

STAFF 3/17/81

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

METROPOLITAN EDISON COMPANY, ET AL.

(Three Mile Island Nuclear Station,
Unit 1)

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Docket No. 50-289

NRC STAFF TESTIMONY OF
RICHARD R. KEIMIG AND DONALD R. HAVERKAMP
IN RESPONSE TO TMIA CONTENTION 5
MAINTENANCE AT TMI-1

8108190550

Q.1 What is the purpose of this testimony?

A.1 TMIA (Revised) Contention 5 states:

"It is contended that Licensee has pursued a course of conduct that is in violation of 10 CFR 50.57, 10 CFR 50.40, 10 CFR 50.36, 10 CFR 50.71 and 10 CFR 50 Appendix B, thereby demonstrating that Licensee is not 'technically . . . qualified to' operate TMI Unit 1 'without endangering the health and safety of the public.' This course of conduct includes:

- a. deferring safety-related maintenance and repair beyond the point established by its own procedures (see e.g. A.P. 1407);
- b. disregarding the importance of safety-related maintenance in safely operating a nuclear plant in that it:
 1. (Deleted)
 2. proposed a drastic cut in the maintenance budget;
 3. (Deleted)
 4. fails to keep accurate maintenance records related to safety items;

5. has inadequate and understaffed QA/QC programs related to maintenance;
6. extensively uses overtime in performing safety-related maintenance."

During presentation by TMIA of its affirmative case on its Contention 5, the presiding Atomic Safety and Licensing Board (Board) received in evidence certain TMIA Exhibits.

Licensee's prepared testimony, dated February 9, 1981, "Maintenance at TMI-1", (following Tr. 13533) provides substantial information relevant to the current maintenance organization, management systems and practices. That testimony includes descriptions of the preventive, corrective and shift maintenance organizations and activities, computer programs used for organizing and tracking of preventive and corrective maintenance, revised policies for overtime, maintenance training program improvements, and changes to and clarification of the priority system for identifying maintenance work.

The Licensee's testimony was reviewed by the NRC Staff and was determined to be an accurate representation of the Licensee's current maintenance and QA/QC programs and practices, based on information independently obtained by IE during and in response to the Management Appraisal (MA) Inspection 50-289/80-21 (described in NUREG 0680, Supplement 1, Appendix B).

In addition, the Licensee's testimony also includes detailed explanations of the specific TMIA Exhibits (work requests), which had been received in evidence. The NRC Region I Staff independently reviewed the work requests presented in the TMIA Exhibits during the period November 1980 - February 1981, and essentially agrees with the Licensee's testimony. This testimony in conjunction with our testimony on "Auditability of Maintenance Practices in the Sample Year 1978 and Currently," then, responds to TMIA Contention 5.

Q.2 What evaluations were conducted by the NRC staff of TMIA Exhibits (Work Requests) and what are the general conclusions of those evaluations?

A.2 Table B lists those work requests received as TMIA exhibits. Those work requests were considered representative of various contended inadequacies concerning the TMI-1 maintenance program. The specific evaluations of NRC staff review of those work requests, associated maintenance activities and their significance, are described in Table B. The general conclusions of this review are described below:

- The majority of the work requests entered as TMIA exhibits were for equipment or components which had little or no nuclear safety significance in themselves. Therefore, there were no NRC regulatory or license requirements for maintaining the operability of those components or for administrative control of maintenance performed on those components. However, the Licensee optionally applied the same type of administrative controls to maintenance activities performed on nonsafety-related systems/components as it did on safety-related.
- The few examples of maintenance which actually was deferred and the several examples of deferred testing, review or closeout of maintenance and documentation thereof, as described by evaluation comments in Table B, are not considered to have had any individual or collective adverse impact on safety. There appears to be no example of inappropriately deferred safety-related maintenance work.

- The examples of misuse of "blanket" work requests and cancellation of duplicate work requests, as described by the evaluation comments in Table B, appear to have had no impact on safety.

- The records of maintenance work activities were, in fact, auditable. However, there were several examples of cancellation of work activities, particularly with respect to air handling filter replacement, with no formal documentation of the basis for not performing the work. The maintenance apparently was re-evaluated as unnecessary prior to initiating any work, and the work requests were initially held open for extended periods and later cancelled during purges of duplicate or inappropriate work requests. This shortcoming of record completeness was not a noncompliance with NRC requirements, but impeded the timely Licensee and NRC review of those work requests, ultimately requiring discussions with responsible maintenance personnel to determine the reasons for cancelling work.

- Past practices regarding identification, scheduling, performance, testing, control, monitoring, quality review and documentation of maintenance activities have been considered by the Licensee. Those practices found to be deficient or marginally adequate have been improved by revising maintenance organization structure, procedures, and management and computerized information control systems.

Q.3 With regard to TMIA's Contention 5, which states, in part, "... This course of conduct includes: b. disregarding the importance of safety-related maintenance in safely operating a nuclear plant in that it: 2. proposed a drastic cut in the maintenance budget ...", was the NRC aware the Operations and Maintenance (O&M) Budget was to be reduced for TMI-1?

A.3 Yes. At a routine, programmatic IE Management meeting with Mr. J. G. Herbein, then the Metropolitan Edison Company's Vice President - Generation and others, in the Region I office on February 9, 1979, Mr. Herbein indicated that the company recently had proposed budget reductions across the entire General Public Utilities system. Mr. Herbein added that company management was very sensitive to the operations and maintenance of its nuclear powered plants and that the budget reductions would not impact upon plant safety at TMI.

Q.4 What, if anything, did Region I do upon learning of this budget reduction?

A.4 IE normally is not concerned with the internal financial arrangements of a utility company as long as the company is able to meet its commitments to public health and safety while operating its nuclear plants. Inasmuch as the company, in the person of Mr. Herbein, was totally above board in informing Region I of the proposed budget reductions and re-emphasized the company's sensitivity to plant safety, no specific actions were taken at that time. However, regional management, having been alerted to this fact, would consider this circumstance while carrying out the inspection program at the TMI site. If and when the results of any inspection conducted at the site indicated that budget reductions were in any way adversely affecting the safety of plant operations, appropriate NRC action would have been initiated promptly.

Q.5 Was there any indication in early 1979 that the budget reductions could possibly lead to an impact upon the safety of plant operation?

A.5 To the best of our personal knowledge and as a result of reviewing IE inspection reports for that period, there was no apparent basis to suspect that budget reductions were having adverse affects on plant safety. It must be pointed out, however, that due to the accident at TMI-2, on March 28, 1979, the budget reduction program never was implemented fully. Therefore, it is not possible to determine how those reductions proposed for TMI would have affected the plants.

Q.6 As a result of this issue as contended by TMIA, did Region I perform any inspection to determine what the proposed maintenance budget reductions included?

A.6 During the period of September 10-30, 1980, this issue, as well as other issues perceived by TMIA to be of concern, was inspected by an NRC Region I inspector. (Ref. IR No. 50-289/80-27)

The inspector interviewed Metropolitan Edison Company (Met-Ed) personnel including the Superintendent of Maintenance and maintenance supervisors and foremen. The inspector also reviewed the documented material on this issue which had been placed in the Discovery Reading Room by Met Ed. The inspector found no discrepancies between the documented material and the verbal information given during interviews. He did identify some reduction in contracted preventive maintenance support in early 1979 (prior to and during March 1979) but could not assess what impact on plant safety this reduction may have had if continued and expanded over an extended period, or what action, if any, the Licensee would have initiated if this reduction were observed by the Licensee to start impacting on plant safety. The inspector could find no evidence that the maintenance budget reduction affected any safety-related corrective maintenance.

Q.7 What are your personal views on the budget cuts proposed by Met Ed in the area of maintenance?

A.7 Inasmuch as the budget cuts apparently were not being applied to the corrective maintenance work to be performed by the Licensee (either in the number of personnel assigned or the nature of work to be completed), and since the effects of a proposed reduction in preventive maintenance are highly speculative and depend largely on the quality of the preventive maintenance program prior to the proposed reduction, and lacking any indication that the prior preventive maintenance program was less than adequate, we can find no basis to conclude that, as contended by TMIA, the Licensee disregarded the importance of safety-related maintenance in safely operating a nuclear plant by proposing cuts in the maintenance budget. Additionally, we re-emphasize that had such a condition been indicated, we feel certain that it would have been identified at an early stage by the IE inspection program and that prompt action by the Licensee to correct the condition would have been required.

Q.8 With regard to TMIA's Contention 5, which states in part, "...This course of conduct includes: b. disregarding the importance of safety-related maintenance in safely operating a nuclear plant in that it: 6. extensively uses overtime in performing safety-related maintenance...", is there any indication that the extensive use of overtime impacted adversely on the quality of the maintenance performed at TMI?

A.8 In our review of inspection reports for our testimony on "Auditability of Maintenance Practices in the Sample Year 1978 and Currently" and other inspections which reviewed maintenance related activities at TMI, if extensive overtime was used in the performance of safety-related maintenance work, we found no apparent basis on which to conclude that it adversely affected the quality of the work.

It should be noted that prior to the accident at TMI-2, the IE inspection program did not specifically require the inspection of the degree to which overtime was utilized to perform maintenance work. However, during the course of IE inspections of maintenance activities in progress, informal (and formal) interviews are conducted with all levels of the maintenance staff. Questions asked during these interviews include the following: are personnel familiar with the job procedure and any special requirements, are they following the procedure, are they qualified to do

the work they are performing and so forth. These interviews also provide an opportunity to observe the mental and physical attitudes of the workers. If a worker is noted to be mentally or physically fatigued to the extent that his workmanship may be impaired, this observation would be brought immediately to management's attention with corrective action required.

Also, the quality of workmanship in performing maintenance is indicated by noting the maintenance history, i.e., down time vs. operating time on specific equipment. Recurrent problems on equipment which require out of service time for maintenance could be indicative of poor workmanship caused by mental or physical fatigue. Indications of abnormally repetitive maintenance are reviewed and followed by IE inspectors during routine inspections.

It is important to note that the quality of work and, in some cases, the immediate safety of plant operations is enhanced by the prudent use of overtime. This is particularly true for prompt corrective repairs of safety-related equipment. The maintenance work may be better if the same person or crew starts and completes the repair because specific techniques are sometimes learned during the troubleshooting and disassembly of a component. Also, the prudent use of overtime may be particularly beneficial where certain specialized qualifications or talents are limited to only a few individuals, such as would be the case for certain welding operations or complex calibrations.

Our review of IE inspection reports and Mr. Haverkamp's observations of work in progress while an inspector at TMI gave no indication that the quality of maintenance was affected by the extensive use of overtime. These inspections included refueling outages when overtime, in fact, was used, with consideration given by plant management to the proper balance between productivity and safety of work activities as observed by the inspectors.

Subsequent to the TMI-2 Accident, the Licensee issued a memorandum in February 1980, concerning working hours in response to NRC IE Circular 80-02. The memo establishes a new policy concerning working hours within the operations and maintenance departments; and requires Plant Manager (Director) Unit 1 approval, with documentation of the reason, for deviation from the guidelines. The working hours guidelines apply to supervisors and union personnel. Interviews during MA Inspection 50-289/80-21 revealed that the policy had been implemented. The scheduling of maintenance (plan of the day and outage coordination) and the provision of on-shift maintenance, coupled with an increased staff, have improved the maintenance department response to the outstanding work items within normal working hours.

Q.9 What are your conclusions regarding TMIA Contention 5?

A.9 Based on the NRC Staff reviews of the Licensee's safety-related maintenance program and practices, including independent Staff review of TMIA Exhibits (work requests), we conclude that the Licensee has not pursued a course of conduct that is in violation of 10 CFR 50.57, 10 CFR 50.40, 10 CFR 50.36, 10 CFR 50.71 and 10 CFR 50, Appendix B, such as would demonstrate that the Licensee is not "technically ... qualified to" operate TMI Unit 1 "without endangering the health and safety of the public."

We conclude that the Licensee did not pursue a course of conduct which (a) deferred safety-related maintenance and repair beyond the point established by its own procedures (see e.g. AP-1407), or (b) disregarded the importance of safety-related maintenance in safely operating a nuclear plant by (1) proposing a drastic cut in the maintenance budget, (2) failing to keep accurate maintenance records related to safety items, (3) having inadequate and understaffed QA/QC programs related to maintenance; and, (4) extensively using overtime in performing safety-related maintenance.

TABLE B

SUMMARY OF TMI-1 WORK REQUESTS ENTERED AS TMIA EXHIBITS

Work Request Number/ Priority	(Item 4) Origin- ation Date	(Item 16) QC Dept. Review Date	(Item 17) Sup. of Maint. Approval To Work Date	(Item 18) Shift Foreman Approval To Work Date	(Item 19) Maint. Foreman Work Reviewed Date	(Item 20) Shift Foreman Work Complete Date	(Item 21) Shift Foreman Testing Complete Date	(Item 22) QC Dept. Review of Work/ Testing Date	(Item 23) Sup. of Maint. Work Req. Complete Date	WORK DESCRIPTION AND NRC EVALUATION COMMENTS
21910/1D	11/14/77	Blank 11/14/77) Note 1	Blank (11/14/77) Note 1	11/14/77	Blank (4/12/78) Note 1	11/27/78	11/27/78	12/1/78	12/4/78	<p>Reference: TMIA Exhibit 11</p> <p>Repacking of feedwater flow control valve FW-V-17A.</p> <p>Note 1: Missing dates were obtained from valve packing traveler maintenance document, which is an official quality record. This was the only example of this type of administrative inadequacy with respect to the TMIA Exhibits listed in this table. The maintenance work was for a secondary system problem and had no impact on nuclear safety.</p> <p>Packing gland was initially adjusted, and valve was repacked during 1978 outage. Observation of repair work continued for seven months after work was completed. This is considered proper post repair practice, however, in this instance it may have been overly extended. Maintenance actions were appropriate for the problem.</p>

TABLE B

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18471/2D	11/11/76	3/19/77	10/13/78	2/20/79	3/16/79	6/22/79	6/22/79	6/26/79	6/27/79	<p><u>Reference: TMIA Exhibit 12</u></p> <p>Modification to FW-V-5A/B operators, latch system and cables.</p> <p>Modification was initiated by Met-Ed corporate engineering. During 11/11/76-1/31/77 an engineering review was conducted including a review of the FSAR in the area of the feedwater system. Work was scheduled for the May 77 refueling outage. Due to design criteria re-evaluation, work was deferred and rescheduled to the 79 refueling outage.</p> <p>Deferral of modification had no impact on safety and was acceptable.</p>
23310/1A	3/30/78	N/A	3/30/78	N/A	8/31/79	8/31/79	8/31/79	N/A	9/4/79	<p><u>Reference: TMIA Exhibit 13</u></p> <p>Installation of drip shield under leaking (nonradioactive water) feedwater block valve FW-V-5A.</p>

TABLE B

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20856/2A	7/28/77	8/18/77	8/18/77	11/28/77	6/29/78	6/20/78	6/30/78	8/29/78	9/5/78	<p>Temporary drip shield in- stalled 3/30/78. Permanent drip pan installed 8/31/79.</p> <p>Deferral of permanent main- tenance for this secondary system problem had no impact on nuclear safety.</p> <hr/> <p>Reference: TMIA Exhibit 15</p> <p>Overhaul of various snubbers.</p> <p>Rebuilding of snubbers was used as "fill in" work. Spare snubbers were rebuilt when sufficient snubbers accumu- lated or when replacement snubbers were needed. Testin- g is required when the snubber is installed and set up to a certain specific arrange- ment.</p> <p>Performing the above "fill in maintenance of spare snubbers on a deferred basis is an acceptable practice.</p>

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15350/1A	5/11/76	5/11/76	5/11/76	5/11/76	2/4/78 Note 2	2/4/78	2/4/78	2/13/78	2/15/78	<p>Reference: TMIA Exhibit 16</p> <p>Replacement of intermediate cooling system filters IC-F-1-A/B.</p> <p>Note 2: The work request was used twice to work on both filters. The filters were changed first on 5/18/76 and later on 2/4/78. A change to Procedure 1407-1 in 1979 does not allow "blanket" work requests to stay active for longer than 1 year.</p> <p>Use of this work request twice was a poor practice, but did not affect safety because the work was otherwise properly performed and affected systems were properly controlled and returned to service.</p>

TABLE B

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23579/1A	4/22/78			Canceled Note 3	(Records Purged on 11/6/79)					<p>Reference: TMIA Exhibit 17A</p> <p>Repair shaft seal (non-radiological) packing leaks on nuclear river booster pumps NR-P-2A and NR-P-2B.</p> <p>Note 3: Example of a work request written to perform maintenance work that was being done under another work request. Cancellation of the duplicate work request was acceptable. Current computerized job tickets should preclude this problem from recurring.</p>
23858/1A	5/13/78			Canceled Note 3	(Duplicate of WR #23579)					<p>Reference: TMIA Exhibit 17B</p> <p>Repair packing leaks on NR-P-1B.</p>
24252/2A	6/17/78			Canceled Note 3	(Duplicate of WR #23858)					<p>Reference: TMIA Exhibit 17C</p> <p>Repair packing leaks on NR-P-1B.</p>

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25056/2A	8/28/78			Canceled Note 3	(Duplicate of WR #23858)					Reference: TMIA Exhibit 17D Repair packing leaks on NR-P-1B.
25124/2A	9/2/78			Canceled Note 3	(Duplicate of WR #25056)					Reference: TMIA Exhibit 17E Repair packing leaks on NR-P-1B.
25129/2A	9/4/78			Canceled Note 3	(Duplicate of WR#25056)					Reference: TMIA Exhibit 17F Repair packing leaks on NR-P-1B.
18626/2A	1/22/77	5/78	12/5/78	12/5/78	1/10/79	1/10/79	1/10/79	1/12/79	1/31/79	Reference: TMIA Exhibit 18 Repair packing leaks on NR-P-1A/1B/1C and NR-P-2A/2B/2C. Note: Exhibits 17A-F describe similar repair work. Delay in completing work due in part to material delivery problems. Deferral of work did not affect safety.

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19590/1D	4/7/77	9/16/77	9/17/77	9/17/77	9/18/77	1/16/79	1/16/79	2/1/79	2/2/79	<p>Reference: TMIA Exhibit 19</p> <p>Remove, relubricate and retorque hand hole, manway and aux nozzle nuts on OTSG "A" and "B".</p> <p>Corrective maintenance initiated on 4/7/77 to be done after heatup and cool-down. Work deferred until unscheduled cooldown in Sep 77.</p> <p>All work was completed except the bottom primary side manway of OTSG "B" due to high radiation. The work request (19590) should have been closed out, but was not. Similar work was completed during the 1978 refueling outage under work request 22878. Paperwork found still open during plan for 1979 outage was then closed out. Delayed closeout of the work request was unusual, but the method of final closeout was acceptable.</p>

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22181/2D	12/13/77	3/2/78	3/3/78	3/20/78	4/8/78	4/10/78	4/10/78	1/15/79	1/18/79	<p><u>Reference: TMIA Exhibit 20</u></p> <p>Inspection of reactor coolant system valve limit switch and torque switch.</p> <p>Post-work QC Dept. review delay was reportedly due to backlog of other outage paperwork.</p> <p>Maintenance activities were acceptable. Delayed QC review of work request did not affect the quality of work.</p>
22268/1A	12/27/77	12/27/77	12/27/77	12/27/77	--	--	--	--	--	<p><u>Reference: TMIA Exhibit 21</u></p> <p>Replace indicator on "B" makeup pump discharge isolation valve MU-V-74B.</p> <p>The valve operator work was completed except replacing the indicator pin on the valve. Operationally, the valve functioned properly. The work request was purged from the system on 11/5/79, instead of completing the paperwork.</p>

TABLE B

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25166/1A	9/6/78									<p>The inoperable position indicator for this manually operated valve, which is either fully closed or fully open, has no operational or safety significance.</p>
										<p>Reference: TMIA Exhibit 22</p> <p>Attachment of chains to hammers and drift punches in the reactor building personnel access hatches.</p> <p>Work request was never processed by engineering, due to different design change to be used to solve problem per work permits C 0372 and C 0371. Work request was purged from system during review of outstanding maintenance documentation.</p> <p>Cancellation of this modification work request for the above reason was acceptable.</p>

TABLE B

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24246/2A	6/15/78	6/22/78	6/22/78	2/26/79	3/14/79	3/22/79	3/22/79	4/16/79	5/14/79	<p><u>Reference: TMIA Exhibit 23</u></p> <p>Reposition improperly mounted limit switch on reactor building access hatches.</p> <p>Work determined to be necessary in June 1978, parts and material to do the work received and released from QC in February 1979.</p> <p>Maintenance was done in an acceptable and timely manner for the nature of the work and minor significance of the problem.</p>
15349/1A	5/11/76	5/11/76	5/11/76	5/11/76	5/18/76	2/2/78	2/2/78	2/3/78	2/15/78	<p><u>Reference: TMIA Exhibit 28</u></p> <p>Replacement of makeup filter MU-F-1A/B.</p> <p>"Blanket" work request was issued and used to change out filters six different times from 5/11/76 to 9/28/77. No apparent reason why it was not closed out until Feb 78.</p>

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C0178/1	1/7/79	1/9/79	1/9/79	1/9/79	1/9/79	Blank (Not Required)	8/3/79	8/8/79	8/10/79	This apparent oversight did not affect plant safety. Current administrative procedures should prevent recurrence of this type of problem.
										Reference: TMIA Exhibit 31
										Repair fuel handling door seal. Work was promptly completed. Work request held open for observation of repairs for unusually long period, but this had no safety impact. Final documentation of post-work testing and review was acceptable.
20000/2A	5/16/77			Canceled Note 4						Reference: TMIA Exhibit 33A Replace air handling (hot machine shop exhaust) filters AH-F-6A/B. Note 4: Work request to replace the filters was initiated based on high differential pressure across

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20183/2A	5/29/77									<p>Note 4 continued:</p> <p>the filters as found during operations surveillance. The work was not approved for accomplishment by plant management and the work request was canceled. Similar work was later performed under another job ticket.</p> <p>Although the ventilation system installation is regarded as QC, these filters are not within QC scope, and the work involved was not nuclear safety related. Apparently, due to maintenance backlog, changeout of ventilation filters was deemed a very low priority job. Cancellation of the work request had no safety impact.</p>
										<p>Reference: TMIA Exhibit 33B</p>
										<p>Replace air handling filters AH-F-6A. (See W.R. #20000/2A)</p>

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Work Request Number/ Priority	(Item 4) Origin- ation Date	(Item 16) QC Dept. Review Date	(Item 17) Sup. of Maint. Approval To Work Date	(Item 18) Shift Foreman Approval To Work Date	(Item 19) Maint. Foreman Work Reviewed Date	(Item 20) Shift Foreman Work Complete Date	(Item 21) Shift Foreman Testing Complete Date	(Item 22) QC Dept. Review of Work/ Testing Date	(Item 23) Sup. of Maint. Work Req. Complete Date	WORK DESCRIPTION AND EVALUATION COMMENTS
20332/2A	6/19/77			Canceled Note 4						Reference: TMIA Exhibit 33C Replace air handling filter AH-F-6B.
20974/2A	8/7/77			Canceled Note 4						Reference: TMIA Exhibit 33D Replace air handling filter AH-F-6B.
21165/2A	8/28/77			Canceled Note 4						Reference: TMIA Exhibit 33E Replace air handling filter AH-F-6A.
21587/2A	10/7/77			Canceled Note 4						Reference: TMIA Exhibit 33F Replace air handling filter AH-F-6A.
21794/2A	10/30/77			Canceled Note 4						Reference: TMIA Exhibit 33G Replace air handling filter AH-F-6A.

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22043/2A	11/28/77			Canceled Note 4						Reference: TMIA Exhibit 33H Replace air handling filter AH-F-6B.
21769/2A	10/27/77	--	10/28/77	Canceled Note 4						Reference: TMIA Exhibit 33I Replace Air handling filters AH-F-5 and AH-F-6A/6B.
22905/2A	2/21/78	--	2/22/78	Canceled Note 4						Reference: TMIA Exhibit 33J Replace air handling filter AH-F-6A.
23042/1A	3/3/78	--	3/6/78	--	3/10/78		Canceled			Reference: TMIA Exhibit 33K Replace air handling filters AH-F-6A/6B. Work documented as completed, but work request later canceled.
25149	9/5/78	--	9/6/78				Canceled Note 4			Reference: TMIA Exhibit 33L Replace air handling filter AH-F-6A.

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C1055	5/22/79	7/2/79	7/2/79	7/3/79	7/3/79	7/3/79	7/3/79	7/6/79	7/3/79	<p>Reference: TMIA Exhibit 33M</p> <p>Replace air handling filters AH-F-6A/6B.</p> <p>Maintenance work request was satisfactorily processed, indicating acceptable completion of the filter replacement.</p>
20070/2A	5/22/77			Canceled Note 4						<p>Reference: TMIA Exhibit 34A</p> <p>Replace air handl (control tower emergency) ers AH-F-4A/4B.</p>
20139/2A	5/25/77			Canceled Note 4						<p>Reference: TMIA Exhibit 34B</p> <p>Replace air handling filters AH-F-4A/4B.</p>
20254/2A	6/3/77		6/6/77			Canceled Note 4				<p>Reference: TMIA Exhibit 34C</p> <p>Replace air handling filters AH-F-4A/4B.</p>

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20545/2A	7/2/77	--	Signature But No Date			Canceled Note 4				Reference: TMIA Exhibit 34D Replace air handling filters AH-4A/4B.
20673/2A	7/13/78	--	7/14/77			Canceled Note 4				Reference: TMIA Exhibit 34E Replace air handling filters AH-F-4A/4B.
21000/2A	8/10/77	--	8/10/77			Canceled Note 4				Reference: TMIA Exhibit 34F Replace air handling filter AH-F-4B.
21534/2A	10/4/77	--	10/5/77			Canceled (Duplicate) Note 4				Reference: TMIA Exhibit 34G Replace air handling filter AH-F-4B.
21674/-- Note 5						Canceled (Duplicate of WR #23897)				Reference: TMIA Exhibit 34H Work description unknown. Note 5: Work request lost. Unable to assess signifi- cance of work.

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22064/2A	11/30/77				Canceled Note 4					Reference: TMIA Exhibit 34I Replace air handling filter AH-F-4B.
21982/2A	11/12/77	--	11/21/77		Canceled Note 4					Reference: TMIA Exhibit 34J Replace air handling filter AH-F-4B.
C-0689	3/12/79	6/22/79	6/22/79	Blank	6/22/79	Not Required	Not Required	7/8/79	7/16/79	Reference: TMIA Exhibit 34K Replace air handling filter AH-F-4B. Maintenance work request was satisfactorily processed indicating acceptable com- pletion of the filter replacement.

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23635/1D	4/28/78	4/28/78	4/28/78	4/28/78	6/28/79	6/28/79	6/28/79	7/2/79	7/16/79	<p>Reference: TMIA Exhibit 39</p> <p>Repair four Control Rod Drive motor thermocouples.</p> <p>Work was delayed due to lengthy delivery time for material and appropriate plant condition to perform the maintenance. Deferral of work for these reasons is acceptable, and did not impact plant safety, since the CRD thermocouples were not essential for plant operation.</p>
20801/1A	7/22/77				Canceled					<p>Reference: TMIA Exhibit 40</p> <p>Repair reactor coolant pump #1 seal leakoff recorder alarm switch and relay.</p> <p>The initial high priority work request was canceled and replaced with new work request #21061 (origination date 8/17/77). More engineering studies revealed the actual problem and another work request #25957 (priority 3/origination date 11/6/78) was issued which canceled WR #21061.</p>

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13047/2A	12/19/75	1/8/76	1/12/76		Canceled					<p>Cancellation of work request and replacement with a lower priority work request was appropriate for the problem.</p> <hr/> <p>Reference: TMIA Exhibits 42 and 43A</p>
										<p>Repair oil reservoir leaks on miscellaneous waste transfer pump WDL-P-78.</p> <p>The apparent oil leak was assessed by maintenance personnel as a possible spillage of oil during reservoir filling, and the work request was cancelled on 2/12/76. Similar work was later completed under WR #24854.</p> <p>Cancellation of the work request for the above reason appears acceptable.</p>

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24854/2A	8/9/78	8/10/78	8/14/78	8/14/78	8/16/78	8/16/78	8/16/78	8/22/78	8/25/78	<p>Reference: TMIA Exhibit 43B</p> <p>Repair/replace waste transfer pump WDL-P-7B casing gasket leaks.</p> <p>No problem with this work request. Similar to work described for WR #13047, above</p>

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

Docket No. 50-289
(Restart)

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