engineers on site, they were young and assigned many projects which diluted their attention to any specific problems. My earlier comments on depth of experience referred to computer knowledge.

As far as problems with the leak rate test program, I do not recall that I ever discussed this issue with Gary Miller, Jack Herbein or anyone else at that level. I believe we discussed the leakage from the pressurizer but never in the context of how it could or could not be affecting the plants ability to get a good leak rate test result. I felt that in comparison with other plant problems such as our problems with establishing the flow rate in one of the loops to the reactor that the problem with the leak rate surveillance tests were not very significant.

With respect to the leak rate test surveillance I never had any knowledge of or indication that the operators were attempting to in any way manipulate the leak rate test results by adding H₂ to the makeup tank or by adding water to the makeup tank during the test without inputting the additions into the

computer. Additionally, I have never discussed this issue with any management personnel while I was at TMI and no one ever indicated to me that they knew that the operators were attempting to manipulate the leak rate test results. Specifically, I have no reason or basis to believe that Jim Floyd, the Operations Supervisor knew that the Operators were in any way attempting to manipulate the test results. The performance of a leak rate test is something done as a matter of routine and the actual running of the test was not closely monitored by the supervisors. However, if the operators were attempting to affect the test results I would be surprised if the shift supervisors or shift foremen didn't know it; however, I have no basis for saying that the shift supervisors actually knew what was happening with respect to the tests.

With respect to the actual performance of a leak rate test, I knew that the operators were performing the tests more often than required by the technical specifications. I agreed that this was a prudent practice because you don't want to wait until the last minute of the time requirement to try and get a good test results. Many of these tests were run on the back shifts because there weren't as many plant evolutions going on that would affect the tests. I did not know that the operators were throwing away bad leak rate test results and this policy was never discussed with me and I never authorized such a policy. While I can't recall what was specifically done with the bad test results, I do know that we had an administrative procedure that required us to keep all surveillance test results.

As I understood and interpreted the surveillance requirement for the leak rate tests, you had to have a good leak rate at least once every 72 hours. It is also clear in my mind that every time you run a test and didn't get a good result you had to enter into the action statement. In my view, you should log the bad test and indicate the action taken to reduce the leakage. If I recall correctly, the administrative procedure required that you submit the bad test result with the explanation of how it was corrected. I also believe that the proper recording of the test results would include the logging of the start and stop times of the test. If the operators were not logging the start times of the tests it may have been because they were having problems getting the good test results; however, I have no basis or reason to state that this was in fact the case.

I have no knowledge as to who authorized the policy of throwing away bad test results. I personally feel the bad ones were supposed to be submitted along with an explanation of how the leakage result was collected. Because of the many perturbations that could affect the leak rate test I feel it was perfectly acceptable to get an unacceptable one as long as you explained the reason for the result.

I do not know if the operators were throwing away the bad test results so the NRC wouldn't see them. It is my recollection that the shift operator had the authority to invalidate a test result because they were closer to what the actual plant parameters were. Again I personally do not recall that the test results were being thrown away and if I didn't know it, I don't believe that Gary Miller or Jack Herbein knew it. Additionally, I don't recall Jim Floyd ever advising me or discussing with me the policy of throwing away bad test results.

Regarding other questions asked by Mr. Christopher, I do not recall any incident in which a shift supervisor requested permission to shutdown Unit-2 to repair valve leakage and that request being denied by the load dispatcher. If this request was made I can only assume that it would be overruled as long as we were meeting the technical specification requirements. Again, I recall no discussions with senior management i.e., Gary Miller or Jack Herbein regarding excessive leakage from the code safeties or PORV or any possible affect that leakage had on our ability to get a good leak rate.

While I considered the problem with the leak rate test to be the computer program, I never discussed the program with Dick Fels, the computer programmer. Fels worked for George Kunder and I personally did not have any expertise in the computer area and would not have been knowledgeable enough to talk to him about the leak rate surveillance program. I would rely on the technical support staff under George Kunder to work with Fels in resolving this problem. However, I do not recall any specific actions taken by the technical support group in this regard other than one revision to the computer program by Tom Morck, except to say that they were generally reviewing the program problems.

With respect to pressure being exerted on the operators to get good leak rates, I would agree that there was always pressure from the shift supervisors to get good leak rates because you didn't want to have to take the plant off line unless it was absolutely necessary. I do not believe nor do I know of any pressure being exerted on the operators to falsify leak rate test results in order to obtain satisfactory leak rate test results.

Mr. Christopher has asked me about my knowledge of an LER issued in October 1978 when the plant exceeded the technical specification requirements for unidentified leakage. I have also reviewed the LER at this time. Since I was in training during this time frame I have no knowledge of the events leading up to and following this LER to include whatever actions were taken during the PORC review. I feel that the problem was the computer program and we were not aggressive enough in resolving that problem. Mr. Christopher has also questioned me about Temporary Change Notice 79-076 of March 1979 and has shown me a copy of the document. To the best of my knowledge this TCN was initiated as a result of our continuing problem with the leak rate test computer program and our belief that the problem was due to the program. I have no independent knowledge of who identified problems with the leak rate calculation procedure. By looking at the document I would assume that Tom Morck was instrumental in the initiation of the TCN. I recall no specific information or discussions regarding the details of the TCN other than it supported the contention that the computer program for the leak rate test contained errors, but I deny that the TCN was intentionally written in such a fashion as to benefit only the plant and that other deficiencies in the TCN such as the failure to compensate for density changes in the make up tank additions were not taken into consideration in the TCN. As previously mentioned I was not knowledgeable of the computer program equations for the leak rate test.

Mr. Christopher has asked me if I am aware of any falsifications of leak rate test data at Unit I. I have no such knowledge of any activity occurring at TMI-1. My only recollection of RCS leakage at Unit-1 pertains to the borrowing of the Unit-2 PORV for use at TMI-1.

It is my belief that you can never have a 100% secure system with respect to leakage. There is always going to be leakage somewhere in your system and it has to be recognized and quantified. That is why we had technical specifications for leakage and as long as we remained within those technical specification limits it was acceptable to run the plant.

Finally Mr. Christopher has asked me if I was ever pressured by Gary Miller, Jack Herbein or Bob Arnold in such a manner that I felt I had to operate the plant in an unsafe condition in order to stay on line. At no time during my employment at TMI did I ever feel that I was being pressured or in any way being forced to operate the plant in a unsafe manner so as to avoid a plant shutdown.

I have been asked with regard to the Unit Superintendent's (sic) signature on the TCN 79-076 if that signature was mine. I confirm that the signature is mine.

With respect to the position of Larry Lawyer in the company at the time of the accident, he was not routinely part of the morning conference calls with Jack Herbein although he took the calls when Herbein was not available. This was infrequent. At times he was a party to the calls but not routinely.

I have read the foregoing statement consisting of 11 handwritten and typed pages. I have made and initialed any necessary corrections and have signed my name in ink in the margin of each page. This statement is the truth to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is true and correct. Executed on 11/18/83 at 0940.

INTERVIEWEE: Original signed by J. B. Logan 11/18/83

Subscribed and sworn to before me this 18th day of Nov, 1983, at 0941.

INVESTIGATOR: Original signed by R. K. Christopher 11/18/83

WITNESS: Original signed by P. J. Connolly 11/18/83

EXHIBIT 45

SWORN TESTIMONY OF LAWRENCE LAWYER/11-10-83

ORIGINAL

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of:

INTERVIEW OF LAWRENCE LAWYER

Docket No.

Location: Atlanta, Georgia

Pages: 1 - 76

Date: Thursday, November 10, 1983

TAYLOE ASSOCIATES

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

INTERVIEW OF LAWRENCE LAWYER

Holiday Inn, Airport North
Apollo Room No. 2
Atlanta, Georgia

November 10, 1983
10:00 a.m.

1 Appearances:

2
3 For the OI Staff:

4 Peter J. Connolly

5 Robert Keith Christopher

6
7 For the Witness:

8 Smith B. Gephart, Esq.

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P R O C E E D I N G S

1
2 MR. CONNOLLY: The time is 12:17. The date is
3 the 10th of November 1983. We are in Apollo Room Number 2
4 at the Holiday Inn Airport North, Atlanta, Georgia.

5 Present is myself, Peter J. Connolly and Robert
6 Keith Christopher. Both of us are investigators with the
7 Office of Investigation, Nuclear Regulatory Commission.

8 Also present are Mr. Larry Lawyer and his
9 attorney, Smith B. Gephart.

10 Larry, at this time, I wish to put you under
11 oath. But beforehand I would like to advise you that under
12 Title 18 of the United States Code, Section 1001, lists
13 criminal penalties providing for false information or false
14 statements under oath. Are you aware of the consequences of
15 1001, if you provide false information during this testimony?

16 MR. LAWYER: Yes.

17 MR. CONNOLLY: At this time, would you please
18 raise your right hand, stand up and I will swear you.

19 MR. LAWYER: Yes.

20 (The witness is sworn by Mr. Connolly.)

21 Whereupon,

22 LAWRENCE LAWYER

23 was called as a witness and, having first been duly sworn,
24 was examined and testified as follows:
25

1 DIRECT EXAMINATION

2 BY MR. CONNOLLY:

3 Q At this time, would you please state your
4 full name?

5 A I am Lawrence L. Lawyer.

6 Q Where do you presently live?

7 A 2530 Chimney Springs Drive, Marietta, Georgia
8 30062.

9 Q What is your present occupation?

10 A I am presently a licensing examiner for the
11 Nuclear Regulatory Commission in training.

12 Q And how long have you been in that position?

13 A Since late June 1983, that's this year.

14 Q Prior to your employment with the Nuclear Re-
15 gulatory Commission, who were you employed with?16 A I was unemployed from January of 1983 until my
17 present employment. Prior to that I was employed by General
18 Public Utilities and its subsidiaries from 1973 until
19 January 1983.

20 Q What was your position with GTU?

21 A Originally, I was Section Head of their licensing
22 group. That was from July 1973 until November 1973.23 November 1973 until May 1977, I was Manager, Generation --
24 Manager, Quality Assurance. May of 1977 until -- I can't
25

1 be specific about the date when my Manager, Generation-
2 Operations title officially ceased. But, sometime about
3 1980, mid-1980, I was made Manager, Special Projects.

4 At that time, I went on loan to the Institute of
5 Nuclear Power Operations in Atlanta, Georgia.

6 Q During 1978 and up until the accident at Unit 2,
7 March of 1979, what was your job at GPU?

8 A I was more specifically working for Metropolitan
9 Edison Company, a subsidiary of GPU, as Manager, Generation-
10 Operations in charge of all maintenance and operations of
11 their generation stations, fossil and nuclear and hydro.

12 Q Did this also include Unit 1 and Unit 2 at Three
13 Mile Island?

14 A Yes, sir.

15 Q And could you describe to me briefly what did
16 that job entail?

17 A I --

18 Q Regarding specifically Units 1 and Number 2.

19 A With respect to the two TMI units, it was general
20 overseeing of the operations and maintenance, budgeting,
21 staffing, technical operations.

22 DIRECT EXAMINATION

23 BY MR. CHRISTOPHER:

24 Q Who did you report to directly there?

25 A During the time period that we are talking about,

1 1978 until the time of the accident, I reported to the
2 Vice-President, Generation, who was Jack Herbein.

3 Q Who directly reported to you from the Island
4 itself? Were there any station personnel that reported
5 directly to you?

6 A Yes. During this time, only Gary Miller.

7 Q Gary reported to you, and in turn then to Jack
8 Herbein?

9 A Gary Miller reported to me, and I reported to
10 Herbein.

11 Q For Gary Miller's purposes, was that a dual
12 reporting? Would he go solely through you, or did he, as
13 a matter of routine, discuss plant status with both yourself
14 and Jack Herbein?

15 A I think you stated two different questions, as
16 I see them. Number one, he officially reported through me.
17 Who he, in addition, had conversations with, of course, is --
18 there were no restrictions. It wasn't that much rigidity in
19 the organization that a person couldn't talk to other people.

20 And, in fact, I would have expected, for example,
21 if Gary had a question, an engineering question, he would
22 have talked to the Manager, Generation-Engineering, probably
23 before he even talked to me. He would have talked to me more
24 in the context of, he wasn't able to get the resources from
25 Generation-Engineering that he was needing, or he might talk

1 to the Manager of Quality Assurance about a QA problem.

2 Q I think that's what I'm getting at, about how
3 flexible is the reporting chain.

4 A Well, they are flexible. I would have been dis-
5 appointed or offended, or whatever you say, if he had asked
6 Jack Herbein to give him resources which he had not pre-
7 viously asked me for.

8 Q Did you have routine readings with Gary Miller,
9 Jack Herbein, and/or the unit superintendents regarding the
10 daily status of the plant?

11 And when I say the plant, for today I am only
12 going to refer to TMI.

13 A Well, first of all, I did not have routine meet-
14 ings with Gary Miller and Jack Herbein. I had routine once-
15 a-month meetings with all of the station managers. That did
16 not include the two Unit 1, Unit 2 superintendents that re-
17 ported to Gary.

18 But, Gary and I and the other fossil station
19 people in charge of those fossil stations which we call
20 plant superintendents of those stations routinely met once a
21 month. That did not include Jack Herbein.

22 And now I forget the rest of your question.

23 Q So, did --

24 A Oh, I'm sorry. I'm sorry. I do remember, if I
25 can interrupt. In addition to that, with each of the plant

1 superintendents, i.e., the Gary Millers, I talked with each
2 of those daily during those times that I was in the office.
3 We had a morning status report. That basically was five days
4 a week.

5 And sometimes for each of them, prior to ten
6 o'clock in the morning. Now those, for a period of time,
7 included -- on Gary Miller's end, included the unit super-
8 intendents.

9 Q Now, these obviously were telephone-type conversa-
10 tions, briefings?

11 A Yes.

12 Q How long did those generally last?

13 A Ten minutes, fifteen minutes.

14 Q And what would the discussions be oriented to-
15 wards?

16 A Primarily they were reallocation of resources.
17 I would typify the thrust of those were to be sure that we
18 agreed upon the priorities of where the Ready Department
19 resources were going with respect to the individual plants.

20 Q To allocate certain man-hours, monies to, say,
21 maintenance activities, those kind of discussions?

22 A Engineering effort into design modifications.
23 A lot of it was manpower issue, the total Metropolitan
24 Edison Generation Division manpower budget for the upcoming
25 year, how many were going to be assigned to each station.

1 Q Did you also ever attend what is referred to as
2 the POD, or the plan-of-the-day, meetings?

3 A No, I did not.

4 Q You never attended any of those?

5 A I never did, not to the best of my knowledge.

6 DIRECT EXAMINATION

7 BY MR. CONNOLLY:

8 Q Let me ask a question for the record. Where
9 was your office located during this time period?

10 A In Reading, Pennsylvania. Probably two locations
11 in Reading, Pennsylvania. One at the Metropolitan Edison
12 Home Office. For a period of time, and it may have en-
13 compassed the 1978 time, we were located in what is now the
14 Vanity Fair Buildings.

15 Q Did you frequently make trips to Island?

16 A Yes. The once-a-month meetings that I referred
17 to before were conducted at three locations. One of which
18 was TMI. So, about every third or fourth month that meeting
19 would have taken place at TMI.

20 And I would guess during my time as Manager,
21 Generation-Operations we had three such meetings at TMI,
22 other station managers, station superintendent plant,
23 superintendent people.

24 In addition to that, I went to TMI to meet with
25 Gary and to talk in more detail about plant staffing, O&M

1 budgets and that sort of thing. I tried to do that at least
2 once a week. I imagine some weeks -- well, I'm certain
3 some weeks I was out there twice a week.

4 And there were other non-routine kinds of meet-
5 ings.

6 DIRECT EXAMINATION

7 BY MR. CHRISTOPHER:

8 Q Can you recall, during these time periods, ever
9 having or entering into any discussions, very specifically
10 with Gary Miller regarding the problems that were being ex-
11 perienceed with obtaining acceptable leak rates to meet
12 technical specification requirements?

13 A At either units?

14 Q Specifically Unit 2 or Unit 1.

15 A No.

16 Q Your discussions would not enter into that type
17 of level of detail?

18 A To the best of my knowledge, our discussions did
19 not. Yes, I think our discussions would have if it were
20 a problem which Gary perceived that he wasn't able to fix
21 the procedure or the mechanism by which they did it.

22 They perhaps would have asked for engineering
23 assistance. I don't know what that might have been. If
24 it were perceived as an engineering problem, he might very
25 well have asked me to help him get engineering resources to

1 redesign the problem or whatever. This did not happen.

2 Q You do not recall that you entered into any dis-
3 cussions with Gary regarding any design changes or maintenance
4 allocations that would need to be made due to problems in
5 obtaining good leak rates?

6 A No.

7 Q Are you familiar with the term "leak rates"?

8 A Yes.

9 Q Are you personally familiar with the technical
10 specifications and the surveillance procedure by which the
11 plant would actually go about obtaining leak rates?

12 A During the time interval in which you are interest-
13 ed, I think I have to say that I was not familiar in any
14 detail with the technical specifications. During both that
15 time and now, I am not familiar with the surveillance pro-
16 cedure by which the leak rate was obtained.

17 The reason I am apparently hedging a little bit,
18 I've just gone through a training program and have studied
19 the tech specs and part of that was the leak rate. So, yes,
20 I am familiar with the standardized tech spec leak rates.

21 Q The standardized rate but not the specific tech
22 spec as implemented at TMI?

23 A I don't know for certain what the tech spec at
24 TMI was at that time. But, it is my belief that it probably
25 was the standardized tech spec. If not, close to it.

1 Q Let me just show it to you to help your recol-
2 lection. You may want to thumb through a couple of these
3 pages. These are the various technical specifications for
4 actions required for cooling system leakage, if you will just
5 take a few minutes to familiarize yourself with those.

6 A (The witness looks at paperwriting.)

7 Q I think it's 3.4.6.2, reactor cooling system
8 operation leakage.

9 A I was not familiar with these before. And I
10 understand these are not standardized tech specs.

11 Q So, prior to this and prior to the accident, you
12 do not recall ever having a need for any -- or any reason to
13 sit down and review this technical specification and discuss
14 any of its requirements with the plant operating staff,
15 specifically either Gary Miller or the unit superintendent
16 who, at that time, would have been Joe Logan or Jim
17 Sellinger?

18 A Very simply, I did not sit down and discuss with
19 them about the difficulty of doing the measurements required
20 by that. I should point out to you, though, that some time
21 during the time that I was Manager, Generation-Quality
22 Assurance -- it was -- the time frame was of 1974-1975, I
23 was asked by the then Vice-President, Generation, Bob Arnold,
24 to serve on a committee to help draft standardized tech
25 specs.

1 During the process of that, I certainly must
2 have reviewed the proposed standardized tech spec leak rate
3 section which we are discussing. I may have, although I
4 have no recollection, also discussed it with some of the
5 plant people to get operations input into what position we
6 believed we should take on a leak rate. But I have no re-
7 collection of having done that.

8 I just allowed the possibility.

9 Q Have you ever -- in following up on that, have
10 you actually ever had occasion to review or to implement
11 the surveillance procedure which actually implements the
12 requirements for the technical specification?

13 A No.

14 Q And I will just let you take a look at it.
15 That's 2301-3D1. And those are some of my notes up at the
16 top, and the rest is actually the procedure for carrying
17 out the requirements at the plant.

18 A My only familiarity with it is that the format;
19 that is, the cover page, and the material in the upper corners,
20 looks to be standard format.

21 Q Would you have had any involvement in the actual
22 writing, preparation or review of this procedure prior to
23 its implementation?

24 A No.

25 Q Who would normally have done that?

1 A I am somewhat guessing a little bit, but it
2 would be my judgment that that would have been done by an
3 engineer at the plant site who was knowledgeable in the area.
4 It would have been reviewed by the plant operations review
5 committee.

6 Q That would be PORC?

7 A PORC. And approved by the unit superintendent,
8 perhaps the station manager, Gary Miller.

9 Q Do you know what the level of detail would be
10 in the review of a procedure like that? Would it be
11 primarily relying on the engineer who wrote the procedure
12 to ensure its accuracy?

13 A I have to answer that from my perspective, from
14 the time that I worked at that level; and I am, therefore,
15 assuming that that's the way it worked at TMI.

16 Certainly, in most cases, the person who wrote
17 the procedure would have been selected probably because he
18 was the most knowledgeable in the area. Persons sitting on
19 the PORC, plant operations review committee, would not have
20 assumed that that person was infallible. And they would
21 have felt free to question certain provisions of it or sug-
22 gest additional provisions, particularly quality assurance
23 people would have.

24 Q Is the review process something that is done in
25 a matter of hours or a matter of days? I'm speaking of the

1 review process for the approval of procedure. In other
2 words, does it cycle its way through the plant review staff
3 within a day, or do each of the various reviewers keep it
4 for any particular length of time, a couple of days? Do
5 they actually run tests with it?

6 Or, do you have any way of knowing?

7 A It's most appropriate for me to answer that in
8 the knowledge I have of the TMI 2 situation, and I only say
9 that because time marches on and things change as time goes
10 on. During the initial building and start-up of the plant,
11 the initial writing of the procedures, it should take much
12 longer to get a draft procedure approved. Because, after
13 all, you are starting with a somewhat unknown quantity and
14 the job is just much bigger to get the first draft out than
15 to get a revision.

16 For revisions, they could go quite fast if it
17 were common knowledge that the thing that is being changed
18 fixed a specific problem, that review process could go quite
19 fast.

20 For some reason -- and it's something that I do
21 have at least secondhand information on, is the time it took
22 to get a procedure through the review process at TMI. And
23 during the time frame that we are talking about, I think was
24 much longer than the operations people were content with.

25 I could conclude from that that people were spending

1 a fair amount of time reviewing that procedure or that they
2 had many other tasks to do and were not given as much
3 attention.

4 Q In other words, the operations people actually
5 felt perhaps they were being held up while waiting to get
6 procedures?

7 A Not just operations people; everyone.

8 Q Do you know if, as a result of that natural
9 tendency to want to get things moving, that there would have
10 been any pressure exerted to expedite these reviews, to
11 limit the reviews in order to continue on with the various
12 plant evolutions?

13 A Those are two different things. One, yes, it
14 is my belief that there was a process by which procedures
15 could be expedited. Certainly, no, that it would not be
16 cut short. It means merely they would be put at the top of
17 the work list.

18 Q I understand that there was always a "pressure"
19 to keep things moving along. Any good manager expects to do
20 that. What I'm talking about is an undue pressure exerted
21 that would result in any improper review of a -- let's say,
22 in this case, a particular surveillance procedure?

23 A I'm confident there would not have been.

24 Q No individual, particular individuals, and
25 particularly the QA Department, complained to you, or

1 through Gary made known to you, that that was in fact the
2 case?

3 A No.

4 Q This I think maybe you have already answered it,
5 in the review process on these surveillance procedures, I
6 know it says Unit 2 staff recommends approval. And it is --
7 the handwriting on it is NA, and I assume that stands for
8 not applicable. Then, it is signed and reviewed by the
9 PORC chairman and apparently the Unit 2 superintendent. I
10 can't make out the name there. And then the Manager,
11 Generation-Quality Assurance approval is also not applicable.

12 Do you know the reason why the Unit 2 staff
13 approval, the QA approval, is deemed not applicable in this
14 case?

15 A No. I would have to look at the administrative
16 procedure and see when those are to be filled in. I have
17 no knowledge of that process.

18 Q As a matter of routine approval, does it actually
19 require the approval -- at that time, you would assume it
20 would require the staff approval and the QA review and
21 approval?

22 A I really can't say. The safest thing to do is
23 look at the administrative procedure which governs the
24 issuance of procedure to see what it requires.

25 Q My theory -- and I thought maybe you could answer

1 it -- was that if there was only a revision made -- the .
2 original surveillance procedure was written in 1977 with
3 the last revision being February '79. My thought was, is
4 this in here because it was only a minor revision to the
5 basic procedure versus a full review being required, or
6 the procedure in line with what you said earlier?

7 A It's quite easy to find out.

8 Q Is that by reviewing --

9 A The administrative procedure which governs the
10 conduct of the reviews of procedures.

11 Q Do you recall which administrative procedure
12 that was?

13 A No. Wait a minute. Well, I would only be guess-
14 ing. I believe 1000 or 1001. And I believe it was AP 1000.

15 Q AP 1000?

16 A Yes, or 1001.

17 Q And that, to your recollection, sets forth the
18 review procedure for surveillances, if that is in fact the
19 actual proceeding?

20 A Yes.

21 Q I understand.

22 A There is an administrative procedure, and I'm
23 guessing. But I think that's a seventy percent guess.

24 Q As part of your position, Larry, at that time, you
25 have said that you indicated that you had almost a daily or

1 ten minute discussion or so with the Gary Miller and Jack
2 Herbein conference call type meeting.

3 A No, sir. With Gary Miller, and quite often that
4 included the two unit superintendents. But that did not
5 include Jack Herbein.

6 DIRECT EXAMINATION

7 BY MR. CONNOLLY:

8 Q Who were the two superintendents?

9 A Over the other times, it would vary. Joe Logan,
10 Jim Sellinger and Jim O'Hanalon.

11 Q Were they with Unit 1 or Unit 2, those gentlemen?

12 A Joe Logan was Unit 2 superintendent at the time
13 of the accident. Jim O'Hanalon had already left the
14 Company. I think Jim Sellinger was unit superintendent.

15 Q And when Jim O'Hanalon was there, was he with
16 Unit 2 or with Unit 1?

17 A Unit 1.

18 DIRECT EXAMINATION

19 BY MR. CHRISTOPHER:

20 Q These were conference -- I will call them
21 conference calls, and they were between yourself and as a
22 matter of routine, Gary, or the station -- the plant -- the
23 individual plant unit superintendents? These did not
24 routinely involve Jack Herbein?

25 A To the best of my knowledge, rather quickly

1 thinking about it, they never included Jack Herbein.

2 Q Could it have been once in awhile as a matter
3 of routine?

4 A It could have been once or twice over the
5 years, yes.

6 DIRECT EXAMINATION

7 BY MR. CONNOLLY:

8 Q For the record, could you identify who Jack
9 Herbein was?

10 A Vice-President, Generation, Metropolitan Edison
11 Company.

12 DIRECT EXAMINATION

13 BY MR. CHRISTOPHER:

14 Q Do you know if Gary Miller and the unit superin-
15 tendents had the same similar type of telephone conferences
16 with Jack Herbein on any basis?

17 A It's my belief that they did not.

18 Q Did not? Again, Gary Miller could have routine
19 conversations with Herbein and not necessarily with you as
20 a party; that's also correct?

21 A I could not assure you that anyone did not have
22 a conversation with someone. As I indicated previously,
23 I would have been shocked and surprised. I'm certain they
24 did not on a routine basis.

25 Now, they might have had -- they might have had

1 a conversation, and I would expect that they have had con-
2 versations, but not routine.

3 Q Sure. I was just trying to get a clear picture
4 as to just how the information flow was between them.

5 After you would have your conferences with Gary,
6 and the unit superintendents, would you then, as a matter
7 of routine, report the results of those to Jack Herbein or
8 brief him with regard to plant status and the events?

9 A No. That -- my reporting to Jack Herbein was
10 on a routine basis, was on an exception basis. That is,
11 if there were something that we needed in terms of research
12 at TMI which, if I wasn't able with the other managers to
13 work out, I would have gone to Jack Herbein.

14 It would not be unusual for him to have stopped
15 by and ask me how the plants were doing, i.e. inviting me
16 to tell him of problems that we were having, and particularly
17 resource problems we were having.

18 Q Okay. Now, did you also discuss during these
19 conferences the daily status report?

20 A Yes.

21 Q I understand you got a copy of that on a daily
22 basis?

23 A I got a copy of a daily plant status report.
24 Your question started to ask, or to state that that conversa-
25 tion we had was a daily status report.

1 Q Was it in conjunction with the receipt --

2 A No.

3 Q -- of the daily status reports?

4 A No. That was not a daily conversation covering
5 the status reports. It was a daily report of the status
6 of the plant, the phone conversation was. It was totally
7 separate from the piece of paper.

8 Q What kind of information would be on the daily
9 status report?

10 A On the piece of paper?

11 Q On the piece of paper, right.

12 A The -- I don't have a good recollection. The
13 power level was on there, and there were individual para-
14 meters of plant operations which were displayed on there.

15 There was an additional piece of paper, plant
16 status report, which listed only the past twenty-four hours
17 and current plant status at generation levels. It was
18 strictly a megawatt rating sort of document which was also
19 called a plant status report, which encompassed all
20 Metropolitan Edison -- I'm sorry, all GPU plants.

21 Q Do you recall if RCS leakage rates would have
22 been included on those daily status reports?

23 A I would not have, except I had occasion to see
24 one again within the past six or eight months. So, I do
25 know that there is provision on that form for RCS leak rate.

1 Q But you don't recall any direct discussions
2 during your conversations regarding any questions you had --
3 regarding any information that may have been on the RCS leak-
4 age entry portion of this document, or again any particular
5 discussions regarding RCS leakage or RCS leakage problems?

6 A No. During the telephone conversations that we
7 were talking about, no. Or of the meetings.

8 Q I was just trying to clear that up. I was read-
9 ing a transcript of Gary Miller from the B&W trial testimony.
10 And one of his comments was that in respect to a question
11 regarding conversations with Mr. Logan and Mr. Herbein
12 concerning increased leakage, his response was: I discussed
13 the status -- the status that I discussed, that I obtained both
14 verbally -- and verbally I was on the Island -- and also
15 the status sheets for the units, both to Mr. Lawyer and Mr.
16 Herbein. I'm sure that we discussed that item. It was
17 common for us to go through that sheet in the morning, both
18 with Herbein and with Lawyer.

19 So, I'm just trying to get to what level of detail
20 that you discussed those items, whether or not this was a
21 conference-type conversation between the three of you or
22 whether they are independent conversations?

23 A I can't explain that testimony except I believe a
24 portion of what he is saying, when he says we went through
25 the status report, he perhaps had a copy of that status report

1 in front of him, and he may indeed have been using that as
2 a guide in his conversation.

3 I did not have it. I don't believe it was in
4 the Reading office at the time. Jack Herbein was not a
5 party to those conversations.

6 Q But, again, Gary was free to discuss with Jack
7 Herbein any necessary operations or conversations he felt
8 he needed to have?

9 A Yes.

10 Q Whether you were present or not?

11 A (The witness nodded in the affirmative.)

12 Q The -- are you -- again, you have reviewed the
13 surveillance procedure, 2030 3 D01. Do you specifically have
14 any working knowledge of that surveillance procedure it-
15 self?

16 A No.

17 Q Okay. Do you have any --

18 A Can I interrupt just a minute?

19 Q Sure.

20 A I'm picking at your conversation, but you asked
21 me a question and leading into that made a statement. The
22 statement, you said I had reviewed the procedure. I don't
23 believe I have to my knowledge. I saw it this morning.

24 Q Only in context, knowing what --

25 A Yes. I know what you are talking about. Yes.

1 Q Do you have -- again, going back to the pre-
2 accident time, you at that time, did you ever specifically
3 review the procedure for the purpose of, for any reason, you
4 yourself actually going out and performing an RCS leakage
5 test?

6 A No.

7 Q Were you at that time aware of what the actual
8 limitations and requirements were for a leakage in terms of
9 identifying or an unidentified leakage?

10 A I was not aware of what those leakages were at
11 TMI 2 specifically. To the best of my knowledge, I may have,
12 in conjunction with this committee developing the standardiz-
13 ed tech specs, may have been familiar with generalized leak-
14 age requirements.

15 Q One of the surveillance requirements in the
16 procedure states that under Section 2.0, refers to the
17 applicable surveillance frequency modes and the surveillance
18 frequency, states at least once per seventy-two hours during
19 steady state operations.

20 The -- my interpretation of that is that that
21 means you have to run one leak rate test every seventy-two hours
22 on the face of what I'm reading. Do you recall having any
23 particular interpretation on your own specifically regarding
24 what the surveillance frequency requirement would be for
25 this procedure?

1 A No.

2 Q In looking at that, under Section 2.0, would
3 you have any different interpretation of the frequency
4 requirement?

5 A Your question, as I understood it, was would I
6 have any different interpretation, and I believe you are
7 referring to the difference between my interpretation and
8 what you just stated?

9 Q That's right.

10 A Not -- I'm not totally certain what you just
11 stated, but what this says to me is at least once per
12 seventy-two hours. At no time an interval longer than
13 seventy-two hours.

14 However, I would point out that, to myself and I
15 believe certainly any licensed operators, this would not
16 take precedence over tech specs. I would expect to see the
17 seventy-two hour statement in tech specs. And I would rely
18 on the wording in it rather than this wording.

19 Q And the tech spec is also saying the same thing,
20 seventy-two hour frequency. It is in conformance with that.

21 What I am just trying to get to, Larry, is that I
22 understand you never actually performed a leak rate test
23 yourself. Were you licensed to be an operator during this
24 time period?

25 A No.

1 Q So you could not have technically performed one
2 if you wanted to?

3 A I don't know.

4 Q You don't know whether or not -- I don't know the
5 answer to this, whether or not that is a surveillance
6 that can only be performed by a licensed operator.

7 A I would be surprised if it is, but I don't
8 know.

9 Q Do you have any familiarity or knowledge what
10 the actual frequency that the operators performed their
11 tests during this, let's say, the six months preceding the
12 accident up to the accident?

13 A I have no direct knowledge, no.

14 Q Have you had -- prior to the accident, do you
15 recall any discussion with anybody from the Operations
16 Department or with Gary Miller, or with the unit superintendent
17 regarding the frequency by which the operators were perform-
18 ing the tests?

19 A I did not have any conversations such as that.

20 Q So, at that time you were not aware that they
21 were running the tests maybe on an average of once or twice
22 a shift, or possibly more?

23 In other words, you were not aware that they
24 were --

25 A During that time, I was not aware, no. No.

1 Q Good operation philosophy normally would indicate
2 the fact that the tech spec and the surveillance procedure
3 requires that the test be run once every seventy-two hours.

4 The normal good operating practice would be to
5 run more than the tech spec requires. Do you know if that
6 is the case?

7 A More than required could mean -- well, let me
8 start over.

9 Just common sense and good operating practice
10 requires that you run the second leak rate, or whatever the
11 surveillance is, at some time less than the seventy-two or
12 you may not get it done.

13 Q Correct.

14 A So, certainly there has to be some lead time.

15 Q There would be nothing on its face to prohibit
16 you from running more than the number of tests specified
17 by the surveillance procedure or the tech specs.

18 You could technically run as many as you wanted
19 to run.

20 A (The witness nodded affirmatively.)

21 Q Do you have any understanding as to what the
22 operators are required to do after a leak rate test was
23 completed?

24 A No.

25 Q What they were required to do with the test

1 document?

2 A No.

3 Q Do you have any knowledge of the fact of what
4 operators were doing with leak rate test results that did
5 not meet the technical specification requirements?

6 A I did not at that time know.

7 Q Are you now aware of what they were doing?

8 A I can't say that I'm aware firsthand. I have
9 heard from some second parties that there are at least
10 allegations of what they were doing.

11 Q So, between the Grand Jury and the newspapers --
12 you read the allegations like everyone else?

13 A Yes. And I've been asked questions if that was
14 the case. Perhaps it was even stated to me during Grand
15 Jury investigations.

16 Q But you personally are not aware of what operators
17 were actually doing with leak rate test results whether they
18 were acceptable or non-acceptable?

19 A No, sir.

20 Q Do you have any understanding as to what an
21 operator would be required to do with a bad -- and when I
22 say bad one, did not meet tech specs -- do with a bad leak
23 rate test?

24 A Bad, in the context that you just defined it, they
25 would be required to report that to the Commission.

1 Q Do you --

2 A Your term bad --

3 Q I'm only referring to not meeting the LCO. Let
4 me ask this question to see -- I'm trying to just determine
5 what your understanding of the actual day-to-day operation
6 of that would have been.

7 If the operator ran a surveillance test at one
8 p.m. today and the test met the applicable technical
9 specification requirement, then by the technical specifica-
10 tion he had three days hence before he needed to get another
11 good one to meet the tech specs. If, then, at four o'clock
12 this afternoon that operator ran another leak rate test and
13 got a bad result -- bad in the context that I mentioned
14 before -- do you know whether or not he was required to
15 initiate any type of actions?

16 A It is my belief -- again using your definition
17 of bad -- that he is required to report that to the Com-
18 mission and take whatever actions are required by the action
19 statement.

20 Q Okay. Let me -- I will let you read -- I will
21 let you refer to -- you may just look over Section 6.4 down
22 to 6.4.3, the various steps regarding the obtaining of test
23 results.

24 A (The witness looks at paperwriting.)

25 Q And I guess you want to read that in connection

1 with the tech spec action requirements for the technical
2 specification which is Sections A and B.

3 As you review that, my question -- what I'm
4 interested in -- and I understand you said you understand
5 that it requires reporting to the Commission. And by that,
6 you are familiar with the LER, the licensee event report,
7 which is the mechanism by which you report a violation of
8 technical specifications.

9 A Yes.

10 Q Is that what you are referring to in terms of
11 reporting --

12 A Yes.

13 Q Prior to having to do that, as you will see, the
14 procedure first permits you to run -- first run another leak
15 rate test, I believe, and allows you a certain mechanism by
16 which to identify leakages.

17 A My reading of it is it -- the second step of the
18 procedure says to perform another determination of the
19 RCS leak rate to ensure that no unaccounted for operator
20 action has occurred, and if it has that that invalidates
21 the measurement.

22 Q Correct. And you understand if you were not
23 able to meet the requirements of -- to invalidate the test,
24 then you would have to go into the LER, i.e. the reporting
25 to the Commission?

1 A This doesn't, to me, address the problem that
2 you are never able to get a valid measurement. It says in
3 the event that you have an invalid measurement, or that
4 in the event things have happened to invalidate the measure-
5 ment, this declares it an invalid measurement.

6 It just says --

7 Q Which you are perfectly authorized to do, if they
8 can invalidate it. I understand.

9 What I'm coming to, under the assumption that
10 we were not able to invalidate the test, for whatever reason,
11 by going through these particular --

12 A You have a valid reading.

13 Q You have a valid reading that is in excess of
14 the technical specification requirement, do you at that time
15 have to enter the action statement which -- I'm sorry.

16 Do you at that time -- yes, do you have to enter
17 the action statement which starts a shut-down proceeding and
18 also what is not implicitly stated there, do you also then
19 have to initiate the LER?

20 A Yes.

21 Q Do you have to do that even though you are still
22 within the seventy-two hour time frame from the leak rate
23 test that was performed satisfactorily, say four hours
24 before?

25 A Yes.

1 Q You still would. So that seventy-two hour time
2 period would be irrelevant from the previous test at the
3 time you ran this test irregardless of when the last good
4 one was run, you should then enter the action statement and
5 that starts the clock, commencing a plant shut-down, and
6 notifying the Commission if that is what is required?

7 A You have entered the action statement. It isn't
8 a matter of you entering it, but you are in the action
9 statement.

10 One thing that probably isn't pertinent, but
11 within the action statement there is a provision for four
12 hours also.

13 Q I understand. Which is also part of --

14 A Is part of the action statement. And that would
15 require other measurements during that four hours.

16 Q Irregardless of the seventy-two hour time, as
17 stated by the tech spec and the surveillance procedure, at
18 the time point that you get a bad leak rate you have to enter
19 into the action statement and start these various mechanisms
20 which could include ultimately a plant shut-down and the
21 issuance of LER?

22 A At the time that you get a valid reading which
23 is outside, exceeding, violating the LCO, you are into the
24 action statement and that does require that you take the
25 action stated here which would also include reporting.

1 Q Okay. Good. Do you know if all leak rate tests,
2 without having the applicable procedures in front of you,
3 do you recall whether or not all of the leak rate surveil-
4 lance tests are required to be logged in the Control Room
5 operator's log?

6 A I have no knowledge of whether -- I am not
7 familiar with that procedure.

8 Q Let me just, for information purposes for the
9 next several questions -- this is the station administrative
10 procedure 10-12, which was in effect at that time. This
11 specifically -- the purpose of the administrative procedure
12 is to "establishes requirements for shift relief and for
13 recording station operating activities in logs or other
14 controlled documents on a shift basis".

15 And it also describes the various shift records
16 and logs involved and instructions required to maintain
17 these records to conform to technical specifications. That
18 is the stated purposes.

19 With that in mind, I just wanted you to take a
20 moment and look at Section 3.3 which specifically refers
21 to the control of the log, and then you go to two pages
22 hence which I have yellow outlined. Just take a quick look
23 at those.

24 A (The witness looks at paperwritings.)
25

1 Q All right.

2 A I have read it.

3 Q Okay. Does this administrative procedure, and
4 specifically I was referring to 3.317, indicate to you that
5 the start time and the start time of this particular sur-
6 veillance procedure should be logged, considering for a
7 moment that the test is run for, I believe, a one-hour
8 time period. It starts at Time One and ends at Time Two.

9 A I would have to read it. But, I caution you
10 that we may be taking something out of context. I have not
11 read everything else that it says.

12 (The witness reads paperwriting.) It does state,
13 start and completion time, or time of suspension of test.
14 That may very well -- that time span may very well, and
15 probably would I think, include whatever review time was
16 required of this surveillance. Yes.

17 Q I understand. Really, my point was, if we start
18 the test at Time One, should we log test surveillance pro-
19 cedure 2301-3D1, initiated at that particular time?

20 A Yes.

21 Q Okay. And then it could -- the time of the
22 actual conclusion and review of the test, you would log
23 the conclusion time?

24 A Yes.

25 Q Okay. Do you know whether or not the operators

1 were logging the start time of the test during this time
2 period?

3 A No.

4 Q Do you ever recall any discussions, again with
5 station management, regarding how operators were recording
6 test results? More specifically, for the leak rate test?

7 A No.

8 DIRECT EXAMINATION

9 BY MR. CONNOLLY:

10 Q Were you involved in reviewing any of these
11 particular logs?

12 A No. Could I just inject something? With respect
13 to the AP 10-12 which you showed me, there is a provision
14 for an hourly log and it overtly states that log will
15 reflect plant parameters on an hourly basis. It will
16 normally be prepared by the plant computer but can be
17 manually prepared.

18 In the next section under control room log,
19 there is no distinction as to whether this information, some
20 or all, is being provided by a handwritten notebook.

21 DIRECT EXAMINATION

22 BY MR. CHRISTOPHER:

23 Q I understand.

24 A I'm not certain from the portions I've read that
25 the operators may have considered some plant computer data

1 as a portion of that control room log. I just don't know.

2 Again, I say I have taken it out of context, so
3 some start and begin times may even be recorded by the
4 plant computer. If it is a particular evolution which the
5 computer would mark, then --

6 Q I understand. We had a computer print-out for
7 the leak rate test which showed a start time and stop time.

8 A That might be.

9 Q Okay.

10 A I just don't know.

11 Q Okay. Is it your interpretation that all sur-
12 veillance, irregardless of whether it's this particular one
13 or any other surveillance test that is performed in response
14 to a textbook requirement, the actual performance of that
15 test would be logged in some fashion; in this case, it's
16 a control room operator function, so it would be the actual --
17 the actual performance of the test would be required to
18 be logged?

19 A I would generally expect it would be logged on
20 individual surveillance sheets.

21 Q Do you know who is actually responsible for
22 reviewing those logs at that time?

23 A No. I don't have firsthand knowledge. I would
24 assume that the shift for the -- whatever logs the control
25 room operator kept, his shift, his shift relief, both he

1 and they would review those logs. The shift supervisor
2 coming on may have reviewed his logs. I don't know.

3 But, certainly the shift supervisor coming on
4 would have reviewed the logs of the previous shift super-
5 visor.

6 Q But you never personally got involved in that
7 level of detail?

8 A No.

9 Q Do you know during the -- again, this is a six-
10 month time period prior to the accident, did you have any
11 knowledge at that time that operators were throwing away
12 test results?

13 A No.

14 Q By throwing away, I mean garbage can throwing
15 away, those test results specifically that came up with the
16 results that did not meet the technical specification require-
17 ments?

18 A I did not have any knowledge of that.

19 Q Have you since been made aware of the fact that
20 the operators were in fact doing that?

21 A I have since been told by other parties that the
22 operators threw away some, I believe what were referred to,
23 or I will refer to, as invalid sheets.

24 Q When you say you have been told, have you dis-
25 cussed that with operators who have actually thrown them

1 away, or are you talking more in the form of discussing
2 that with Mr. Gephart or the Grand Jury?

3 A The Grand Jury and Mr. Gephart.

4 Q But you have not personally discussed that with
5 any of the operators who have explained any of their reasons?

6 A No.

7 Q So, you have no personal knowledge, through dis-
8 cussion with operators regarding what they actually did, any
9 discussion?

10 A No, I have not.

11 Q Do you have any knowledge as to who actually
12 authorized the policy of throwing away test results?

13 A No.

14 Q Do you know if, in fact, it ever was authorized?

15 A No.

16 Q Again, I will ask this question. Did that
17 specific topic ever come up in discussions between yourself
18 and station management?

19 A No.

20 Q Or, in turn with Mr. Herbein?

21 A No.

22 Q Was there ever any indication in your discussions
23 with either Mr. Herbein, Mr. Miller or possibly with Mr.
24 Arnold that there was some knowledge that this type of
25 activity was going on?

1 A No.

2 Q Did you ever have any of these type of discussions
3 similar to what you had with Mr. Herbein, Mr. Miller or Mr.
4 Arnold? By that, I mean the daily type conference discus-
5 sions regarding various plant status evolutions?

6 A No. During the time that I reported to Mr. Arnold,
7 I was Manager of Quality Assurance. We did not have daily
8 conversations about plant status. It would only have been
9 on an exception problem kind of basis.

10 Q Okay. Do you know, or did you know then, or do
11 you now know or have any reason to believe, that a conscious
12 decision was made by the operators not to log the start times
13 of the tests because they were having so many problems get-
14 ting the test results?

15 A No. I have no knowledge of that.

16 Q Can you specifically recall what was actually,
17 in the administrative load process, supposed to happen with
18 a leak rate test result, be it bad or good?

19 A I have no firsthand knowledge of that. No.

20 Q Do you recall that they were in fact required
21 to be kept as a matter of record, the surveillance test
22 results?

23 A I can't specifically say that from firsthand
24 knowledge. My answer, though, is colored by having been
25 Manager of Quality Assurance for a period of time. And it

1 was my understanding during that period of time that we
2 had, through administrative procedures at TMI, covered
3 record retention. That wasn't as much a firsthand knowledge,
4 though, as it was the people who worked for me at TMI being
5 satisfied with the record retention.

6 Q Would the auditors in the Quality Assurance De-
7 partment, would they on occasion actually audit the records
8 maintained by the, say, the Operations Department in this
9 case to establish whether or not they were maintaining
10 compliance with their own administrative procedures and
11 technical specifications for record retention?

12 A Yes.

13 Q During the time you were Manager of Quality
14 Assurance, do you recall receiving or reviewing any reports
15 where it was indicated, through the process of the audits,
16 that there was a problem with record retention regarding
17 the surveillance tests?

18 A No. No. I distracted myself. By record retention,
19 I do remember some, but it had nothing to do specifically
20 with surveillance test results.

21 There was a problem at one time that the record
22 retention facilities were not, as I remember it, air-condition-
23 ed properly, a fire hazard, or something. I think that was
24 having to do with TMI Unit 1 and was subsequently taken
25 care of.

1 It was a temporary storage of some records. I
2 think those were all.

3 Q I would ask you the same question along these
4 lines of Unit 1. Were you aware of any policy as to how
5 operators supposedly maintained surveillance records in
6 Unit 1 as compared to Unit 2?

7 A No. I would expect it to have been the same.

8 Q At this time, you were not aware, do not know
9 of any stark differences between how Unit 2 and how Unit 1
10 actually managed the day-to-day operations?

11 A No.

12 Q During your discussions -- your daily discussions
13 with Gary Miller and unit superintendents, was the problem
14 of increasing RCS leakage ever discussed with you?

15 A Not that I remember, no.

16 Q Do you recall in the months prior to the accident,
17 January, February, having discussions with Gary Miller or
18 Joe Logan regarding the fact that RCS primary system leakage
19 was increasing?

20 A No.

21 Q And that it was becoming a problem?

22 A No, I don't remember.

23 Q Okay. And you do not -- do you recall any
24 particular discussion regarding any maintenance activity
25 or budgetary considerations with respect to leakage, with

1 RCS problems?

2 A No. The only thing I remember -- and I don't
3 remember very well, but I remember something having to do
4 with the power operated relief valve modification which
5 added downstream temperature sensors. I don't know at what
6 time in plant evolution this was.

7 Q With regard to that, were you aware just a couple
8 of months prior to the accident that there was increasing
9 leakage from the RCS, possibly from the code safety and/or
10 the PORV?

11 A I don't recall that.

12 Q Do you recall, again in your discussion with
13 Mr. Herbein or Mr. Miller, discussions coming up regarding
14 the need to order either a spare PORV or a spare code safety
15 valve because of the increasing leakage?

16 A No.

17 Q So, during these three to four months prior to
18 the accident while you were Manager of Operations, you were
19 never given any indication from the station that there was
20 an upcoming problem with the valve leakage off the top of
21 the pressurizer?

22 A No.

23 DIRECT EXAMINATION

24 BY MR. CONNOLLY:

25 Q So, therefore, there was no discussion about

1 shutting the plant down or about a service problem?

2 A No. Now, during the -- as I remember, I believe
3 the downstream tail pipe temperature sensors were put in
4 under the start-up program. I think there was some problem
5 during that time, but the power operated relief valve was
6 not seating properly and resulting in some leakage. And,
7 as a result of that temperature sensors were put in.

8 But after, I guess it would be April 1977 -- I
9 don't remember, certainly no shut-down of the plant.

10 DIRECT EXAMINATION

11 BY MR. CHRISTOPHER:

12 Q So, you don't recall ordering -- the discussion
13 regarding the ordering of spare PORV or code safety?

14 A No.

15 Q Or any discussions pertaining to whether or not
16 there was actually a spare valve on site?

17 A No.

18 DIRECT EXAMINATION

19 BY MR. CONNOLLY:

20 Q You don't recall any discussions concerning shut-
21 ting down the plant because of maintenance or technical
22 problems during the time period of February or March 1979?

23 A Having to do with leak rate or PORVs, no.

24 DIRECT EXAMINATION

25 BY MR. CHRISTOPHER:

1 Q During the time period, Larry, again we are deal-
2 ing with the six months prior to the accident, did you
3 personally ever have, or were you personally ever given
4 reason, to be concerned about the validity of the leak rate
5 test surveillance procedures?

6 A No.

7 Q So, you are not in a position to comment as to
8 whether or not you felt it was a valid procedure for detect-
9 ing system leakage?

10 A No. I wasn't familiar with what the procedure
11 required.

12 Q Who most -- I'm going to ask for your opinion
13 here. Who most likely would have been the individual that
14 should have, say, reviewed or been aware of any deficiencies
15 within that procedure itself?

16 A I guess the first person that occurs to me is
17 whoever is running the procedure, whoever is performing the
18 procedure.

19 Q Which would be the control room operator?

20 A I don't know. I don't know who performed the
21 procedure or whether it was even all performed by one
22 person or not.

23 But that person would be the first shift super-
24 visor if it were a control room operator. And a shift
25 foreman would have been most concerned with it.

1 Q But, again there was never any discussion at
2 your level regarding problems with the procedure?

3 A No.

4 Q Indicating the need for a change in the document
5 itself?

6 A No.

7 Q Does that also hold true for discussions, any
8 discussion pertaining to the computer program for the control
9 room computer?

10 A That does hold for that.

11 Q And, more explicitly, you don't recall any
12 discussions regarding problems with the computer, that the
13 program itself that was being used to run the program?

14 A No.

15 Q Did you ever hear any, or know of any, indication
16 that the reason the leak rate test results were being
17 thrown away was specifically so the NRC inspectors would
18 not see the bad ones that were showing up?

19 A No.

20 Q Had you heard that mentioned as a possibility?

21 A Yes.

22 Q In what context did you hear it?

23 A Recently in conjunction with the Grand Jury
24 investigation.

25 Q But you personally were never aware of that

1 being the case?

2 A Not only was I not aware, but I would not believe
3 that to be true.

4 Q Again, and I think you answered this question,
5 if you can refresh me, did any discussions between yourself
6 and management regarding the problems the operators were
7 encountering were actually getting good leak rate test
8 results?

9 A I'm not aware of the problems, no. I don't
10 recall discussions about that kind of problem.

11 Q That would be specifically in the context of the
12 problem with the leaking valves off the top of the pressuriz-
13 er or consistently wide oscillations in plant parameters that
14 would effect your ability to get a test result?

15 A No.

16 Q Are you familiar with the policy or practice of
17 accepting negative test results as acceptable leak rate
18 tests?

19 A Would you reword that?

20 Q Many of the test results that were received were
21 in the negative, specifically for unidentified leakage.
22 You would have a negative or minus 5.05 gallons per minute
23 leakage.

24 Were you aware of the fact that they were accept-
25 ing negative leak rates to meet the tech spec surveillance

1 requirements?

2 A Within the sense of somebody having told me that,
3 I'm not aware. In the sense of my having received a piece
4 of paper which had a negative number on it, I have reason
5 to believe that I did receive some. I have no recollection
6 of specifically having seen those.

7 Q Based on your engineering background, would it
8 be engineering-wise possible to get negative leakage from
9 the RCS?

10 A Not to valid measurement, I wouldn't think. I
11 would want to look at the procedure.

12 Q Is it possible for the RCS system to make water,
13 which is what we have to have?

14 A Technically, on the surface it is not. It is --

15 Q Would a considerable number of negative test
16 results, if you sat down and looked at a series of test
17 results covering a period of time, say, three or four months,
18 and out of that period of time you saw a consistently large
19 percentage of the leak rate test results, say, thirty percent
20 test results having negative leak rate test results, would
21 that be indicative to you either of an invalid program or
22 indicative of problems with the surveillance tests?

23 A It's indicative that the final number you are
24 getting is not measuring the true leak rate, yes.

25 Q So, in essence --

1 A It indicates some kind of a difficulty.

2 Q Would it --

3 A I would hesitate to say that it invalidates the
4 entire procedure. There may just be something that is not
5 being recorded properly.

6 Q Would you consider a negative rate to invalidate
7 that test, that specific test?

8 A I would consider that not to be a valid leak
9 rate, yes.

10 Q So, if you got a negative leak rate your con-
11 sideration would be that you would need to run a second
12 leak rate; in other words, enter the action statement?

13 A I -- Enter the action statement. Let me --
14 maybe I haven't made this clear before.

15 I think that if you get a negative leak rate
16 number, that that is an invalid measurement, not in your
17 words a bad measurement, but an invalid measurement, and
18 I think you would have to redo the measurement.

19 Q I'm sorry.

20 A You would have to redo the measurement. In
21 other words, you haven't performed the procedure. You
22 don't have a number.

23 So that doesn't put you into the action state-
24 ment unless your seventy-two hours have run.

25 Q By entering the action statement, you in effect

1 enter the action statement when you are on your next test.

2 I'm sorry. You are right.

3 It's my feeling --

4 Q You are right. I was combining the running of
5 the test with the actual enter of the surveillance test.

6 A Maybe I am being picky.

7 Q No. I have no problem with your answer. I was
8 combining the two.

9 DIRECT EXAMINATION

10 BY MR. CONNOLLY:

11 Q I asked these questions before; I'm just going
12 to ask them again.

13 Did you ever enter into discussions with Gary
14 Miller or anyone else about the policy of not logging the
15 bad leak rate tests or the problem of getting good leak rate
16 tests?

17 A No.

18 Q Are you aware of any instances where a shift
19 supervisor requested a shut-down of plant to repair excessive
20 leakage and that request being denied?

21 A No.

22 Q And prior to the accident, were you aware of any
23 discussions in which management or other supervisory person-
24 nel discussed excessive leakage from code safety and/or PORV
25 and the effect on your ability to get good leak rate test

1 results?

2 A I think the answer is no. I'm sorry, I lost
3 the first part of your question.

4 Q I will repeat the question again. Prior to the
5 March 1979 accident, were you aware of any discussions in
6 which management or other supervisory personnel discussed
7 excessive leakage from the code safety and/or the PORV and
8 their effect on the ability to get good leak rate tests?

9 A No.

10 Q Were you aware of increasing tail pipe tempera-
11 tures?

12 A I guess I'm having some difficulty with your
13 phrase increasing. Over what time frame are you talking
14 about?

15 DIRECT EXAMINATION

16 BY MR. CHRISTOPHER:

17 Q Specifically, it started in mid-January and
18 getting worse in February, the tail pipe temperatures jumped
19 quite a few degrees after they came out of an anology from
20 the prior scram.

21 The tail pipe temperatures were running somewhere
22 in the area of 140 to 150, 160 degrees. And after coming
23 back from this short outage, the tail pipe temperatures
24 consistently jumped in the area of anywhere from 190 to as
25 high as 230 degrees.

1 A No, I am not aware of that. I am aware of tail
2 pipe temperatures in the order of 130 degrees. To the best
3 of my knowledge, that was the maximum temperatures that
4 we saw.

5 Q Do you recall that in connection with the
6 procedure for the emergency pressurizer failure which, as
7 I recall, states that if your tail pipe temperature exceeds
8 130 degrees that you are required to initiate certain action.

9 I believe that may be to close the block valve,
10 the PORV?

11 A No, I am not -- in my mind, I don't have that
12 connected with any procedure.

13 My knowledge of that was from hearing people
14 say that tail pipe temperatures were in the order of 130
15 degrees. I'm not even certain that my knowledge of that
16 predated the accident.

17 It had to do with time period in advance of the
18 accident, but I may have gained knowledge after the accident.

19 Q Can you, then, recall or not recall whether or
20 not there was any discussion with the station superintendent,
21 Miller, or the unit superintendent, Logan, regarding these
22 higher tail pipe temperatures, higher than 130, up to 190
23 degrees in the context of we may or may not have a leaking
24 valve off the top of the pressurizer?

1 A I am reasonably certain I did not discuss with
2 any of those people any temperatures in excess of 130.

3 Q Do you recall any discussions being held re-
4 garding these higher temperatures, but a discussion indicating
5 the mitigating factor for not taking action was the fact
6 that there was not a leak rate in excess of technical speci-
7 fications?

8 A No. I didn't take part in any of those conversa-
9 tions.

10 Q Do you know if all -- you say you didn't take
11 part in these conversations.

12 Do you know if any of those kind of conversations
13 ever occurred?

14 A I do not.

15 Q Do you know if all water additions to the RCS
16 are required to be recorded in the logs?

17 A I do not.

18 Q Not limited to just the time of a leak rate test,
19 but any RCS water addition that would change the volume?

20 A I don't have that personal knowledge.

21 Q Were you personally aware of any particular
22 problems with the actual leak rate surveillance test itself?

23 A No.

24 Q Do you recall there ever being discussions with
25 the plant computer programmer, William Fells, regarding

1 computer problems that pertained to the tests?

2 A No.

3 Q Are you familiar with the allegation made that
4 hydrogen was being added to the make-up tank for the purpose
5 of affecting the leak rate test result?

6 A I can't say that I'm familiar. I heard, for the
7 first time today, I believe that that was a part of the
8 contention.

9 Q You heard that in your discussions with Mr.
10 Gephart?

11 A Yes.

12 MR. GEPHART: Could we go off the record?

13 (An off-the-record discussion was held.)

14 DIRECT EXAMINATION

15 BY MR. CHRISTOPHER: (Continuing)

16 Q The allegation made originally back in 1980 was
17 that operators were adding hydrogen to the make-up tank
18 in order to affect test results.

19 Do you have any personal knowledge that operators
20 were adding hydrogen to the make-up tank for the express
21 purpose of attempting to manipulate a leak rate test result?

22 A No.

23 Q Do you have any understanding as to how hydrogen
24 would actually affect a leak rate test result?

25 A No.

1 Q Are you familiar with any such allegation at
2 Unit 1 regarding hydrogen additions to affect the leak rate
3 test?

4 A No.

5 Q Do you have any knowledge of operators performing
6 such an evolution during a leak rate test at either Unit 1
7 or Unit 2?

8 A No.

9 DIRECT EXAMINATION

10 BY MR. CONNOLLY:

11 Q Also, with regard to both Units 1 and 2, are you
12 aware of any unrecorded water additions being made during
13 leak rate tests to affect the test results?

14 A No. I have no personal knowledge.

15 Q You never discussed this practice with anyone nor
16 did anyone ever discuss this practice with you?

17 A I did not, and they did not.

18 Q By your answer then, you are not, or would not be
19 aware, of any supervisors who may have been aware of this
20 practice?

21 A No.

22 Q And that would include Jim Floyd and Gary Miller
23 and Mr. Herbein?

24 A Jim Sellinger and Jim O'Hanalon.

25 Q To your knowledge, was pressure exerted on

1 operators to get good leak rate test results?

2 A To my knowlege, no. But I presume that operators
3 were aware of their license obligations to perform surveil-
4 lances.

5 I think you are meaning it in a somewhat deroga-
6 tory way.

7 Q Yes. I mean it in a deragatory context.

8 A No. I have no personal firsthand knowledge or
9 conversations with people indicating that there was any
10 such pressure.

11 Q And in the same light, you were not aware of any
12 operators being directed to manipulate the tests by the
13 additions of either hydrogen or water?

14 A Certainly not.

15 Q Do you recall anyone recommending that an action
16 statement be entered because of excessive leakage?

17 A No.

18 Q Do you know if operators instructed auxillary
19 operators to add hydrogen or water to the make-up tank for
20 the purpose of affecting leak rate test results?

21 A No.

22 DIRECT EXAMINATION

23 BY MR. CHRISTOPHER:

24 Q Do you recall -- do you have any understanding
25 at this point as to whether or not leakage from the code

1 safety and/or the PORV would effect your ability to get a
2 good leak rate?

3 A Well --

4 Q Do you have a sufficient understanding of the
5 procedure and the surveillance itself?

6 A Probably not. It would be my assumption that the
7 procedure should indicate that if that is the case. Other-
8 wise, I can't imagine how you are getting a leak rate if
9 you are not measuring leak rates. That is a leak.

10 Q What I am specifically referring to --

11 A I don't have any personal -- I couldn't say that
12 yes, the procedure would be that. I don't know that it
13 wouldn't.

14 Q The specific question I was going to ask was, do
15 you know if leakage from the code safety and/or the PORV,
16 is that considered as an identifiable or unidentifiable leakage?

17 Do you have any independent recollection that
18 that --

19 A No.

20 Q Do you recall any discussion as to whether or
21 not that was considered identified or unidentified between
22 Gary Miller or any station manager or above?

23 A No.

24 DIRECT EXAMINATION

25 BY MR. CONNOLLY:

1 Q Are you familiar with LER 78-62 of 19 October
2 1978 concerning exceeding of the technical specifications
3 for identified leakage?

4 A I am not familiar with it, but I may be very
5 shortly.

6 Q We have a copy of the document, and we will show
7 it to you.

8 DIRECT EXAMINATION

9 BY MR. CHRISTOPHER:

10 Q This is an LER that was submitted by Met Ed at
11 that time on the 19th of October 1978, regarding exceeding
12 a limited condition for operation of the surveillance pro-
13 cedure.

14 Let me just give you a minute to look that over,
15 and you will want to go probably to the next page or two,
16 because there is a narrative attached with it.

17 A (The witness looks at paperwritings.) I have
18 read it.

19 Q At this time period you were in your position
20 as Manager --

21 A Generation-Operations.

22 Q Do you have any specific recollection of this
23 particular LER?

24 A No.

25 Q At that time, you independently don't recall

1 this issue coming up?

2 A No.

3 Q Okay. Do you at this time have any recollection
4 as to what actually initiated this LER, what event?

5 A No.

6 Q Have you ever heard, either now or back then,
7 that this event was initiated because Don Diekamp, who I
8 think you are familiar with, he was a resident inspector of
9 Unit 2, where Diekamp walked into the control room and
10 finding a leak rate in excess of 1GPM and asked why the
11 plant was running?

12 A I became aware of that -- I heard that for the
13 first time earlier this year.

14 Q But was that in the course of the B&W trial?

15 A No, Grand Jury.

16 Q But you have not independently discussed that
17 with any operator or other management personnel?

18 A No.

19 Q Do you have any reason to believe that in this
20 context that operators were throwing away those leak rate
21 test results so that the NRC inspector wouldn't see them?

22 A No. I have not even heard that that was the
23 case.

24 Q With regard to this particular LER, then, you
25 are saying you have no specific recollection of it?

1 After an LER -- do you understand the process?
2 Do you recall the process of how an LER is initiated, re-
3 viewed and submitted?

4 A There was a period of time when I was active in
5 the licensing group at Met Ed, and I have some understanding
6 from that process.

7 It is my understanding that the event occurs, the
8 shift supervisor reports that to plant management. A person
9 writes up a draft of that LER. That is edited and rewritten
10 to accurately -- not only accurately describe the event that
11 has occurred but also to somewhat be sure that people who
12 are less familiar with the plant will understand what it
13 says, with the minimum number of return questions.

14 That is reviewed by the Plant Operations Review
15 Committee and then it is sent to the NRC station personnel.

16 Q You do not participate in a PORC review of this
17 LER?

18 A No.

19 Q Do you normally sit in on a PORC review?

20 A No.

21 Q Do you have any independent knowledge as to
22 discussions that took place during the PORC regarding this
23 particular LER?

24 A No.

25 Q Then, or now at this time?

1 A No.

2 Q You have not discussed any of this with any of
3 the PORC members?

4 A No.

5 Q The LER states, and I will quote it for you:
6 However, action was being taken to reduce the unidentifiable
7 leakage to within allowable limits. And this was
8 accomplished at 0735 on October 18th, 1978.

9 Do you have any recollection or knowledge of
10 what the action was for that statement? What got the plant
11 back into compliance?

12 A No.

13 Q Do you have any recollection or knowledge of
14 a practice or policy of rounding off leak rate test results?

15 A No.

16 Q Okay. Would that be considered an acceptable
17 practice to you, to round off a test result?

18 In other words, let's say we had one unidentified
19 leakage of 1.4 GPM. Would you consider it acceptable to
20 round it down to 1?

21 A No.

22 DIRECT EXAMINATION

23 BY MR. CONNOLLY:

24 Q A general question. Would it be common practice
25 that Gary Miller would discuss with you LERs involving

1 either Unit 1 or Unit 2 during the same time period?

2 A Not generally LERs. But, say, if an LER was
3 an indicator of a major problem, he would have discussed
4 that problem with me.

5 Q Based on our questioning involving this particular
6 LER, would you interpret that as being a major problem at
7 that time?

8 A It doesn't -- from our reading of it, it doesn't
9 appear as a major problem.

10 They were able to resolve the problem in terms
11 of reducing the unidentifiable leakage. There was some
12 follow-up instruction apparently required.

13 There is some implication there that the un-
14 identifiable leakage may not have been unidentified leakage.
15 I read it rather hurriedly. But it implied to me that it
16 may have been a matter of fixing something in the computer
17 or some input to the computer, as opposed to fixing a
18 physical thing in the plant.

19 But I read that rather hurriedly. No. I don't
20 see any residual major problem being flagged by that.

21 Q In earlier questioning, we discussed the plant
22 status sheet, and you were involved in a review of the
23 plant status sheet, the daily plant status sheet.

24 A I received a copy of the daily plant status
25 sheet. Perhaps I can clarify something.

1 In the case of LERs, plant status sheets, and
2 other pieces of paper, that was not my communication method
3 with the plant for identifying what help they needed and
4 what problems they had. That help and problems was during
5 the daily plant status reports, or they would call me at
6 night or on weekends, if that were appropriate.

7 I did not depend upon or use LERs and that sort
8 of thing to determine what the plant's problems were.
9 I might review an LER, call the plant and say: What did
10 you mean by this statement. I don't understand it. It's
11 not clear to me.

12 But it wasn't in the context of them having a
13 problem and that being the communication method. It wasn't --
14 those were primarily communications either with other per-
15 sonnel or communications for the record.

16 DIRECT EXAMINATION

17 BY MR. CHRISTOPHER:

18 Q Do you have --

19 A Did I finally answer your question?

20 MR. CONNOLLY: Yes, you did. Thank you.

21 BY MR. CHRISTOPHER: (Continuing)

22 Q Again, with regard to the interpretations and
23 corrective actions required by the LER, do you have any
24 personal knowledge as to how the operators were instructed
25 as to corrective actions required by the LER?

1 A No.

2 Q But there normally, as I understand it, would
3 be some required instruction or reading by the operator
4 in the case of an LER. There is some required instruction
5 in notifying plant personnel of whatever the error was
6 or whatever change or correction had to be made?

7 A Yes. If it were rather simple I would expect
8 it to be done by required reading sort of thing, by each
9 of the people as they came on the shift.

10 If it were extensive, then it perhaps would go
11 to the Training Department and be a part of the license
12 training or non-license training program.

13 Q Do you know how an LER like this -- you would ex-
14 pect based on your reading at this time, how would you
15 expect the instructions would be given?

16 A I would have expected that to have been done
17 on the shift basis, verbal instruction.

18 Q Reading the LER file -- there is an LER file in
19 the control room?

20 A I would expect the shift supervisor, shift
21 foreman -- I am not sure now who is being instructed, but
22 if it were operators, my recollection of what I just read
23 was that the shift foreman or shift supervisor would have
24 talked to his people probably just before they went on
25 shift or just after they went on shift.

1 Q But you don't have any personal knowledge as
2 to what extent this took place?

3 A (The witness nodded in the negative.)

4 Q Were you at that time actually aware that the
5 operators were running a lot more leak rate tests than
6 what they were actually required to run?

7 A No.

8 Q As much as four or five a shift?

9 A No.

10 Q You were never made aware of the fact that
11 many, many of these leak rate tests were coming up invalid?
12 They were unable to get a good leak rate test
13 result?

14 A No.

15 Q So you were never made aware of any particular
16 problem in forms of the test?

17 A No.

18 Q It was never communicated to you by Gary Miller
19 or anyone at the station, any unit managers?

20 A No.

21 Q Was it ever indicated to you from Jack Herbein
22 that he was aware of such a continuing problem in that
23 regard?

24 A No.

25 Q Did you ever discuss, or were there ever

1 discussions with Gary Miller, and again with Jack Herbein,
2 or the station unit managers, with regards to Unit 2 over
3 what was referred to as an oscillating nature of the plant
4 as it affected your ability to get good leak rates?

5 A No.

6 Q Was there ever a concern to you -- I understand
7 in your plant it had very wide ranges in their parameters.

8 Did any of these type of ranges of fluctuations
9 ever consistently concern you personally?

10 A No.

11 Q Do you have any recollection of any similar
12 problem with leak rate test performance in Unit 1 as
13 compared to Unit 2?

14 A No.

15 Q Would you expect that if the plant, Unit 2 in
16 this case, had to operate a leaking code safety or PORV
17 that you would have been told about it, or it would have
18 been discussed with you?

19 A I would have thought it would have been, yes.

20 Q But you say you don't have any recollection of
21 that being the case?

22 A No.

23 Q If they were going to order a new code safety
24 or PORV, would you expect something like that to be
25 discussed with you?

1 A No, I wouldn't expect the order, not unless .
2 there was some --

3 Q I assume it's a rather expensive item, and I
4 thought earlier you mentioned you met to discuss maintenance
5 and budget.

6 A No, I don't think it's that expensive. I don't
7 know how expensive it is, but I didn't get into that much
8 of a detail in the plant budget.

9 Q Were you familiar, or do you recall, any changes
10 being made to the surveillance procedure itself regarding
11 how water density was compensated for in the surveillance
12 test?

13 A No, I'm not familiar with that.

14 Q Specifically, I am referring to a TCN dated
15 March 16th, 1979 which would just have been a couple of
16 weeks before the accident, that changed the calculation
17 or procedure for obtaining leak rates.

18 Would you take a look at that?

19 A Yes. (The witness looks at a paperwriting.)

20 Q Do you have any recollection of this particular
21 TCN?

22 A I have not seen this before, to my knowledge.

23 Q Can you explain what your understanding of a
24 TCN is?

25 A Yes, I can. A TCN is a temporary change notice.

1 I am not positive of how that terminology was used at
2 TMI. But it would be my assumption that that was a change
3 which could have been made to a procedure if it was not
4 substandard with the sign-off of the two senior license
5 operators.

6 Q Would it require a PORC review?

7 A It would require a subsequent PORC review.

8 Q Is there a time limit?

9 A I don't know what the time limit is. Today, at
10 some plants, the time limit is fourteen days. I don't know
11 what it was there or should have been there. I don't
12 know.

13 Q Do you have any knowledge as to who actually
14 initiated this TCN and why?

15 A I have no knowledge. I might be able to find
16 out from the TCN. I don't know if I can or not. (The
17 witness looks at paperwriting.)

18 It says --

19 Q I believe you will see Tom Morck. Does that
20 indicate to you, in knowing how the procedures worked at
21 the plant at that time, that he would have identified the
22 problem, if there was one, and initiated it? Or, merely
23 that he was responsible for preparing the TCN?

24 A I would not know. I don't remember who Tom
25 Morck was. But I would guess he was one of the junior

1 engineers at the plant and was instructed to write a
2 procedure.

3 Q And Morck, that's M-o-r-c-k, right?

4 A Yes. M-o-r-c-k.

5 Q You don't have any personal knowledge of Morck
6 initiating this document?

7 A No.

8 Q Were you aware of -- at the time period when a
9 deficiency in the procedure was noted and it was only in
10 this procedure coming out, did you hold any discussions
11 in which deficiencies would have been identified?

12 A No. I had no knowledge of what initiated this.

13 Q I believe that's separate. So, you have no idea
14 as -- were you aware of what was the initiating event that
15 caused the TCN?

16 A No.

17 Q Maybe you could tell me, being familiar with the
18 names. Can you tell who that approval signature is on the
19 document under unit superintendent?

20 A No, I can't really tell.

21 Q The unit superintendent would have been Joe
22 Logan?

23 A Joe Logan, yes.

24 Q I'm not sure if that's his signature.

25 A I don't know either.

1 Q What I was going to ask, is there an allowance
2 that someone could sign for him?

3 A I don't know.

4 Q Are you familiar with any discussions regarding
5 the subsequent identification of deficiencies in the
6 procedure, particularly with respect to the fact that the
7 procedure itself did not take into account the density
8 changes due to the change in water temperatures between
9 the RCS and the make-up tank?

10 A No.

11 Q Were you at any time personally aware that the
12 procedure as written resulted in the production of an
13 erroneous leak rate result, or result of an erroneous leak
14 rate?

15 A No.

16 Q And you have no personal knowledge regarding any
17 inherent witnesses within the TCN itself, or errors in the
18 TCN?

19 A No.

20 DIRECT EXAMINATION

21 BY MR. CONNOLLY:

22 Q Do you remember any discussions to the effect
23 that management would not shut down Unit 2 to repair a
24 valve leakage until Unit 1 was back on line from a refueling
25 outage?

1 A No.

2 Q Do you remember any discussions involved in
3 keeping Unit 2 on line until Unit 1 was ready to come
4 back from a refueling outage?

5 A No.

6 DIRECT EXAMINATION

7 BY MR. CHRISTOPHER:

8 Q Were you a participant in any discussions re-
9 garding the decision not to close the block valve to the
10 PORV?

11 A The decision not to close the block valve? No.

12 Q Prior to the accident, that there was a possibility
13 of a -- when there was a possibility of a PORV leakage?

14 A No.

15 Q Again, I think you stated earlier you were not
16 aware of any discussion regarding the potential for leakage
17 from the PORV or the code safety during this time period?

18 A No, I wasn't.

19 DIRECT EXAMINATION

20 BY MR. CONNOLLY:

21 Q Are you aware of any other method that operators
22 might have used to get the leak rate test that was not in
23 compliance with regulatory requirements besides what we
24 have discussed today?

25 A Would you state that again?

1 Q Are you aware of any other methods besides the
2 addition of water and hydrogen that the operators would use
3 to get good leak rate tests that were not in compliance
4 with regulatory requirements?

5 A No.

6 Q Do you have any information regarding falsifica-
7 tion of the leak rate tests at TMI that you have not told
8 us?

9 A No.

10 Q Has anyone admitted to you that they have
11 knowledge of the falsification of leak rates at TMI?

12 A No.

13 Q Has anyone admitted to you that they know of
14 individuals who have knowledge of the falsification of
15 leak rates at TMI?

16 A No.

17 DIRECT EXAMINATION

18 BY MR. CHRISTOPHER:

19 Q Larry, one of Joe Logan's statements during the
20 B&W trial was -- and this would be off the top of my head,
21 he commented that he and the station manager, Gary Miller,
22 recognized that there was leakage from either the code
23 safety or the PORV, and probably the code safeties, and
24 that that leakage seemed to be increasing.

25 And further on, he went on to say that: Despite

1 this, we made a conscious management decision to continue
2 to operate the plant despite this leakage as long as we
3 did not exceed the tech specs.

4 Do you recall ever having any discussion with
5 Logan regarding this kind of philosophy?

6 A No.

7 Q And the discussions regarding this type of
8 leakage never came up with you, between you and Joe Logan?

9 A No.

10 Q Does it now today surprise you that he would
11 not have discussed a problem of that nature with you, given
12 what we know today?

13 A Yes. Well, let me modify that. He perhaps
14 might not have personally discussed that with me, but I
15 would be surprised that Gary Miller, either with or without
16 him, did not.

17 I'm saying he might have discussed it with Gary
18 Miller who in turn would have discussed it with me, as
19 opposed to Joe personally talking to me about it.

20 Q Do you recall any discussion along this topic
21 with Gary?

22 A No.

23 Q Or with Jack Herbein?

24 A No.

25

1 DIRECT EXAMINATION

2 BY MR. CONNOLLY:

3 Q This would be speculation on your part, but
4 if that in fact was true, who in the corporate level would
5 they might have discussed that fact with?

6 A Me.

7 Q Beyond you, who else?

8 A Oh. Anyone. I guess the world is open. If
9 they don't go to their boss, they can go to anyone.10 I have no idea. I suppose that would be a
11 personal thing. If your brother is Chairman of the Board,
12 maybe you talk to him. You know, I would just be shooting
13 in the dark.14 I would have to suppose some connection between
15 two people.

16 DIRECT EXAMINATION

17 BY MR. CHRISTOPHER:

18 Q But knowing in today's light the type of issue
19 that this is, if that issue was known at that time, you
20 would normally have expected, or should have expected, that
21 that would have been discussed with you?

22 A Yes.

23 Q And you have no knowledge or understanding as
24 to why that was not?

25 A No, other than it existed.

1 Q That the problem existed?

2 A Yes.

3 Q Do you have any reason, either then or today,
4 to believe that Jim Floyd -- let me ask this in three
5 stages. The first, that Jim Floyd was aware of the fact
6 that the operators were adding hydrogen and water to the
7 make-up tank for the purpose of affecting leak rate test
8 results?

9 A I have very little personal knowledge of what
10 Jim Floyd was and was not aware of.

11 Q Do you have any reason to believe that either
12 Joe Logan in Unit 1 or Jim Sellinger at Unit 2 -- Joe Logan,
13 Unit 2, and Jim Sellinger -- or Jim Sellinger at Unit 1,
14 had any knowledge, in effect, that operators were manipulat-
15 ing leak rate test results by the addition of hydrogen or
16 water?

17 A I don't know whether they did or not.

18 Q Were you ever made aware of the fact that they
19 were doing that in any fashion, either at Unit 1 or Unit 2?

20 A No.

21 Q And the same question would hold true for Gary
22 Miller. Do you have any reason to believe that Gary Miller
23 would be knowledgeable of these type of activities at
24 Unit 1 and Unit 2?

25 A No.

1 Q Mr. Herbein?

2 A No.

3 Q Or Bob Arnold?

4 A No.

5 Q Or Mr. Kuhns or Mr. Diekamp? Would you expect
6 something like that to ever get to their level without
7 your knowledge?

8 A Oh, no, certainly not.

9 Q Are you confident, then, you did not know about
10 it?

11 Are you confident that if you did not know about
12 it, you don't feel that they knew about it?

13 A I'm reasonably certain that they didn't, yes.

14 Q And you had no indication from any of those
15 individuals?

16 A No.

17 WITNESS LAWYER: I hate to interrupt, but I
18 would like to go to the men's room.

19 MR. CHRISTOPHER: As a matter of fact, I think
20 we will conclude our questions for now. It's ten after
21 two.

22 (Whereupon, the matter was concluded at 2:10 p.m.
23 on November 10, 1983.)
24
25

CERTIFICATE OF PROCEEDINGS

This is to certify that the attached proceedings before the
NRC COMMISSION

In the matter of: Interview of Lawrence Lawyer

Date of Proceeding: November 10, 1983

Place of Proceeding: Atlanta, Georgia

were held as herein appears, and that this is the original
transcript for the file of the Commission.

Sue Traylor
Garrett Walsh

Official Reporter - Typed

Garrett J. Walsh, Jr.

Sue Traylor

Official Reporter - Signature

EXHIBIT 46

DOJ INDICTMENT

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA)
)
 v.) CRIMINAL NO.
)
METROPOLITAN EDISON COMPANY)

I N D I C T M E N T

THE GRAND JURY CHARGES:

At all times relevant to this Indictment:

1. The Nuclear Regulatory Commission (NRC) was an agency of the United States of America and was responsible for the regulation of nuclear power plants in the United States.

2. The NRC administered and enforced the Atomic Energy Act, Title 42, United States Code, §§2011 et seq., and regulations established thereunder, contained in Title 10, Code of Federal Regulations, Chapter I.

3. The Atomic Energy Act authorized the NRC to issue licenses to operate nuclear power plants and to prohibit the operation of any such plant except under and in accordance with a valid license.

4. The Atomic Energy Act, Title 42, United States Code, Section 2201(o), authorized the NRC to require such reports, the keeping of such records with respect to, and to provide for such inspections of, activities under licenses issued pursuant to Section 2133 of Title 42, United States Code.

5. The Atomic Energy Act, Title 42, United States Code, Section 2201(i), authorized the NRC to establish regulations to govern the operation of nuclear power plants, in order to protect health and to minimize danger to life or property.

6. The defendant, Metropolitan Edison Company, was a wholly owned subsidiary of General Public Utilities Corporation. The defendant company was incorporated under the laws of Pennsylvania on July 24, 1922 and became a subsidiary of General Public Utilities Corporation in 1946. Metropolitan Edison Company maintained its headquarters at 2800 Pottsville Pike, Muhlenburg Township, Berks County, Pennsylvania 19650.

7. The defendant, Metropolitan Edison Company, along with Jersey Central Power and Light Company (named herein but not indicted) and Pennsylvania Electric Company (named herein but not indicted), jointly owned the Three Mile Island Nuclear Generating Station consisting of Units 1 and 2, located on Three Mile Island in the Susquehanna River, Londonderry Township, Dauphin County, Pennsylvania, approximately ten miles southeast of Harrisburg, in the Middle District of Pennsylvania. The defendant, Metropolitan Edison Company, owned 50 percent of Units 1 and 2. Jersey Central Power and Light Company and Pennsylvania Electric Company each owned 25 percent of Units 1 and 2.

8. On February 8, 1978, the NRC, pursuant to Title 42, United States Code, Section 2133, issued Facility Operating License No. DPR-73 to the defendant, Metropolitan Edison Company, to possess, use and operate the Three Mile Island Nuclear Station,

Unit 2, a pressurized water nuclear reactor with associated equipment.

9. In order to obtain an operating license from the NRC, the defendant company was required to develop a set of rules by which it agreed to operate the Three Mile Island Nuclear Station, Unit 2. Such rules, known as technical specifications, established standards for operation. Violation of such standards could result in the shutdown of the facility.

10. As a licensee, the defendant company was subject to the conditions, limitations and procedures contained in the rules and regulations of Title 10, Code of Federal Regulations, Chapter I, and the conditions of the operating license, including the technical specifications incorporated therein.

11. The operation of the Three Mile Island Nuclear Station, Unit 2, required reactor coolant, which was used to: (a) keep the facility at a safe temperature; and (b) transfer heat generated by the nuclear reaction.

12. To avoid the loss of reactor coolant, the technical specifications applicable to Three Mile Island Nuclear Station, Unit 2, limited the amount of reactor coolant leakage during operation to one gallon per minute of leakage from unidentified sources. If unidentified leakage exceeded the established limit, the technical specifications required the defendant company to take certain actions set forth in a procedure called an Action Statement. The Action Statement required the company to reduce the leakage to within allowable limits within four hours of

discovery. If that could not be accomplished, the Action Statement required the defendant company to commence a power reduction so that the facility would be shut down within the following 36 hours.

13. Pursuant to Title 10, Code of Federal Regulations, Chapter I, and the provisions of its license, the defendant company was required to establish, implement and maintain appropriate procedures for surveillance tests. Among such tests was the reactor coolant system water inventory balance, also known as a leak rate test, by which the defendant company was required to demonstrate that reactor coolant leakage was within allowable limits. The leak rate test was to be conducted by use of a computer available for such purpose or by manual calculation.

14. If the leak rate test indicated that allowable limits of leakage were exceeded, the defendant company was required to: (a) enter the Action Statement, as described in paragraph 12; or (b) disqualify such test by filing a written Exception or Deficiency, with an accompanying explanation why such test was being disqualified, as required by the defendant company's Administrative Procedure #1010, Technical Specification Surveillance Program.

15. Absent the filing of an Exception or Deficiency to disqualify the test, each time the leak rate test indicated leakage above allowable limits the defendant company was required to enter the Action Statement, as described in paragraph 12.

16. Pursuant to Title 10, Code of Federal Regulations, Chapter I, and the provisions of its license, the defendant company was required to retain for at least five years all records of surveillance activities required to be conducted, including the leak rate test. In addition, the defendant company was required to maintain all other records not specifically mentioned elsewhere in the regulations or its license until the NRC determined the appropriate disposition of those records.

17. Pursuant to the provisions of its license, the defendant company was required to notify the NRC if it failed to enter the Action Statement after receiving information indicating that the reactor coolant system was being operated with leakage above allowable limits.

18. Pursuant to Title 10, Code of Federal Regulations, Chapter I, and the provisions of its license, the defendant company was required to identify problems encountered with its surveillance testing, including the leak rate test, by making entries relating to such problems on an Exception and Deficiency List, as required by the defendant company's Administrative Procedure #1010, Technical Specification Surveillance Program.

19. Pursuant to Title 10, Code of Federal Regulations, Chapter I, and the provisions of its license, the defendant company was required to make entries in its operating logs relating to the conduct of surveillance testing, such as the leak rate test, including the starting and completion times of such

testing and the results thereof, as required by the defendant company's Administrative Procedure #1012, Shift Relief and Log Entries.

20. Beginning sometime in 1978, after the licensing of Three Mile Island Nuclear Station, Unit 2, the defendant company was on notice that the leak rate test it implemented did not accurately and meaningfully measure the amount of reactor coolant leakage.

21. Notwithstanding its duty to maintain an accurate and meaningful leak rate test, the defendant company continued to use a test for measuring reactor coolant leakage that was inaccurate and meaningless.

22. The defendant company engaged in a pattern of criminal conduct designed to permit continued operation of the Three Mile Island Nuclear Station, Unit 2 by:

- (a) Taking various actions designed to conceal from the NRC serious deficiencies in the leak rate test;
- (b) Failing to take actions which might have revealed to the NRC serious deficiencies in the leak rate test.

23. The means and methods used by the defendant company to accomplish the objectives outlined in the foregoing paragraphs, are the criminal acts more fully described in the following counts:

COUNT 1

THE GRAND JURY FURTHER CHARGES:

1. Paragraphs 1 through 23 of this Indictment, set forth in pages 1 through 6, are hereby realleged and incorporated as though restated in full herein.

2. The defendant company's license to possess, use and operate the Three Mile Island Nuclear Station, Unit 2, required it to establish, implement and maintain an accurate and meaningful reactor coolant system water inventory balance procedure to demonstrate that unidentified leakage was within allowable limits.

3. Beginning sometime prior to October 18, 1978, the exact date being unknown to the Grand Jury, and continuing up to and including March 28, 1979, in the Middle District of Pennsylvania, the defendant company willfully possessed, used and operated a utilization facility, to wit, the Three Mile Island Nuclear Station, Unit 2, in violation of the conditions of the license issued by the NRC; that is: the defendant company was on notice that its procedure for the reactor coolant system water inventory balance did not accurately and meaningfully measure the amount of unidentified reactor coolant leakage. Despite such notice, the defendant company continued to use such inaccurate and meaningless procedure in an effort to generate results which appeared to establish that reactor coolant leakage was within allowable limits.

All in violation of Title 42, United States Code, Sections 2272 and 2131.

COUNT 2

THE GRAND JURY FURTHER CHARGES:

1. Paragraphs 1 through 23 of this Indictment, set forth in pages 1 through 6, are hereby realleged and incorporated as though restated in full herein.

2. Title 10, Code of Federal Regulations, Chapter I, required the defendant company to establish, implement and maintain an accurate and meaningful reactor coolant system water inventory balance procedure to demonstrate that unidentified leakage was within allowable limits.

3. Beginning sometime prior to October 18, 1978, the exact date being unknown to the Grand Jury, and continuing up to and including March 28, 1979, in the Middle District of Pennsylvania, the defendant company willfully possessed, used and operated a utilization facility, to wit, the Three Mile Island Nuclear Station, Unit 2, in violation of regulations promulgated by the NRC; that is: the defendant company was on notice that its procedure for the reactor coolant system water inventory balance did not accurately and meaningfully measure the amount of unidentified reactor coolant leakage. Despite such notice, the defendant company continued to use such inaccurate and meaningless procedure in an effort to generate results which appeared to establish that reactor coolant leakage was within allowable limits.

All in violation of Title 42, United States Code, Section 2273 and Title 10, Code of Federal Regulations, Part 50, Appendix B.

COUNT 3

THE GRAND JURY FURTHER CHARGES:

1. Paragraphs 1 through 23 of this Indictment, set forth in pages 1 through 6, are hereby realleged and incorporated as though restated in full herein.

2. The defendant company's license to possess, use and operate the Three Mile Island Nuclear Station, Unit 2, required it to demonstrate that unidentified reactor coolant leakage did not exceed allowable limits by performance of a reactor coolant system water inventory balance procedure.

3. Beginning sometime prior to October 18, 1978, the exact date being unknown to the Grand Jury, and continuing up to and including March 28, 1979, in the Middle District of Pennsylvania, the defendant company willfully possessed, used and operated a utilization facility, to wit, the Three Mile Island Nuclear Station, Unit 2, in violation of the conditions of the license issued by the NRC; that is: the defendant company intentionally manipulated the reactor coolant leak rate tests by the addition of water and hydrogen to the reactor coolant system during the course of such tests and in this manner generated test results which appeared to, but did not in fact, fulfill the defendant company's license requirements.

All in violation of Title 42, United States Code, Sections 2272 and 2131.

COUNT 4

THE GRAND JURY FURTHER CHARGES:

1. Paragraphs 1 through 23 of this Indictment, set forth in pages 1 through 6, are hereby realleged and incorporated as though restated in full herein.

2. Title 10, Code of Federal Regulations, Chapter I, required the defendant company to demonstrate that unidentified reactor coolant leakage did not exceed allowable limits by performance of a reactor coolant system water inventory balance procedure.

3. Beginning sometime prior to October 18, 1978, the exact date being unknown to the Grand Jury, and continuing up to and including March 28, 1979, in the Middle District of Pennsylvania, the defendant company willfully possessed, used and operated a utilization facility, to wit, the Three Mile Island Nuclear Station, Unit 2, in violation of regulations promulgated by the NRC; that is: the defendant company intentionally manipulated the reactor coolant leak rate tests by the addition of water and hydrogen to the reactor coolant system during the course of such tests and in this manner generated test results which appeared to, but did not in fact, fulfill the defendant company's license requirements.

All in violation of Title 42, United States Code, Section 2273 and Title 10, Code of Federal Regulations, Part 50, Appendix B.

COUNT 5

THE GRAND JURY FURTHER CHARGES:

1. Paragraphs 1 through 23 of this Indictment, set forth in pages 1 through 6, are hereby realleged and incorporated as though restated in full herein.

2. The defendant company's license to possess, use and operate the Three Mile Island Nuclear Station, Unit 2, required it to enter the Action Statement when the reactor coolant system water inventory balance procedure indicated that unidentified reactor coolant leakage exceeded one gallon per minute.

3. Beginning sometime prior to October 18, 1978, the exact date being unknown to the Grand Jury, and continuing up to and including March 28, 1979, in the Middle District of Pennsylvania, the defendant company willfully possessed, used and operated a utilization facility, to wit, the Three Mile Island Nuclear Station, Unit 2, in violation of the conditions of the license issued by the NRC; that is: the defendant company failed to enter the Action Statement when the reactor coolant system water inventory balance procedure indicated that reactor coolant leakage from unidentified sources exceeded one gallon per minute.

All in violation of Title 42, United States Code, Sections 2272 and 2131.

COUNT 6

THE GRAND JURY FURTHER CHARGES:

1. Paragraph 1 through 23 of this Indictment, set forth in pages 1 through 6, are hereby realleged and incorporated as though restated in full herein.

2. The defendant company's license to possess, use and operate the Three Mile Island Nuclear Station, Unit 2, required it to retain records of all surveillance activities required by the Technical Specifications for a period of at least five years. The reactor coolant system water inventory balance procedure was a surveillance activity required by the Technical Specifications.

3. Beginning sometime prior to October 18, 1978, the exact date being unknown to the Grand Jury, and continuing up to and including March 28, 1979, in the Middle District of Pennsylvania, the defendant company willfully possessed, used and operated a utilization facility, to wit, the Three Mile Island Nuclear Station, Unit 2, in violation of the conditions of the license issued by the NRC; that is: the defendant company destroyed, discarded, and failed to retain records relating to the reactor coolant system water inventory balance procedure.

All in violation of Title 42, United States Code, Sections 2272 and 2131.

COUNT 7

THE GRAND JURY FURTHER CHARGES:

1. Paragraph 1 through 23 of this Indictment, set forth in pages 1 through 6, are hereby realleged and incorporated as though restated in full herein.

2. Title 10, Code of Federal Regulations, Chapter I, required the defendant company to retain records of all surveillance activities required by the Technical Specifications for a period of at least five years. The reactor coolant system water inventory balance procedure was a surveillance activity, required by the Technical Specifications.

3. Beginning sometime prior to October 18, 1978, the exact date being unknown to the Grand Jury, and continuing up to and including March 28, 1979, in the Middle District of Pennsylvania, the defendant company willfully possessed, used and operated a utilization facility, to wit, the Three Mile Island Nuclear Station, Unit 2, in violation of regulations promulgated by the NRC; that is: the defendant company destroyed, discarded, and failed to retain records relating to the reactor coolant system water inventory balance procedure.

All in violation of Title 42, United States Code, Section 2273 and Title 10, Code of Federal Regulations, Section 50.71 and Part 50, Appendix B.

COUNT 8

THE GRAND JURY FURTHER CHARGES:

1. Paragraphs 1 through 23 of this Indictment, set forth in pages 1 through 6, are hereby realleged and incorporated as though restated in full herein.

2. The defendant company's license to possess, use and operate the Three Mile Island Nuclear Station, Unit 2, required it to notify the NRC if it failed to enter the Action Statement after receiving information indicating that the reactor coolant system was being operated with leakage above allowable limits.

3. Beginning sometime prior to October 18, 1978, the exact date being unknown to the Grand Jury, and continuing up to and including March 28, 1979, in the Middle District of Pennsylvania, the defendant company willfully possessed, used and operated a utilization facility, to wit, the Three Mile Island Nuclear Station, Unit 2, in violation of the conditions of the license issued by the NRC; that is: during the operation of Three Mile Island Nuclear Station, Unit 2, the defendant company failed to notify the NRC that it had not entered the Action Statement after receiving information indicating that reactor coolant system leakage was not within allowable limits.

All in violation of Title 42, United States Code, Sections 2272 and 2131.

COUNT 9

THE GRAND JURY FURTHER CHARGES:

1. Paragraphs 1 through 23 of this Indictment, set forth in pages 1 through 6, are hereby realleged and incorporated as though restated in full herein.

2. Title 10, Code of Federal Regulations, Chapter I required the defendant company to make and maintain adequate operating logs relating to the conduct of surveillance testing, such as the reactor coolant system water inventory balance procedure, including the starting and completion times of such testing and the results thereof, as described in defendant company's Administrative Procedure #1012, Shift Relief and Log Entries.

3. Beginning sometime prior to October 18, 1978, the exact date being unknown to the Grand Jury, and continuing up to and including March 28, 1979, in the Middle District of Pennsylvania, the defendant company willfully possessed, used and operated a utilization facility, to wit, the Three Mile Island Nuclear Station, Unit 2, in violation of regulations promulgated by the NRC; that is: the defendant company failed to make and maintain adequate operating logs relating to the conduct of the reactor coolant system water inventory balance procedure, including the starting and completion times of such testing and the results thereof, as described in defendant company's Administrative Procedure #1012, Shift Relief and Log Entries.

All in violation of Title 42, United States Code, Section 2273 and Title 10, Code of Federal Regulations, Part 50, Appendix B.

COUNT 10

THE GRAND JURY FURTHER CHARGES:

1. Paragraphs 1 through 23 of this Indictment, set forth in pages 1 through 6, are hereby realleged and incorporated as though restated in full herein.

2. Title 10, Code of Federal Regulations, Chapter I, required the defendant company to identify deficiencies and non-conformances encountered with its surveillance testing activities, including the reactor coolant system water inventory balance procedure, by making entries relating to such problems on an Exception and Deficiency list, as described in defendant company's Administrative Procedure #1010, Technical Specification Surveillance Program.

3. Beginning sometime prior to October 18, 1978, the exact date being unknown to the Grand Jury, and continuing up to and including March 28, 1979, in the Middle District of Pennsylvania, the defendant company willfully possessed, used and operated a utilization facility, to wit, the Three Mile Island Nuclear Station, Unit 2, in violation of regulations promulgated by the NRC; that is: the defendant company failed to make entries identifying deficiencies and non-conformances encountered with its reactor coolant system water inventory balance procedure on an Exception and Deficiency list, as described in defendant company's Administrative Procedure #1010, Technical Specification Surveillance Program.

All in violation of Title 42, United States Code, Section 2273 and Title 10, Code of Federal Regulations, Part 50, Appendix B.

COUNT 11

THE GRAND JURY FURTHER CHARGES:

1. Paragraphs 1 through 23 of this Indictment, set forth in pages 1 through 6, are hereby realleged and incorporated as though restated in full herein.

2. Beginning sometime prior to October 18, 1978, the exact date being unknown to the Grand Jury, and continuing up to and including March 28, 1979, in the Middle District of Pennsylvania, the defendant company knowingly and willfully falsified, concealed, and covered up by trick, scheme, and device, from the Nuclear Regulatory Commission, an agency of the United States, a material fact, to wit, that the reactor coolant system water inventory balance procedure did not accurately measure the amount of reactor coolant leakage from unidentified sources at Three Mile Island Nuclear Station, Unit 2.

In violation of Title 18, United States Code, Section 1001.

FOREPERSON

November , 1983

DAVID DART QUEEN
United States Attorney

EXHIBIT 47

PLEA AGREEMENT BETWEEN U. S. GOVERNMENT
AND METROPOLITAN EDISON

RECEIVED
MAR - 1984

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA)
)
 vs.) CRIMINAL NO. 83-00188
)
METROPOLITAN EDISON COMPANY)

PLEA AGREEMENT

The following plea agreement is entered into by and between the United States Attorney for the Middle District of Pennsylvania and the above-captioned defendant. Any reference to the Government in this Agreement shall mean the office of the United States Attorney for the Middle District of Pennsylvania.

1. The defendant agrees to plead guilty to Count 2 of the Indictment which charges the defendant with a violation of Title 42, United States Code, Section 2273 and Title 10, Code of Federal Regulations, Part 50, Appendix B. The maximum penalty for the offense is a fine of \$5,000.00, together with the costs of prosecution. At the time the guilty plea is entered, the defendant shall admit to the Court that the defendant is in fact guilty of the offense charged in that count.

2. The defendant also agrees to enter pleas of nolo contendere to Counts 4, 7, 9 and 10 of the indictment which

1

charge the defendant with violations of Title 42, United States Code, Section 2273 and Title 10, Code of Federal Regulations, Part 50, Appendix B and Section 50.71; that is, operating a utilization facility in violation of regulations promulgated by the Nuclear Regulatory Commission. The maximum penalty for each of the offenses is a fine of \$5,000.00.

3. The defendant also agrees to enter pleas of nolo contendere to Counts 5 and 8 of the indictment which charge the defendant with violations of Title 42, United States Code, Sections 2272 and 2131; that is, operating a utilization facility in violation of the conditions of its license issued by the Nuclear Regulatory Commission. The maximum penalty for each of the offenses is a fine of \$10,000.00

4. The Government agrees to bring no other criminal charges against the defendant arising out of its operation of the Three Mile Island Nuclear Power Station, Unit 2 which may have occurred up to and including March 28, 1979.

5. At the time the pleas described in paragraphs 1, 2 and 3 are entered, the defendant shall admit that Counts 2, 4, 5, 7, 8, 9 and 10 of the indictment charge offenses, the violations of which constitute crimes.

6. The defendant understands that the total, maximum possible sentence for all charges is the combination of penalties described above; that is, fines totalling \$45,000.00, together with the costs of prosecution.

7. The defendant understands that, for the purposes of sentencing only, a plea of nolo contendere is the same as and equivalent to a plea of guilty, subjecting the defendant to the same criminal penalties as a plea of guilty.

8. If the Court accepts the plea agreement pursuant to Rule 11, F.R.Crim.P., the parties agree that the appropriate sentence shall be the maximum sentence of fines totalling \$45,000.00.

9. After sentencing the Government agrees to move for dismissal of Counts 1, 3, 6 and 11 of the indictment.

10. The defendant agrees that as a material condition of this agreement the defendant shall place the sum of \$1,000,000 within five (5) business days after imposition of sentence in an interest bearing escrow account where it shall be maintained until final transfer is arranged pursuant to this paragraph. The money paid by the defendant pursuant to this paragraph shall pass absolutely and without condition for the use of and by the Pennsylvania Emergency Management Agency (PEMA) consistent with its enabling legislation to assist in emergency preparedness and planning in the

Emergency Preparedness Zone specified by the NRC regulations, namely the area within twenty (20) miles of the TMI nuclear station. In the event that PEMA is unable or unwilling to accept payment or in the event this payment cannot be used for the purposes set forth above, then this sum will be paid to a like or similar organization for like purposes which are mutually agreeable to the parties. In the event the parties cannot agree on the organization and purposes, then the matter shall be submitted to the Court for a decision as to both.

11. The defendant understands that any fines paid as a consequence of guilty pleas or pleas of nolo contendere are not tax-deductible from the defendant's corporate tax return. The defendant further understands that any fines must be paid out of after tax profits and that such fines do not constitute a cost of doing business.

12. The defendant further agrees that for the purposes of its corporate tax liability, any costs of prosecution assessed by the court and the payment described in paragraph 10, shall not be treated by the defendant as a cost of doing business, nor as an unavoidable expense. The defendant agrees and acknowledges that such costs of prosecution are a reasonably avoidable expense and as such shall not be deductible from the defendant's corporate pre-tax income.

13. The defendant agrees that any fines, costs of prosecution, or payments pursuant to paragraphs 1, 2, 3 and 10 shall be absorbed wholly and exclusively by the corporation and its stockholders. The defendant agrees that it shall in no way ask for, seek, or attempt to treat such fines, costs of prosecution or payments as an expense to be passed through to its rate payers or users of utility services.

14. All fines and court costs and costs of prosecution imposed by the court shall be payable to the United States Treasury in the form of a certified check, within 5 business days of the imposition of said fines and costs.

15. The defendant agrees that it shall submit to the United States Attorney an affidavit signed by the individual(s) responsible for the preparation of its and its affiliated companies' federal and state corporate income tax returns certifying that no deductions, credits, losses or the like were claimed for tax year 1984 by Metropolitan Edison or any affiliated company arising out of the monies paid pursuant to paragraphs 1, 2, 3 and 10 of this agreement.

16. At the sentencing the parties will be permitted to bring to the Court's attention, and the Court will be permitted to consider, all relevant information with respect to the defendant's conduct.

17. The defendant agrees not to pursue or initiate any civil claims or suits against the United States of America, its agencies or employees, whether or not presently known to the defendant, arising out of the investigation or prosecution of the offenses covered by this agreement.

18. The defendant understands that by its pleas of guilty and nolo contendere it waives any defenses, whether legal or factual in this case.

19. It is further understood and agreed that the status of any license held by the defendant is not affected by this agreement and is a matter solely within the discretion of the appropriate licensing authority. The defendant agrees that the Government may in its discretion, consistent with law, provide to any such licensing authority any documents and information in its possession.

20. The defendant specifically understands that the granting, renewal and denial of licenses to operate nuclear power plants rests exclusively and entirely with the Nuclear Regulatory Commission, which is not a party to this agreement.

21. The Board of Directors of Metropolitan Edison shall, as a condition of this agreement and a condition precedent to this agreement, pass resolutions authorizing and permitting counsel for the defendant to make factual admissions, stipu-

lations and agreements concerning the defendant's involvement in the offenses charged such as may be required by Rule 11 F.R.Crim.P. and by the court for purposes of the entry of such pleas. The Board of Directors shall also pass a resolution authorizing counsel for the defendant to execute this agreement and such resolution shall certify that the Board has reviewed and approved this plea agreement in its entirety before adoption of any such resolution.

22. Nothing in this agreement shall bind any other state or local law enforcement agency.

23. This document states the complete and only Plea Agreement between the United States Attorney for the Middle District of Pennsylvania and the defendant in this case, and is binding only on the parties to this agreement, supersedes all prior understandings, if any, whether written or oral, and cannot be modified other than in writing that is signed by all parties or on the record in Court. The parties have agreed that the Government's statements at the time the pleas are entered shall include specific, agreed upon language dealing with identified management personnel and with the so-called TMI accident of March 28, 1979. No other promises or inducements have been or will be made to the defendant in connection with this case, nor have any predictions or threats been made in connection with this plea.

24. The original of this agreement must be signed by defense counsel and received by the United States Attorney's Office on or before 5:00 p.m., February 28, 1984, otherwise the offer shall be deemed withdrawn.

25. None of the terms of this agreement shall be binding on the Office of the United States Attorney for the Middle District of Pennsylvania until signed by defense counsel and until signed by the United States Attorney.

February 28, 1984
DATE

Paul J. Curran
PAUL J. CURRAN, Esq.
Counsel for Defendant

February 28, 1984
DATE

David Dart Queen
DAVID DART QUEEN
United States Attorney

DDQ:pjh

EXHIBIT 48

STATEMENT OF FACT SUBMITTED BY U. S. GOVERNMENT

RECEIVED

MAR - 1984

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA)
)
 v.) CRIMINAL NO. 83-00188
)
 METROPOLITAN EDISON COMPANY) (Rambo, J)

STATEMENT OF FACTS SUBMITTED
BY THE UNITED STATES

At a trial of this case, the Government would produce credible evidence to establish the facts contained in this Statement. This Statement does not describe all of the evidence the United States would introduce at trial, but contains essential portions thereof which it would offer in support of the charges to which the defendant is entering pleas. Under clearly established case law, a corporation can be criminally liable for the acts and omissions of its employees. The evidence would establish that a number of employees of the Metropolitan Edison Company engaged in the criminal activities charged in the indictment. However, the evidence presented to the grand jury and developed by the United States Attorney does not indicate that any of the following persons participated in, directed, condoned or was aware of the acts or omissions that are the subject of the indictment:

William G. Kuhns
Herman M. Dieckamp
Robert C. Arnold
James S. Bartman
Shepard Bartnoff

Frederick D. Hafer
Richard Heward
Henry D. Hukill
Edwin E. Kintner
James R. Leva

Bernard H. Cherry
Phillip R. Clark
Verner H. Condon
Walter M. Creitz
Robert Fasulo
Ivan R. Finfrock
William L. Gifford

Robert L. Long
Frank Manganaro
Ernest M. Schleicher
Floyd J. Smith
William A. Verrochi
Raymond Werts
Richard F. Wilson

The above list of individuals includes all directors and officers of GPU Nuclear Corporation from its organization in 1982 to the date of the indictment and all directors of the defendant company during the period covered by the indictment.

The indictment does not charge a legal nexus to the events of March 28, 1979, which have become commonly known as the Three Mile Island Unit 2 accident, and the pleas do not constitute an admission of such a nexus.

For the sake of clarity, a discussion of the evidence will be divided into separate sections, as follows: I. Regulatory and Operation Requirements; II. Review of Plant Operations from Licensure to October 18, 1978; III. Events of October 18, 1978; and IV. Events After October 18, 1978.

I. Regulatory and Operation Requirements

The Nuclear Regulatory Commission ("NRC") was the federal agency responsible for administering and enforcing the Atomic Energy Act. The Atomic Energy Act authorized the NRC to issue licenses to operate nuclear power plants and to prohibit the operation of any such plant except under and in accordance with a valid license. To obtain an operating license from the NRC,

Metropolitan Edison Company was required to develop a set of rules and procedures by which it agreed to operate Three Mile Island Nuclear Station, Unit 2. Metropolitan Edison was also subject to established standards for operation known as technical specifications. The technical specifications were made part of Metropolitan Edison's license to operate TMI Unit 2 and became conditions of the license.

The operation of TMI Unit 2 required reactor coolant, which is essentially demineralized water, to: (a) keep the facility at a safe temperature; and (b) transfer heat generated by the nuclear reaction. To avoid the loss of reactor coolant, the technical specifications limited the amount of leakage to one gallon per minute from unidentified sources. Such strict limits were established to enable company employees to monitor even slight increases in unidentified leakage -- which possibly consisted of dangerous pressure boundary leakage -- and to take appropriate precautionary action to avoid challenges to the integrity of the containment of reactor coolant.

If unidentified leakage exceeded the established limits, the technical specifications required Metropolitan Edison to take certain actions set forth in an Action Statement. The Action Statement required the company to reduce the leakage rate to within allowable limits within four hours of discovery. If that could not be accomplished, the Action Statement required

Metropolitan Edison to commence a power reduction so that the facility would be in hot standby within the following six hours, and completely shut down within the following 30 hours.

Metropolitan Edison's license also required it to establish, implement and maintain appropriate procedures for surveillance tests. Among such tests was the reactor coolant system water inventory balance, commonly referred to by Metropolitan Edison employees as the leak rate test. The company's license required it to demonstrate, by performance of the leak rate test, that reactor coolant system leakage was within allowable limits at least once every 72 hours during steady state operation of the facility. Metropolitan Edison Company understood that the leak rate test was a primary means of detecting reactor coolant system leakage. If the leak rate test indicated that allowable limits of leakage were exceeded, Metropolitan Edison was required either to invoke the Action Statement, as described above, or disqualify the test by filing a written Exception or Deficiency, as required by the company's procedures. In addition, Metropolitan Edison was required to retain for at least five years its records of surveillance activities to be conducted, including the leak rate test, and to make entries in its operating logs relating to the conduct of surveillance testing.

The United States would establish that Metropolitan Edison Company represented to the NRC that it would operate TMI Unit 2 in

accordance with the license requirements described above; it also represented to the NRC that it had established a leak rate test that was capable of measuring in a meaningful way unidentified reactor coolant system leakage within the technical specification limits -- that is, one gallon per minute.

II. Review of Plant Operations from
Licensure to October 18, 1978

Metropolitan Edison Company owned 50 percent of the Three Mile Island Nuclear Station. On February 8, 1978, the NRC issued Facility Operating License No. DPR-73 to Metropolitan Edison to possess, use and operate TMI Unit 2.

During the time period after the license to operate was issued and prior to October 18, 1978, Metropolitan Edison was engaged in operating TMI Unit 2 with a view to bringing the facility into commercial operation. The leak rate test was required to be performed during a substantial part of this period of time. Operations Department employees of Metropolitan Edison concluded during such period of time that the leak rate test was faulty because it did not accurately measure unidentified reactor coolant system leakage. Nevertheless, the employees responsible for supervising the performance of the leak rate test acquiesced in its continued use.

The United States would establish through expert testimony that the leak rate test at TMI Unit 2 was faulty because, among other reasons, the company-prepared calculation established in the surveillance procedure for measuring unidentified leakage was not correct. The only significant change in the calculation made by Metropolitan Edison occurred on March 16, 1979, some 12 days before the so-called accident. However, that change did not correct all of the errors in the calculation. Additional errors were discovered by the NRC during its investigation after the TMI Unit 2 accident.

The leak rate test at TMI Unit 2 yielded widely varying results not confirmed by the state of the plant. Thus, results within the technical specification limits could often be achieved if the test were performed frequently enough. The company adopted a practice that a leak rate test was to be performed each eight hour shift. Because of the varying results obtained, the test was frequently performed more often. If the test showed leakage in excess of the limits established in the technical specifications the documentation was discarded. Test results indicating unidentified leakage within allowable limits were retained and filed as evidence of compliance with the leak rate surveillance testing requirements. Nevertheless, Operations Department employees had little faith in the reliability of such test results, including the results filed for NRC review.

1
An Exception and Deficiency Procedure was instituted by the company to comply with its quality assurance requirements, including the conduct of surveillance testing. A Metropolitan Edison systems engineer would testify that the company was required to apply the Exception and Deficiency Procedure to any leak rate test result company employees decided to disqualify, for whatever reason. Contrary to such requirement, however, no Exception or Deficiency was ever filed for any of the numerous leak rate tests discarded. Moreover, Metropolitan Edison had represented to the NRC, again to comply with its quality assurance requirements, that it would keep operating logs regarding plant operations that would include the starting and completion times, and the results, of all surveillance testing. No such logs were kept with respect to the leak rate tests which exceeded allowable limits.

Thus, virtually every record concerning the leak rate test which the company was required to create for the purpose of documenting compliance with the leak rate testing requirements showing unidentified leakage in excess of allowable limits was either discarded or not created in the first instance. Nor did the company inform the NRC of the problems it was experiencing with the leak rate test.

The highest Metropolitan Edison employee in the Operations Department of TMI Unit 2, the Supervisor of Operations, would

testify that the leak rate procedure was "functionally unusable, ~~so tell what your leak rate in the plant really was,~~" but as long as the operators "got a piece of paper that said less than one gallon a minute, they could file it." In fact, he would also testify that the leak rate tests that were within acceptable limits and being filed for NRC review were as "worthless as the ones being thrown away." In addition, the Supervisor of Operations required no change in the practice of discarding unacceptable leak rate test results, because he had no faith in the reliability of the test. Instead, he relied upon the operators to visually scan the instrumentation on the console to actually determine the leak rate of the plant, and felt that such a procedure was adequate to meet the safety requirements.

However, the Supervisor of Operations would admit:

"That kind of scanning does not meet the legal requirement of the technical specification. The technical specification is a legal document, and as an engineer, I am imposed upon to make legal interpretation of those words, although they can be second-guessed by lawyers at any time, so I hesitate to say that this is a legalistic reading of it, but this goes the way I read it, and what I was doing with my own eyes and my own mind did not satisfy the legal requirement.

Q. And you knew that?

A. And I knew that."

Thus, the Supervisor of Operations permitted the operators to determine the leak rate by visually scanning plant parameters,

despite his knowledge that such a procedure was not authorized by Metropolitan Edison's license for compliance with surveillance requirements. Indeed, a number of operations employees described the scanning procedure as a "quick and dirty" way of measuring the leak rate. At no time was the NRC informed of such practices concerning the leak rate test.

The control room operators at TMI Unit 2, who were responsible for performing the leak rate test, would testify that the practice of discarding unacceptable leak rate test results and filing acceptable ones was carried out with the express knowledge of supervisory personnel within the Operations Department, including the Supervisor of Operations, shift supervisors and shift foremen. ~~_____ operator would testify that when~~ he first began running the leak rate test in early 1978 and obtained a result for unidentified leakage greater than one gallon per minute, he gave the test to his shift foreman, who showed it to the shift supervisor. Shortly thereafter, the control room operator was approached by three supervisory employees in the Operations Department and was told by one of them in the presence of the others: "We do not want to see this shit."

None of the Operations Department employees could identify any other surveillance test conducted at TMI Unit 2 that was treated in the same manner; that is, acceptable test results filed, unacceptable ones discarded, without other documentation

created or notification to the NRC supplied. Nor could any employee point to any other surveillance test that was functionally inoperable without corrective action being taken.

In early October, 1978, TMI Unit 2's Superintendent of Technical Support first learned that there was a divergence of opinion as to the interpretation of the requirements of the leak rate technical specifications. Company personnel within the Operations Department took the position that an acceptable leak rate test once every 72 hours met the intent of the requirements of the technical specifications. Thus, if intermediate leak rate tests were conducted and unacceptable results obtained, it was not necessary to invoke the Action Statement. The Superintendent of Technical Support was advised by at least one shift supervisor that an interpretation requiring invocation of the Action Statement every time an unacceptable leak rate test result was obtained would cause shutdown problems. The Superintendent of Technical Support was not satisfied with the interpretation of the leak rate technical specifications as advanced by the operations staff, and decided to look into the matter further. However, his consideration of the matter was brought to a head as a result of an NRC inspection of TMI Unit 2 on October 18, 1978.

III. Events of October 18, 1978

While conducting a routine inspection of TMI Unit 2 on October 18, 1978, an NRC inspector interrupted a conversation among Operations Department employees concerning "bad" leak rate tests. [A "bad" leak rate test was the shorthand description used by Operations Department staff to refer to a calculated unidentified leak rate of more than one gallon per minute. A "good" leak rate test, conversely, referred to a calculated unidentified leak rate equal to or less than one gallon per minute.] Present were the Supervisor of Operations, two shift supervisors and a shift foreman. The inspector saw at least three leak rate printouts which showed excessive leakage. He asked why the plant had not entered the Action Statement as a result of such tests, and was informed that the prevailing interpretation was that all unacceptable leak rate tests conducted within 72 hours of an acceptable one could be ignored. The NRC inspector indicated to Metropolitan Edison personnel that he found such an interpretation "shocking," and a fundamental misinterpretation of the safety requirement. He then confronted the Superintendent of Technical Support with his findings and received specific assurances that whenever the leak rate test showed that the unidentified leakage limit was exceeded, the plant would enter the Action Statement. The NRC inspector was not told of the problems Metropolitan Edison had been having with the leak rate test, nor

with the conclusion of the operations staff that the test, as performed at TMI Unit 2, did not accurately measure unidentified leakage.

The NRC inspector would testify that the Superintendent of Technical Support agreed to implement the interpretation of the leak rate technical specifications as stated by the NRC inspector. The Superintendent of Technical Support would testify that he agreed with the NRC inspector's interpretation and promised to instruct the operations staff accordingly. The Superintendent of Technical Support requested the Supervisor of Operations and certain shift supervisors to assist in assuring that the Operations Department of TMI Unit 2 received appropriate instructions. The Superintendent of Technical Support would testify that shortly after the confrontation with the inspector on October 18, 1978 he was advised by a shift supervisor that "we know how to get a good one", referring to the leak rate test.

Before concluding his inspection on October 18, 1978, the NRC inspector was shown at least two leak rate tests run on October 18, 1978, after his discovery of the unacceptable ones, which showed that the plant was within the one gallon per minute limit for unidentified leakage. Expert testimony based upon scientific analysis of plant records would indicate that unrecorded water additions were made to the reactor coolant system during the course of three leak rate tests conducted on October 18, 1978.

A shift supervisor would testify that as a result of the October 18, 1978 NRC inspection a conference telephone call was made from the shift supervisor's office in the Unit 2 control room. Present in the shift supervisor's office and parties to the conversation were the Superintendent of Technical Support, the Supervisor of Operations, and two shift supervisors. The call was made to either TMI's Station Superintendent or Metropolitan Edison's Vice-President for Generation, or both. The Station Superintendent and/or the Vice-President for Generation were briefed on the situation at TMI Unit 2 concerning the leak rate test. During the conversation the operations personnel alerted the Station Superintendent and/or Vice-President for Generation that because of the numerous "bad" leak rate tests obtained at Unit 2, the NRC's interpretation of the leak rate technical specifications would result in repeated shutdown of the facility.

The company never advised the NRC that its interpretation of the technical specifications would repeatedly shut down TMI Unit 2. Nor would the NRC otherwise expect such consequences since it was not informed that the leak rate test did not function properly.

IV. Events After October 18, 1978

As a result of the events of October 18, 1978, Metropolitan Edison Company represented to the NRC that it would change its interpretation of the leak rate technical specifications, and assure that its operators would invoke the Action Statement each time a leak rate test result indicated leakage above allowable limits. The evidence at trial would show, however, that no such changes occurred with respect to the performance of the leak rate test. The measures taken by the company purportedly to instruct the operations staff on the proper interpretation of the leak rate technical specifications were wholly inadequate and ineffective. In fact, the only instruction the control room operators recall as a result of the October 18, 1978 NRC inspection was a direction from a number of the shift supervisors and shift foremen to make sure that the "bad" leak rate tests were thrown away and not left lying around the control room. Furthermore, it was during this period of time, from October 18, 1978 until TMI Unit 2 was shut down on March 28, 1979, that numerous leak rate tests were intentionally manipulated by the unrecorded addition of water or hydrogen to the reactor coolant system during the course of the tests, to obtain acceptable results. A summary of the measures taken by Metropolitan Edison in response to the events of October 18, 1978 follows.

A. Oral Instructions

The Superintendent of Technical Support would testify that he met with some members of the operations staff on October 18 or 19, 1978, to advise them of the correct interpretation of the leak rate technical specifications. However, not one Operations Department employee remembers any such instruction. As noted, the only oral instruction the operations staff recall was a warning not to leave "bad" leak rate tests lying around the control room.

B. Licensee Event Report 78-62

On October 19, 1978, the Superintendent of Technical Support advised the NRC inspector that Metropolitan Edison was going to submit to the NRC a licensee event report dealing with the technical specification violations discovered by the NRC inspector on October 18, 1978. Metropolitan Edison submitted a licensee event report to the NRC which purportedly described the events giving rise to the technical specification violation and explained what corrective action would be taken by the company to assure no reoccurrence of the reported violation. The report, however, incorrectly described the events of October 18, 1978. It also failed to inform the NRC of the substantial, long-standing problems the company was experiencing with the leak rate test. The licensee event report represented that the following

corrective action would be taken by the company:

"The appropriate personnel will be instructed on the requirements of the applicable sections of the T.S. and the requirements to immediately invoke applicable action statements when the provisions of limiting conditions for operation are not met."

However, only a few of the Operations Department employees recall either reading or seeing the licensee event report, even though virtually all initialed the sign off sheet accompanying the report. None of the employees remembers any training, formal or informal, on the proper interpretation of the leak rate technical specifications. Not one member of the operations staff changed his understanding of the leak rate surveillance requirements, or the method of operating the leak rate test, as a result of the licensee event report.

C. Operations Memo

On October 20, 1978, the Supervisor of Operations issued a memorandum to the Unit 2 shift supervisors and shift foremen purportedly advising them of the proper interpretation of the leak rate technical specifications. Similarly with respect to the oral instructions and the licensee event report, all Operations Department employees with the exception of one shift foreman would testify that they do not recall ever reading the memorandum. Not one member of the operations staff changed his interpretation or method of operation of the leak rate test requirements as a result

of the October 20, 1978 memorandum. In addition, the Supervisor of Operations would testify that after he issued the memorandum, he never again conferred with any of his shift supervisors or shift foremen to determine that the leak rate technical specifications were being followed correctly.

Notwithstanding the failure of the company's measures to bring performance of the leak rate test into compliance with the technical specifications, on March 5, 1979, Metropolitan Edison represented to the NRC that the corrective action promised in the licensee event report had been taken.

D. Intentional Manipulation of Leak Rate Tests

The vast majority of the control room operators, and four of the six foremen would testify that following the January, 1979 shutdown it became extremely difficult to get "good" leak rate tests within the one gpm limit for unidentified leakage, even though the test was being run repeatedly. During this period of time many leak rate tests that were filed were intentionally manipulated by the addition of hydrogen or water.

~~four control room operators would testify that they added hydrogen to the make-up tank during the performance of leak rate tests to "influence" the results of the test.~~ According to them and to other Operations Department employees, including a shift supervisor, the addition of hydrogen during the test made the

level in the make-up tank appear higher, thus making the unidentified leakage seem lower.

Despite the fact that much of the documentation concerning leak rate testing at TMI Unit 2 was systematically destroyed, NRC experts, experienced in analyzing data generated by nuclear power plants, have been able to (1) recompute the leak rate test, and (2) determine the frequency with which unreported water additions were made during leak rate tests conducted at TMI Unit 2. They concluded that the recomputed leak rate test showed that unidentified leakage at TMI Unit 2 exceeded the technical specification limit for unidentified leakage of one gallon per minute during the period from January 8, 1979 through January 15, 1979. After a forced shutdown of approximately two weeks, January 15-30, 1979, for reasons unrelated to leakage in the primary system, unidentified leakage as recomputed by the experts under the leak rate test exceeded the technical specification limit a substantial number of times from mid-March of 1979 until March 28, 1979.

The NRC experts also concluded that approximately 30 unreported water additions occurred during officially filed leak rate tests in the period after the NRC inspector's visit on October 18, 1978 until March 28, 1979.

Finally, with regard to October 18, 1978, the NRC experts concluded on the basis of available documentation that water was

added during three leak rate tests run the morning of October 18, 1978, and that this water was not recorded or accounted for in the leak rate computation. At least two tests were thereafter shown to the NRC inspector on that date to satisfy him that the company had complied with the leak rate technical specifications.

E. Summary

In summary, Metropolitan Edison provided no effective instructions or training to the operations staff on the requirements of the leak rate technical specifications. No supervisory personnel followed up on the events of October 18, 1978 to assure that the major changes agreed to were implemented.

As a result, numerous leak rate tests indicating that unidentified leakage was above allowable limits continued to be destroyed. Many control room operators and several shift foremen would testify that for the time period following October 18, 1978 until March 28, 1979, many more "bad" test results were obtained than "good" results. Yet, not a single "bad" leak rate test was filed in the company's official surveillance files. No entry into the Action Statement was made for leak rate tests showing unidentified leakage above allowable limits. Not a single Exception or Deficiency was filed for the leak rate test. No entry was made in any log reporting the starting and completion times and results of leak rate tests showing unidentified leakage greater than one gallon per minute. Numerous leak rate tests were

manipulated by the operators to obtain acceptable results. Had the company followed the requirements of the leak rate technical specifications, as it had represented to the NRC that it would, TMI Unit 2 would have entered the Action Statement on numerous occasions.

EXHIBIT 49

STATEMENT OF FACT SUBMITTED BY METROPOLITAN EDISON

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA

v.

METROPOLITAN EDISON COMPANY

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CRIMINAL NO. 83-00188

(Rambo, J.)

STATEMENT OF METROPOLITAN EDISON COMPANY
WITH RESPECT TO PLEA AGREEMENT

The parties have executed a Plea Agreement which is before the Court for review. I join the Government in urging its approval in accord with Rule 11(e)1(A) and (C). I would like to present now the defendant's statement in support of the Plea Agreement and to present the defendant's plea of guilty to Count 2 and its offer of nolo contendere pleas to six other counts.

Your Honor, in connection with the Plea Agreement and today's proceeding, the record must be clear on two very important points.

The first is that the Plea Agreement provides that the defendant will plead guilty to Count 2 and only to Count 2. When I present to the Court the fact basis for that plea, that statement will set forth the only matters which constitute an acknowledgment of guilty in this case.

With respect to the nolo contendere pleas set forth in paragraphs 2 and 3 of the Plea Agreement, the Plea Agreement itself acknowledges, consistent with the case law, that acceptance of these pleas authorizes only the same sentence as a guilty plea. In offering them, the defendant does not, however, admit any facts at all as to them, and certainly admits no facts to support any findings of guilt as to them. Under paragraph 9 of the Plea Agreement the Government is not pursuing the other four counts, including Count 11, the only one that charges a violation of the Criminal Code.

Second, the Government's fact statement is just a statement of what the prosecution contends it would prove if this case were tried. We have not had production of the testimony before the grand jury, even though we requested and filed a motion for such production. Accordingly, we are in no position even to try to refute the statement point by point. That is what trials are all about, and obviously there will be no trial if this Court accepts the Plea Agreement. I note, however, that the defendant in offering these pleas cannot and does not admit to all the facts set forth by Mr. Queen.

The indictment relates to the TMI-2 plant and to matters occurring during roughly the last three months of 1978 and the first three months of 1979 in connection with a so-called "reactor coolant inventory balance" or leak rate test for measurement of unidentified leakage.

As indicated in official NRC documents, a limited amount of leakage is expected from equipment that cannot be made airtight, and it may be impractical to eliminate such leakage. Accordingly, Technical Specifications at TMI-2 and other plants provided for certain limitations on different types of leakage such as "identified" and "unidentified" leakage, and provided for tests to determine such leakage. The limitation relevant here is 1 gallon per minute for "unidentified" leakage. Although it is the Company's position that the inventory balance test, which is the subject of the indictment, was not a test prescribed for unidentified leakage by the TMI-2 Technical Specifications, nevertheless, it was one of the tests in a Company procedure and was used by Company employees for this purpose. It also appears now that this test, as used back then under the circumstances at TMI-2 and at some other nuclear plants, was not sufficiently accurate and meaningful to measure with precision actual unidentified leakage within a 1 gallon per minute limitation. Nonetheless, the evidence indicates, as the prosecutor has stated, that Met-Ed employees continued to employ it in their efforts to measure unidentified leakage.

Relying on the federal criminal law doctrine that employees -- even fairly low-level ones -- can bind the corporation which employs them, the indictment charges only Metropolitan Edison Company. The indictment does not name any of the employees

who committed the acts or omissions which are the subject of the indictment.

At any rate, when the indictment came down, the Company had to deal with it in the best interests of its shareholders, ratepayers and the public. The Company determined that, given this standard, and under all of the circumstances peculiar to this situation, the best course was to seek to dispose of this criminal case as quickly as possible. Such a disposition would let all the facts be known promptly to the NRC and the public while, at the same time, this approach would enable the Company and its officers and employees to concentrate on the re-start of TMI-1, on the clean-up of TMI-2, and on the Company's business of supplying electric energy to its ratepayers as efficiently and cheaply as possible.

This matter has been pending in one forum or another for a long time. Thus, prior to the indictment there had been an NRC inquiry in the Spring of 1980, followed by some three and a half years of proceedings before three grand juries in this District. After this indictment was returned, two months were spent by both sides briefing our motions to dismiss the indictment on legal grounds. Some options would, of course, be dropped under the disposition proposed today. Further litigation of all these charges would be long and costly and at trial could delay the progress of the resolution of issues that could impact the TMI-1 re-start administrative proceedings pending before the NRC.

Given these obvious detriments and given the fact that the prosecution has indicated to us that it has grand jury testimony to show that Company employees at TMI-2 had, indeed, failed to treat the inventory balance test as not accurate and meaningful, the Company agreed with the Government that disposition of this case by this Plea Agreement was in order. The Plea Agreement, of course, speaks for itself. I would like now, Your Honor, to set forth on behalf of the defendant the facts which it admits and which provide, in accordance with Rule 11(f), the basis for the Company's plea of guilty to Count 2 of the indictment as set forth in paragraph 1 of the Plea Agreement that is before the Court.

Count 2 of the indictment charges the Company with a violation of Title 42, United States Code, Section 2273 which in turn incorporates NRC regulations. The violation relates to the Company's establishment, implementation, and maintenance of a reactor coolant system water inventory balance procedure. The Company pleads guilty to Count 2 on the basis of its admission of the following facts.

Count 2 of the indictment charges a violation of Title 10, Code of Federal Regulations, Chapter I, Part 50, Appendix B. The Government has identified specifically Paragraph XI of these regulations as the provisions allegedly violated. Paragraph XI required the Company to establish a "test program . . . to assure that all testing required to demonstrate that structures, systems,

and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents." Paragraph XI further required that "[t]est results shall include provisions for assuring that all prerequisites for the given test have been met" and that "[t]est results shall be documented and evaluated to assure that test requirements have been satisfied."

Prior to the period covered in the indictment, the Company issued pursuant to the above regulation a written test procedure which, according to the procedure, was to insure compliance with certain leakage limitations incorporated therein, by performance of a reactor coolant system water inventory balance test at least once per 72 hours during steady state operation. Employees of the Company stationed at TMI-2 and conducting such test were on notice that its procedure for performance of such test, as applied under the conditions and circumstances then existing at the Three Mile Island Nuclear Station Unit 2, did not accurately and meaningfully measure the amount of unidentified reactor coolant leakage within a 1 gpm limitation, which was one of the limitations listed in the procedure. Despite such notice, such employees of the Company continued to use the procedure.

Accordingly, based on these facts, the Company admits that beginning some time prior to October 18, 1978, and continuing

up to and including March 28, 1979, in the Middle District of Pennsylvania, the defendant company, knowing of the above-cited regulation, possessed and used a utilization facility, to wit, the Three Mile Island Nuclear Station Unit 2, in violation of a regulation promulgated by the NRC.

In pleading guilty to Count 2 on the above-stated basis, the Company specifically does not admit the remaining allegations contained or incorporated in count 2 of the indictment. Such allegations, which are not essential to the aforeaid offense, include the following:

The Company does not admit the allegation of paragraph 2 of Count 2 that NRC regulations required it to establish, implement, and maintain a reactor coolant system water inventory balance procedure to demonstrate that unidentified leakage was within allowable limits. The Company's legal position in this regard has been set forth in detail in papers previously submitted to the Court. The Company also does not admit the allegation that its continued use of the inventory balance procedure was -- and we quote -- "in an effort to generate results which appeared to establish that reactor coolant leakage was within allowable limits." In any event, as I have noted this allegation is plainly not an essential element of the offense charged.

Finally, paragraph 1 of Count 2 realleges and in-

corporates twenty-three earlier paragraphs, many of which are not relevant to, and none of which is essential to, the charges in Count 2 so -- without going into detail on each -- we simply state that the Company does not admit to these allegations.

The Board of Directors of Metropolitan Edison Company has adopted a resolution authorizing the Plea Agreement, the making of this plea, and giving me authority to make this fact statement which is sufficient to support its acceptance by this Court.

Now, Your Honor, I would like to address Counts 4, 5, 7, 8, 9 and 10. These are the six counts to which, as paragraphs 2 and 3 of the Plea Agreement provide, the Company has agreed to plead nolo contendere. The government has recommended acceptance of these nolo contendere pleas.

For reasons which I now outline, this Court should accept such pleas to these six counts as authorized by Rule 11(b) of the Federal Rules of Criminal Procedure. Acceptance of nolo contendere pleas in these unique circumstances is plainly in the public's interest in the effective administration of justice.

1. Unlike most criminal cases, the disposition of these criminal charges by this Plea Agreement will not put the matter to rest. To the contrary, it will only be after this case concludes that the issues presented by this indictment will be addressed in

depth. As Your Honor knows very well from other recent proceedings before this Court, the NRC is committed to investigate the facts surrounding these charges. As a practical matter, that investigation cannot and will not proceed until this criminal case is concluded. It is also plain that the NRC's investigation is a far superior vehicle to a criminal trial in getting at all of the facts -- documentary, testimonial, and scientific -- and in assessing by expert and other testimony all of the ramifications of these events, which took place five years ago or more. In sum, Your Honor, the Company's goal that this matter be aired as fully and as promptly as possible accords completely with the public's interest that this occur. Acceptance of these nolo contendere pleas will enable the NRC's investigation to move ahead now and, after a comprehensive inquiry, conclude with appropriate findings.

2. In this same vein, Your Honor, the Company too has long been committed to conducting a thorough investigation of its own of these charges. To this end the Company has commissioned the conduct of an independent investigation. Just as with the NRC's investigation, that inquiry cannot get off the ground until this criminal case ends.

In the interests of getting all of the facts, we have sought discovery in this case of the grand jury testimony of the 40 or so present and former Company employees and of others who

testified in secret before grand juries over the past almost four years. The prosecution has resisted strongly our efforts at discovery of this testimony. The conclusion of this case, which the Plea Agreement contemplates, will leave the Company free to pursue vigorously its own inquiry and also to cooperate with the NRC's investigation. In this regard, we note that _ 19 of the Plea Agreement provides that the prosecution may turn over to the NRC, consistent with law, all of its evidence. We hope that the government will make some of this material available to the Company but we are pleased that, at the very least, the NRC will receive it. I want the record to show that Metropolitan Edison has endorsed unequivocally that provision in the Plea Agreement.

In addition, in the interest of making the complete investigative record available to the NRC and to the Company, we intend, should the Court accept this Plea Agreement, to move immediately for release of the grand jury minutes to the NRC and to us. Although we recognize the limitations which recent Supreme Court cases impose on such Rule 6(e) applications, we feel strongly that, due to the unique nature of this case and the interests of both the NRC, the Company, and the public, this motion constitutes a sensible appeal to this Court's discretion.

3. Yet another basis for acceptance of these nolo contendere pleas is the fact that the Plea Agreement provides in

paragraph 10 for the Company to make a substantial financial contribution toward the improvement of emergency preparedness planning in the area of the TMI plant. The Federal Energy Management Agency has reported recently that local government's resources for such improved planning are not all that they might be. It is, therefore, the Company's hope that its contribution of \$1 million -- which will not be tax deductible and which will not be borne in any respect by its customers -- will be a really meaningful one. The Company believes earnestly that the public interest is better served by this payment than by spending large sums to finance a lengthy trial where the maximum possible fine, even if there were a conviction on all counts, could not exceed \$85,000 and probably could not as a matter of law exceed \$55,000. I stress here, Your Honor, that the concept of this substantial contribution was Met-Ed's proposal in the first instance. We are gratified that Mr. Queen accepted this approach. Both the Government and Met-Ed are committed to its implementation.

4. Metropolitan Edison Company, the defendant here, has since 1981 had no responsibility whatsoever for operating the TMI plant. GPU Nuclear Corporation has had that responsibility since January 1, 1982. To the fullest extent possible, given the restraints created by the pendency of the grand jury proceedings and this case on their ability to ascertain the facts, top management has addressed the problems of five years ago fully and effectively. When this case ends it intends to do more.

Specifically, as I have stated earlier, management is determined to pursue its own investigation. That inquiry, if unfettered by lingering criminal charges, will, we hope, lead to a full understanding of these events. The Company will then take appropriate action against those responsible for any willful violation of the Company's procedures.

5. A significant item for this Court's consideration of these nolo contendere pleas is the Company's and its top management's attitude toward and reactions to this matter. I present now this compelling evidence.

Several lessons have been learned from this matter:

- A. There must be stringent adherence to the use of procedures, and the results must be meticulously documented.
- B. If a procedure does not produce meaningful and accurate results, the reasons for that fact must be promptly determined and the procedure corrected or a new procedure developed, and both the reasons for the corrective action taken and the technical basis for those actions must be carefully documented.

C. There must be continuous overview and audit of operational matters, with the overview and audit functions reporting to senior management, so that problems are not submerged.

D. There must be multiple reporting paths to assure that problems are flushed out into the open and resolved.

GPU Nuclear Corporation has developed its reorganized structure and staffing which it has presented to the NRC to achieve these results and, I am advised, these changes have been made. In addition, GPU Nuclear advised the NRC in November, 1983 that it intended to add three outside directors to its Board of Directors, who will serve a a Nuclear Safety and Compliance Committee and who will have outside operational audit services reporting directly to them. These three outside directors have been elected to the GPU Nuclear Board, and they held their initial meeting as a Nuclear Safety and Compliance Committee last Friday.

In addition, Mr. John F. O'Leary, formerly Deputy Secretary of Energy and prior to that Director of Licensing of the AEC, and now an independent energy consultant, has been elected as Chairman of the GPU Nuclear Board and he will bring additional oversight and insight to the management of GPU's nuclear affairs.

6. A further reason for accepting the nolo pleas, is the fact that the operators' omissions in regard to one of the many tests -- including other tests for leakage in place at the Company -- were not reflective of any widespread inadequacy. Thus, as the Government advised the Court, none of the operations department employees could identify any other surveillance test conducted at TMI Unit 2 that was treated in the same manner or that was functionally inoperable without corrective action being taken.

7. Considerations of judicial and prosecutorial economy are surely factors to be weighed, particularly where, as here, these considerations stand along with the other significant reasons I have outlined.

8. Acceptance of the Plea Agreement will also permit the Company and its management to devote all of their efforts to matters that affect the public interest, including seeking the contributions to finance the clean up effort in accordance with Governor Thornburgh's plan.

9. The indictment itself and the prosecution's statement of facts it believes it could establish in this case furnish yet another and important basis for the acceptance of these nolo contendere pleas. Specifically, the indictment on its face

suggests and Mr. Queen's statement on the record fully acknowledges that the individuals who constituted top management five years ago and who constitute top management now had no involvement whatsoever in the matters alleged in the indictment. Mr. Queen has told this Court that and I quote "the evidence presented to the grand jury and developed by the United States Attorney does not indicate that any of the following (24 named) persons participated in, directed, condoned, or was aware of the acts or omissions that are the subject of the indictment." Mr. Queen also noted in his statement that this list of 24 individuals includes all directors and officers of GPU Nuclear Corporation from its organization in 1982 to the date of the indictment and all directors of Met-Ed during the period covered by the indictment. This forthright statement, we submit, weighs heavily in favor of acceptance of the nolo contendere pleas. This clear statement establishes that in this case top management, including most notably Mr. Kuhns and Mr. Dieckamp, who are, respectively, Chairman and President of General Public Utilities Corporation, are innocent of any wrongdoing. This fact distinguishes this case from most criminal cases involving a corporate defendant, and presents an additional basis for acceptance of the pleas.

10. Finally, candor requires that I inform this Court that the Company and the prosecution have some fundamental disagreements which, in the Company's view, bear upon the issue of

nolo contendere pleas. We do not and cannot comment at the present time upon the Government's statement insofar as it purports to be based on the grand jury testimony which we have not seen and which the Government has resisted producing to us. We must, however, comment briefly on what the Government says their experts have determined based on plant data alone. In this regard, I can inform the Court, that in a spirit of cooperation to get at the true facts, our independent nuclear engineering experts and the Government experts have conferred, and resolved some but not all of our differences. If we had the opportunity to confer further, perhaps further differences might have been eliminated; but neither Mr. Queen nor I felt that it was in the public interest to delay the final disposition of this matter. These scientific controversies to the extent they are of importance will be better dealt with in other forums more suitable to the resolution of scientific issues.

In its statement, the Government asserts that its expert has recomputed the results contained in Company files of inventory balance or leak rate tests conducted by the operators, and such recomputed results show unidentified leakage for certain days in January and March 1979 of over 1 gpm.

As for the period January 8 through 15, our expert's independent evaluation revealed that plant records indicate that this leakage was identified as being largely from small valves for the presurizer level instrumentation and was not therefore

"unidentified" leakage; that the leakage was being monitored by entries into the reactor building for inspection; and that the sources of the leakage were targeted for repair at the first opportunity. The plant was shut down on January 15, 1979, as the Government stated, and the leaky valves were replaced before the plant was restarted.

As for March 1979, our experts have independently evaluated the plant data by several different methods all of which support the conclusion that the daily average of the unidentified leakage did not exceed the one gpm limit in this period. Our experts also concluded that the Government's recomputations of the inventory balance tests are inadequate to reflect the actual unidentified leakage for several technical reasons. In addition, these Government recomputed results suffer from wide variations from day to day and even during the same day -- the same failing that rendered the Company's original inventory balance test results -- to use the Government's words -- "inaccurate and meaningless" to begin with. In contrast, the results of our experts' computations of unidentified leakage do not vary erratically and only change in accord with the physical reality.

Since the indictment does not allege that the actual unidentified leak rate was over 1 gpm at any time during the period under review, this controversy need not be resolved in this proceeding.

The Government also asserts that its experts' studies also would show approximately 30 unrecorded water additions during leak rate tests, two or three of which were allegedly made on the morning of October 18, 1978. This allegation relates essentially to Count 4 of the indictment to which the Company is offering to plea nolo contendere. It should be noted that under certain circumstances water additions are necessary to the operation of the plant. The Government has never contended that the addition of water to the makeup tank during a leak rate test is in and of itself a violation of the regulations. In fact, the computer program at TMI-2 which carried out the inventory balance test calculations accounted for such water additions when the amount of the water added during the test was entered into the computer as input data. There were approximately 1300 water additions made over the period of 126 operating days from late September 1978 to March 28, 1979. In this time period, there were approximately 175 reactor coolant inventory balance tests recorded. Our independent experts have studied the Government's experts' data and concluded that out of the large number of water additions in this period, they found only 4 clear instances where water additions were made and not included in the inventory balance calculations, none of which was on October 18. Moreover, three of these were recorded in the operators' log, but not included in the inventory test calculations.

Our experts have identified a number of errors in the reports of the studies furnished to us by the Government in this regard and we have so informed the Government. We also have informed the Government that its experts purport to discern such water additions by reliance on certain patterns in plant data which, according to our experts, do not permit the identification of small water additions with any degree of certainty, but rather may well be due to such expected system dynamics and fluctuations in plant conditions as reactor power changes and changes in let-down flow. For this and other technical reasons, our experts have concluded that there is an inadequate scientific basis for the Government's expert's assertions regarding water additions.

I reiterate that these outstanding scientific issues will not wither away as a result of the pleas we propose today but rather the pleas will clear the way for NRC and Company nuclear engineers and consultants to address and resolve the issues in a prompt and meaningful way, free of the restraints of a criminal proceeding.

11. Acceptance of the nolo pleas also will clear the way for the NRC to proceed with its inquiries which hopefully will advance the cause of technically improving leakage detection and measurement methods which have been an industry-wide concern for some time. Thus, in the NRC's official 1973 Regulatory Guide 1:45 dealing with this matter, and on which the Standard Technical

Specifications in use at TMI-2 and elsewhere were based, the inventory balance test in issue here was not recommended by the NRC for the measurement of unidentified leakage. The NRC's Standard Review Plan issued in 1975 is to the same effect. In January 1979, a high NRC official wrote to the Reactor Safety Branch in an internal NRC memorandum that the Regulatory Guide should be replaced and that the Standard Review Plan "compounds the problems and in conjunction with inconsistent definitions in most technical specifications has led to confusion among reviewers and others concerning RCPB leak detection requirements." In its reports on investigations of plants operated by other utilities, the NRC has recognized the existence of problems with the inventory balance test used at such plants at least as early as 1980. It is time for the Government and the industry to put these criminal charges behind us, deal effectively with the technical issues and clarify any remaining confusion in the regulations and the industry.

In connection with this Plea Agreement between the parties and the nolo contendere pleas offered to Counts 4, 5, 7, 8, 9 and 10, I am authorized by resolution of the Board of Directors of Metropolitan Edison Company to make the following statements in accordance with Rule 11:

1. The Company understands the charges to which these nolo pleas are offered and understands that the maximum penalty

Your Honor, there is one final point that must be stressed here today. I make it in order to try as best I can to keep the record straight. It is important to the Company, but it is equally if not more important to the public. I refer to the so-called TMI-2 accident of March 28, 1979, and the suggestions raised in some quarters that this indictment and that accident have some legal connection. Any such suggestions are baseless. the Government has told this Court that this is not the case, and I repeat that for the record. In doing so, I quote the prosecution's exact words. "The indictment does not charge a legal nexus to the events of March 28, 1979 which have become commonly known as the TMI-2 accident, and the pleas do not constitute an admission of such a nexus."

That wholly accurate statement made by the Government refers, of course, to all of the Company's pleas -- both the one guilty plea and the six nolo pleas.

For all of the reasons I have set forth, we join with the United States in urging this Court to accept this Plea Agreement which includes the imposition of sentence.