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April 4, 1984

822-1215

Administrative Judge  
Gary J. Edles, Chairman  
Atomic Safety and Licensing Appeal  
Board

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

Administrative Judge  
John H. Buck  
Atomic Safety and Licensing Appeal  
Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Administrative Judge  
Christine N. Kohl  
Atomic Safety and Licensing Appeal  
Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

In the Matter of  
Metropolitan Edison Company  
(Three Mile Island Nuclear Station, Unit No. 1)  
Docket No. 50-289

Dear Chairman Edles and Administrative Judges Buck and Kohl:

In accordance with our practice of notifying the Appeal Board and the parties of changed circumstances or new information on issues under consideration, Licensee hereby provides the following information.

In a March 30, 1984 letter from Mr. H. D. Hukill, Director, TMI-1, to Mr. R. C. DeYoung, Director, Office of Inspection and Enforcement, Licensee provided its response to a February 29, 1984 Notice of Violation and Proposed Civil Penalty. By letter dated April 2, 1984, Licensee submitted to the Staff a revised page two to Licensee's March 30 response, which corrected specified clerical errors in the March 30 submittal. Enclosed is a

SHAW, PITTMAN, POTTS & TROWBRIDGE

A PARTNERSHIP OF PROFESSIONAL CORPORATIONS

Administrative Judge Gary J. Edles  
Administrative Judge John H. Buck  
Administrative Judge Christine N. Kohl  
April 4, 1984  
Page Two

copy of the March 30 letter (with attachment), the February 29 Notice of Violation and the April 2 letter (with attachment).

In the enclosed March 30, 1984 letter (with attachments) from Mr. H. D. Hukill, Director, TMI-1, to Mr. Thomas E. Murley, Region I Regional Administrator, Licensee provided to the NRC Staff a summary of the current operating experience of TMI-1 licensed operators. It reflects in summary form updated information on TMI-1 operating personnel and their experience since the close of the management record.

Also enclosed is a March 28, 1984 letter from Mr. P. R. Clark, President, GPU Nuclear to Mr. E. P. Wilkinson, President, Institute of Nuclear Operations (INPO), along with the status report which the March 28 letter forwards. This report provides the status of actions taken by Licensee in response to the May 1983 INPO evaluation of TMI-1, a draft of which was provided to the Appeal Board and the parties by Licensee's counsel on June 20, 1983, followed by provision of the final report on September 7, 1983.

Respectfully submitted,

*Deborah B. Bauser*

Deborah B. Bauser  
Counsel for Licensee

DBB:jah

Enclosures

cc: Service List attached

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Commission

In the Matter of	)	
	)	
METROPOLITAN EDISON COMPANY	)	Docket No. 50-289
	)	
(Three Mile Island Nuclear	)	
Station, Unit No. 1)	)	

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Washington, D.C. 20555

Atomic Safety & Licensing Board  
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5211-84-2081  
March 30, 1984

Mr. R. C. DeYoung  
Director, Office of Inspector and Enforcement  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Mr. DeYoung:

Three Mile Island Nuclear Station, Unit I (TMI-1)  
Operating License No. DPR-50  
Docket No. 50-289

Response to Notice of Violation and Proposed Civil Penalty,  
Regarding Inspections 83-25 and 83-26 and Enforcement Conference 83-33.

Attached are the responses to the individual violations that were requested by your February 29, 1983 Notice of Violation and Proposed Civil Penalty. Based on our review of these violations we do not believe a civil penalty is warranted or required.

We agree that errors did occur. We are concerned that they occurred. However, with two exceptions, these errors were discovered by GPUN and in all instances appropriate corrective action was promptly taken without NRC urging. While the number of errors that occurred is larger than we desire, they were not individually significant. Moreover, they occurred over a two-month period during which several non-routine, complex operations were accomplished, and should be judged in the light of the many challenging operations that were performed correctly. The individual human errors that did occur were dealt with using our progressive disciplinary program. We believe this program combined with rewards for good performance and the corrective actions taken for the specific events will continue to reduce the number of errors.

There have been two developments since the proposed fine was issued which we believe warrant your attention in assessing this response. First, a revised General Statement of Policy and Procedure for Enforcement Actions was promulgated by the Commission on March 8, 1984. Although it was not effective when the fine was proposed, it clearly is now. The second is that you and Dr. Murley have conducted personal interviews of TMI-1 site personnel.

We have reviewed the Notice of Violation against the revised enforcement action policy statement. The revised statement explicitly allows aggregation of violations for the assignment of a severity level as has been done in this instance. However, in providing the flexibility to aggregate certain violations, the Commission had in mind focusing attention on an "underlying problem or programmatic deficiencies when appropriate." 48 Fed. Reg. 8584 (1984). We do not believe that test is met here and thus question whether aggregation in this instance is appropriate. In fact, we agree with the statement in Mr. Starostecki's December 23, 1983 letter that "these problems are considered to be isolated cases and not indicative of a programmatic problem". Further, review of the items in the Notice of Violation, taken individually or even collectively, do not rise to the severity of problems enumerated as illustrative of Category III severity items in the revised statement -- viewed either as operational matters (Supplement I) or as health physics concerns (Supplement IV). Thus, we question the appropriateness of categorizing our violation as Category III at all. Finally, viewed even as a Category III violation, we note that the Commission has changed its policy with regard to this category from "usually imposing fines to simply considering" fines. Surely, when compared with the illustrative examples within the range of Category III severity, the items noted in our proposed violation notice cannot be viewed as severe.

The second development since the civil penalty was proposed is your's and Dr. Murley's visit to TMI-1 on March 5, 1984. During the visit you met individually with management, supervisory personnel, and first level employees. We can understand that prior to this visit you may have believed that it was necessary to invoke a civil penalty to promote proper attention and reaction within the TMI-1 organization as a whole. Based on our prompt and comprehensive corrective actions, which from the enforcement conference and your inspection at the site we understand you accept, and based on the positive attitudes which you observed during your visit, we believe that a civil penalty is unnecessary to further NRC's enforcement objectives.

Other positive indications of this organization's approach are:

1. Unannounced Off-Shift Tours by Management.
2. On-Shift QA Monitors.
3. Site Managers meetings periodically where problems such as these violations and other significant matters are discussed for general understanding and multidisciplinary feedback.
4. The Establishment of the Nuclear Safety and Compliance Committee.
5. Frequent discussions between management and the operators.

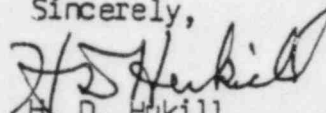
3.

6. Discussions between the shift workers and the Unit Vice President (2 conducted in 1983).
7. Plant Event Reports and followup discussions for a complete and broad understanding (including those which are not reportable).
8. The existence and enforcement of a Conduct of Operations Procedure.
9. The Annual QA Effectiveness Review.

These efforts are representative of an organization which must be penalized to take effective action. We believe that a civil penalty in this case would serve no legitimate regulatory purpose and is unnecessary to improve professionalism in all areas of our operation. We believe that a civil penalty in this regard would be punitive in nature rather than encouraging good performance.

Based on the above we request that the proposed \$40,000 civil penalty be rescinded in its entirety. In the event, however, that after assessing this response and taking into account particularly the revised Statement of Policy and the results of your judgement of our corrective actions and your discussions with personnel at TMI-1 you still believe that the civil penalty is warranted, we will promptly provide payment.

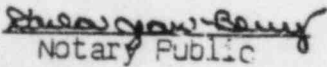
Sincerely,

  
H. D. Hukill,  
Director, TMI-1

HDH:mle  
Attachments

cc: Dr. Thomas E. Murley  
R. Conte

Sworn and subscribed to before  
me this 20th day of  
March, 1984.

  
Notary Public

DARLA JEAN BERRY, NOTARY PUBLIC  
MIDDLETOWN BORO, DAUPHIN COUNTY  
MY COMMISSION EXPIRES JUNE 17, 1985  
Member, Pennsylvania Association of Notaries

Violations Related to Containment Integrity

Violations 1a and 1b

1. Technical Specification 3.6.1 requires that containment integrity be maintained when reactor coolant (RC) pressure is 300 psig or greater, RC temperature is 200°F or greater, and nuclear fuel is in the core. Technical Specification 1.7 defines containment integrity and specifies as one of its conditions that all nonautomatic containment isolation valves are closed as required by the "Containment Integrity Checklist" attached to the operating procedure "Containment Integrity and Access Limits."

Operating Procedure (OP) 1101-3 Revision 27, August 18, 1983, (Temporary Change Notice No. 1-83-0158, dated August 24, 1983) Containment Integrity and Access Limits, Enclosure 1, Reactor Building (Containment) Integrity Checklist, requires for containment integrity, in part, that nonautomatic containment isolation valve IA-V20, Instrument Air Isolation Valve, be closed (paragraph 18.2) and nonautomatic containment isolation valve FS-V405, Fire Service Test Connection/Drain Isolation Valve, be closed and capped (paragraph 17.1).

Contrary to the above, with RC pressure greater than 300 psig, with RC temperature greater than 200°F, and with nuclear fuel in the core:

- a. Nonautomatic containment isolation valve IA-V20 was not closed between August 27, 1983 and September 20, 1983; and,
- b. Nonautomatic containment isolation valve FS-V405 was neither closed nor capped between August 27, 1983 and September 16, 1983.

Response to Violation 1a

(1) Admission or Denial

This violation was identified by GPUN and reported as LER 83-28 on September 20, 1983.

(2) Reason for Violation

This violation was personnel related in that the operators who checked IA-V20 closed on 8/18/83 and 9/15/83 did not recognize that the valve stem bushing nut was backed out and therefore the valve was not closed. In addition, the engineer inspecting containment on 8/31/83 recognized that the valve stem bushing nut was improper but did not realize that the valve was not closed. As a result a job ticket to correct this problem was not prepared until 9/6/83 and was not elevated to Management's attention until 9/20/83.



Contributing factors were that the valve stem was not so significantly out of position that the valve's position could unambiguously be determined. In fact four supervisors were consulted and could not conclusively establish the valve's position until leakage testing and valve disassembly was accomplished at the direction of the Operations & Maintenance Director.

(3) Corrective Action Taken

As discussed in LER 83-28 IA-V20 was repaired, closed, and tested.

(4) Steps Taken to Prevent Recurrence

As discussed in LER 83-28 the importance of timely followup on Containment isolation related items has been emphasized. The Containment Integrity Checklist (OP 1101-3) has been changed to include checking for valve damage or obstructions which may prevent full closure. Other manual containment valves are being inspected to confirm that the stem bushings are adequately retained.

(5) Date of Full Compliance

Full compliance has been achieved and steps to prevent recurrence will be completed by May 1, 1984.

Response to Violation 1b

(1) Admission or Denial

This violation was identified by GPUN during a reverification of containment integrity that was being conducted at GPUN's initiative and was reported as LER 83-25 on September 16, 1983.

(2) Reason for Violation

The reason for this violation was personnel error in that the operator did not properly reclose FS-V405 and install its cap subsequent to performing local leakrate testing.

(3) Corrective Action Taken

FS-V405 was closed and capped to correct this violation. The remainder of the containment re-verification did not identify any further problems.

(4) Steps Taken to Prevent Recurrence

A complete review of this event was conducted and as a result disciplinary action was taken with the operators involved. In addition, the event was discussed with all Operations personnel to emphasize the cause and consequences of the event. A management verification of the containment integrity checklist will be conducted after containment integrity is set for the next heatup.

(5) Date of Full Compliance

Full compliance was achieved on 9/15/83 when FS-V405 was closed and capped. Steps to prevent recurrence will be completed the next time containment integrity is set.

General Discussion of Violations 1.a and 1.b

The fact that these violations were identified by GPUN is to GPUN's credit. The containment inspection was very thorough and Management's followup to potential problems once identified was aggressive and appropriate. We would have preferred a more timely follow up to the problem identified for IA-V20 by the engineer performing the inspection (he has been counselled in this regard). However, once identified to Management the status of IA-V20 was quickly determined, resolved, and actions to prevent recurrence were taken. Based on this, these events were discovered and corrected as a result of the efforts of a Management striving for excellence.

Violations Related to Procedural Implementation

Violation 2a

2. Technical Specification 6.8.1 requires, in part, that written procedures important to safety shall be established, implemented, and maintained.

Contrary to the above, on four occasions, written procedures important to safety were not properly implemented, as evidenced by the following:

- a. Operating Procedure (OP) 1104-43, Revision 19, February 11, 1983, Nuclear Plant Sampling, paragraph 3.2.2.12.c and Enclosure 1, require, in part, that the Makeup Tank Liquid Sample Flush Valve, (CA-V95), be closed after a makeup tank liquid sample is collected.

However, between August 20 and 29, 1983, CA-V95 was open with no makeup tank liquid sample being collected.

Response to Violation 2a

(1) Admission or Denial

This violation is admitted and was identified by GPUN in the process of determining why an unplanned release of Kr-85 tracer gas had occurred on August 29, 1983.

(2) Reason for Violation

This violation was caused by failure of the chemistry technician to properly follow the procedure and close CA-V95 as required following completion of sampling.

(3) Corrective Action Taken

A plant incident report was prepared, CA-V95 was closed, and a complete valve line-up of the nuclear sample room was conducted. All chemistry technicians were counselled concerning this event.

(4) Steps Taken to Prevent Recurrence

Disciplinary measures taken for non adherence to procedures associated with other events and the resultant internal publicity should prevent recurrence.

(5) Date of Full Compliance

Full compliance was achieved on August 29, 1983 when CA-V95 was closed.

Violation 2b

- b. Operating Procedure 1104-43, Revision 19, dated February 11, 1983, Nuclear Plant Sampling, paragraph 3.2.2.15.g and Enclosure 1, require, in part, that Makeup Tank Gas Sample Return Isolation Valve (CA-V47) and Makeup Tank Gas Sample Bomb Bypass Valve, (CA-V48) be closed after a makeup tank gas space sample is collected.

However, on August 27, 1983, Valves CA-V47 and CA-V48 were open with no makeup tank gas space sample being collected.

Response to Violation 2b

(1) Admission or Denial

This violation is admitted and was identified by GPUN while attempting to establish a hydrogen overpressure on the Makeup Tank. The event was reported as LER 83-022 due to exceeding the Technical Specification hydrogen limits for the Waste Gas Holdup System (TS 3.22.2.5).

(2) Reason for Violation

This violation occurred due to personnel error in that the chemistry technician did not restore the proper valve lineup following sampling of the Makeup Tank.

(3) Corrective Action Taken

CA-V47 and 48 were closed and the chemistry technician was counselled under our progressive discipline program.

(4) Steps Taken to Prevent Recurrence

A plant incident report was prepared and was discussed with Chemistry Department Personnel.

(5) Date of Full Compliance

Full compliance was achieved on August 28, 1983 when CA-V47 & 48 were closed.

Violation 2c

- c. Emergency Plan Implementing Procedure (EPIP) 1004.15, Temporary Change Notice No. 1-83-0201, dated September 30, 1983, Post Accident In-Plant Sampling, paragraph 5.1.7 and Attachment 4, require that Reactor Coolant Letdown Sample Valve (CA-V16) be closed prior to implementing the procedure for obtaining a Reactor Coolant System (RCS) sample.

However, on September 30, 1983, the procedure for obtaining an RCS sample was implemented, but valve CA-V16 was not closed.

Response to Violation 2c

(1) Admission or Denial

This violation is admitted and was identified by GPUN during the process of determining why a "demonstration" post accident RCS sample could not be drawn.

(2) Reason for Violation

This event occurred as a result of two evolutions being conducted simultaneously using the same equipment. Both evolutions were being conducted using approved procedures but without awareness that the other was in progress and without proper coordination.

The first evolution was a demonstration post accident sample for NRC observers. The required valve lineup was completed and the technician went to get the NRC observers. During the technician's absence a second technician entered the lab and performed the valve lineup for a normal RCS sample. The normal RCS sample was interrupted by plant testing which caused CA-V13 to close. The technician left the sample room until the testing was completed and normal sampling could resume. In the meantime, the first technician returned with the NRC observers and continued with the post accident sample demonstration but was unable to establish sample flow due to CA-V16 being opened for a normal RCS sample.

(3) Corrective Action Taken

CA-V16 was closed and the post accident sample demonstration was completed.



(4) Steps Taken to Prevent Recurrence

A plant incident report was prepared and discussed with Chemistry Department supervisors and technicians. It was emphasized to the Foremen that their primary responsibility is coordination of activities and control of the technicians and activities.

(5) Date of Full Compliance

Full compliance was achieved on Sept. 30, 1983 when CA-V16 was closed.

Violation 2d

- d. Administrative Procedure (AP) 1002, Revision 27, dated August 1, 1983, Rules for the Protection of Employees Working on Electrical and Mechanical Apparatus, paragraph D.1.1 and Enclosure 1, requires, in part, that for apparatus to be taken out of service, an application form operations personnel must be completed to assure technical specification operability requirements are met.

However, on August 23, 1983, the Condenser Off Gas System Radiation Effluent Monitor, RM-A5, a monitor required by the technical specifications to be operable, was taken out of service for approximately 30 - 40 minutes by closing the sample pump inlet isolation valve VA-V17 without the required application from operations personnel being completed.

Response to Violation 2d

(1) Admission or Denial

This violation is admitted and was identified by GPUN and reported as LER 83-019.

(2) Reason for Violation

This violation was a result of personnel error. Technicians trouble shooting for a vacuum leak in newly installed monitoring equipment shut VA-V17 without realizing that shutting this valve also isolated the condenser offgas monitor (RM-A5) which was required to be operable with a condenser vacuum established.

(3) Corrective Action Taken

Valve VA-V17 was opened reestablishing flow to RM-A5 within 40 minutes of its initial closure.

(4) Steps Taken to Prevent Recurrence

I&C and Startup & Test personnel were instructed to coordinate their testing and trouble shooting activities with the Shift Supervisor/Foreman and obtain any necessary permission to take equipment out of service.

(5) Date of Full Compliance

Full compliance was achieved on August 23, 1983 when VA-V17 was opened restoring flow to RM-A5.

General Discussion of Violations 2a through 2d

All of the above violations were discovered by GPUN, corrected in a timely manner, and reported to the NRC. The violations are considered to be of minor safety significance. The events were caused by random unrelated individual human errors rather than a lack of respect for procedural compliance. In fact we believe we have reached a point where we can expect procedural compliance because of the procedure quality we have achieved. In addition, personnel know that they can not hide behind poor procedures to cover up inadequate personal performance.

Our procedures can always be improved. However, the quality of our procedures is in part responsible for the high level of respect we believe our people have for them. We are concerned at the number of human errors which occurred but we do not believe that they are indicative of a single underlying cause. Management expressed its concern and the need for improved performance to the TMI-1 staff well before any NRC action was taken. We believe our personnel disciplinary policy and actions, and continued emphasis on procedural compliance will be successful in preventing recurrence of these types of problems.

Violations Related to Procedural Intrepretation

Violation 3

10 CFR 50.54(q) requires the licensee to follow and maintain in effect emergency plans which meet the standards of 10 CFR 50.47(b) and the requirements of 10 CFR Part 50, Appendix E.

Technical Specification 6.8.1 requires written procedures be established, implemented and maintained covering, among other things, emergency plan implementation.

Emergency Plan Implementing Procedure 1004.1, Revision 9, August 22, 1983, Unusual Event, paragraphs 1.0 and 3.4.1b define a condition that shall be regarded as an Unusual Event at TMI-1 with respect to exceeding the technical specification primary system leakrate. Paragraph 3.4.1b lists the indications of this initiating condition, in part, as confirmed (procedurally indicated)

unidentified reactor coolant leakrate greater than 1 gallon per minute (gpm). Further, paragraph 3.3.1 considers plant conditions which may indicate a potential degradation of the level of safety of the plant to be regarded as an Unusual Event.

Contrary to the above, on September 22, 1983, as of 6:00 PM, a plant condition of a confirmed (procedurally indicated) unidentified primary system leakrate in excess of 1.0 gpm (calculated as 1.2 gpm) was not classified as an Unusual Event.

### Response to Violation 3

#### (1) Admission or Denial

GPUN considers that this violation arises from a reasonable disagreement concerning the interpretation of EPIP 1004.1. Based on the above statement of violation, we understand the NRC's interpretation to be essentially that, regardless of the applicability of the Technical Specifications (TS) on leakrate, when RCS unidentified leakage is greater than 1 gpm but less than 50 gpm an Unusual Event must be declared. This interpretation essentially renders inoperative the words Technical Specification in the procedure's initiating condition, which reads "Exceeding primary system leak rate technical specification". The NRC interpretation is not consistent with the fact that leak rate measurements are not made or required when the plant is below 525°F and that the 1 gpm limit is inoperative when at or below hot shutdown.

#### (2) Reason for Violations

GPUN did not interpret EPIP 1004.1 the way the NRC staff did and therefore did not declare an Unusual Event.

#### (3) Corrective Action Taken

Section 3.4.1 of EPIP 1004.1 will be modified to clearly indicate that an Unusual Event should be declared when leakage exceeds the stated limits (eg; unidentified leakage exceeds 1 gpm) and the reactor is critical.

#### (4) Steps Taken to Prevent Recurrence

The above change will be explained to the operators to assure a full understanding and prevent recurrence of this type of event. In addition, a revision to the RCS leakrate procedure (SP 1303-1.1) will be issued that clearly defines how to calculate, how to confirm, and the time allotted for confirmation of unidentified leakage. It should be noted that at the time of this event, management was convinced that the leakage was into a closed system which directed it to a collecting tank and was therefore "identified leakage" as defined in Regulatory Guide 1.45. All operators will be thoroughly trained on the procedure revision.

(5) Date of Full Compliance

Full compliance will be achieved by June 1, 1984 when EPIP 1004.1 and SP 1303-1.1 will be revised.

Violation 4

Technical Specification 6.8.1 requires, in part, that procedures important to safety shall be implemented covering Emergency Plan Implementation and Administrative Procedures.

Administrative Procedure (AP) 1001A, Revision 4, dated June 14, 1983, Procedure Review and Approval, paragraphs 3.3 and 3.4 require, in part, that the control and approval process for revision/changes to procedures is by use of a Procedure Change Request (PCR) form (Figure 1001A-1) or a Temporary Change Notice (TCN) form (Figure 1001A-2). Administrative Procedure 1001G, Revision 4, dated October 13, 1982, Procedure Utilization, paragraph 3.3.10, states, in part, that Special Temporary Procedures (STP) are subject to the same level of control and approval as their permanent counterparts.

Contrary to the above, on August 29, 1983, STP No. 83-115, dated August 27, 1983, Injection of Radioactive Tracer Gas into the RCS, was revised/changed in that certain valves to be checked in a prerequisite valve lineup were added to this list and this revision was made without the use of a PCR or TCN. The revision/change consisted of adding certain flow path isolation or boundary isolation valves to prevent inadvertent release of radioactive material.

Response to Violation 4

(1) Admission or Denial

This violation is admitted. We note that the procedure in question was cancelled prior to its use in the revised form. Therefore no operations were performed using the improperly revised procedure.

(2) Reasons for Violation

The TMI-1 Administrative Procedures did not clearly address how changes to Special Temporary Procedures (STP) are to be made. The nature of an STP is for one time use. We had little experience with changes to them. This resulted in an oversight in properly processing the changes.

(3) Corrective Action Taken

The STP was cancelled and explicit guidance has been included in administrative procedures concerning revisions/changes to STP's.

(4) Steps Taken to Prevent Recurrence

All PRG members have been made aware of this event. This combined with the above changes in the administrative procedures should prevent recurrence.



(5) Date of Full Compliance

Full compliance has been achieved by cancelling the STP.

Violation 5

10 CFR 50.54(q) requires the licensee to follow and maintain in effect emergency plans which meet the standards of 10 CFR 50.47(b) and the requirements of 10 CFR Part 50, Appendix E.

Technical Specification 6.8.1 requires written procedures be established, implemented and maintained covering, among other things, emergency plan implementation.

Emergency Procedure 1202-12, Revision 14, dated May 18, 1983, Excessive Radiation Levels, paragraph 2.3.a.1.e and Enclosure II, require that a Planned/Unplanned Release Report be initiated by the shift supervisor when an atmospheric monitor reaches the alert setpoint.

Administrative Procedure 1044, Revision 12, June 30, 1983, Event Review and Reporting Requirements, paragraph 3.2.2.a.8, and 10 CFR 50.72, require notification of the NRC within one hour upon occurrence of any accidental, unplanned or uncontrolled radioactive release.

Contrary to the above, a Planned/Unplanned Release Report for an uncontrolled release of krypton-85 was not initiated by the shift supervisor after the fuel handling building atmosphere monitor RM-A4 reached the high alarm setpoint (higher than Alert) and plant effluent atmospheric monitor RM-A8 reached the Alert setpoint between 4:45 PM and 4:55 PM on August 29, 1983. In addition, the NRC was not notified until approximately 8:56 PM, August 29, 1983 of the release.

Response to Violation 5

(1) Admission or Denial

This violation is admitted and was, at least in part, discovered and corrected by GPUN within about 4 hours of the event. (The failure to complete the planned/unplanned release forms was identified by the NRC.)

(2) Reasons for Violation

Prior to the addition of Kr-85 to the RCS GPUN had performed calculations to determine the consequences of release of all 20 curies. These calculations indicated that such a release would result in insignificant offsite dose consequences. During the first attempted addition of Kr-85 to the RCS (8 curie container) some of the activity was released (Violation 2a). At the time of the release it was known, based on the above calculations, that the consequences were trivial.

The operators did not immediately recognize that the event had triggered the then existing prompt notification requirements. As a result, the event was not reported to the NRC until greater than 1 hour had elapsed and no release report was completed.

(3) Corrective Action Taken

The unplanned release was reported to the NRC, albeit late, on August 29, 1984. The release forms have not been completed after the fact since the evaluation of a release that the forms were supposed to trigger was completed and completing the forms at this time would serve no useful purpose.

(4) Steps Taken to Prevent Recurrence

AP-1044 has been revised to reflect changes to 10 CFR 50.72 which went into effect on January 1, 1984. The reporting requirements under the new rule would not have required reporting of this event (not withstanding a news release). In addition, all Shift Supervisors have been reminded of the reporting obligations under 10 CFR 50.72 and of the administrative requirements of EP 1202-12 regarding documentation of unplanned releases.

(5) Date of Full Compliance

Full compliance has been achieved.

General Discussion of Violations 3, 4, & 5

The above violations are administrative in nature and had no impact on public health or safety. They nevertheless should not have occurred. We believe that we have learned from these mistakes and have used them to reemphasize the need for the attention to detail.

NUCLEAR REGULATORY COMMISSION

REGION I

631 PARK AVENUE

KING OF PRUSSIA, PENNSYLVANIA 19406

February 29, 1984

Docket No. 50-289  
License No. DPR-50  
EA 83-140

GPU Nuclear Corporation  
ATTN: Mr. P. R. Clark  
President, GPU Nuclear Corporation  
100 Interpace Parkway  
Parsippany, New Jersey 07054

Gentlemen:

Reference: Notice of Violation (NRC Inspection Report Nos. 50-289/83-25,  
50-289/83-26, and 50-289/83-33)

This refers to NRC inspections conducted August 24 - September 7, 1983 and August 29 - October 3, 1983, at the Three Mile Island Nuclear Station, Unit 1 (TMI-1), Middletown, Pennsylvania, of activities authorized by NRC License No. DPR-50. Both inspection reports were forwarded to you by letter dated October 28, 1983. During these inspections, apparent violations of NRC requirements were identified. On November 8, 1983, an enforcement conference was held with you and other members of your staff, during which the apparent violations, their underlying causes, and your corrective actions were discussed. This enforcement conference is documented in NRC Inspection Report No. 50-289/83-33.

The resultant violations are described in the enclosed Notice of Violation. The violations involved a radiological occurrence in which a substantial potential existed for a radiation exposure in excess of NRC regulatory limits; two examples of nonautomatic containment isolation valves being left open when they were required to be closed; four instances in which procedures important to safety were not followed; a failure to properly classify an event in accordance with the Emergency Plan Implementing Procedure; the improper revision of a procedure used to check injection of radioactive tracer gas into the reactor coolant system; and failure to complete a required report or to notify the NRC of an unplanned release.

The violations are classified in the enclosed notice at Severity Levels in accordance with the NRC Enforcement Policy, 10 CFR Part 2, Appendix C. The violations involving reactor operations are categorized in the aggregate as a Severity Level III problem. The violation involving the radiological occurrence is categorized as a Severity Level III violation.

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

The occurrence of these violations at this facility are of concern to us. The unit has not been operating for several years and now is preparing for restart. We have been assured that you have in place an organization second to none in this country in terms of its ability to deal with the operation of TMI-1. The violations described in the attached Notice indicate that you have not yet achieved this goal. To emphasize the need for you to redouble your efforts to ensure that procedures are properly implemented including procedures for verifying correct performance of operating activities, we have decided to propose a civil penalty of Forty Thousand Dollars (\$40,000) for these violations. We could also have proposed a civil penalty for the radiological occurrence violation but, in view of the fact that you identified and reported the violation and took prompt and extensive corrective action, we have decided not to propose a civil penalty for this violation and no further response to this violation is required.

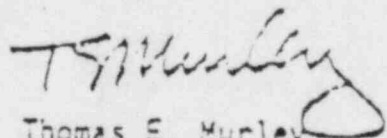
In addition, the Director of the Office of Inspection and Enforcement and I have decided that we would like to visit the site and discuss with you and your staff the root causes of the events and the corrective actions you propose.

You are required to respond to this letter and should follow the instructions specified in the attached Notice when preparing your response. In your response, you should document the specific actions taken and any additional actions you plan to prevent recurrence. Your response should specifically address corrective actions concerning independent verification and adherence to procedures.

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

The responses directed by this letter and the enclosed Notice are not subject to the clearance procedures of the Office of Management and Budget, otherwise required by the Paperwork Reduction Act of 1980, PL 96-511.

Sincerely,



Thomas E. Murley  
Regional Administrator

Enclosure: Notice of Violation  
and Proposed Imposition of Civil Penalty



NOTICE OF VIOLATION  
AND  
PROPOSED IMPOSITION OF CIVIL PENALTY

GPU Nuclear Corporation  
Three Mile Island Unit 1

Docket No. 50-289  
License No. DPR-50  
EA 83-140

During NRC inspections conducted August 24 - September 7, 1983 and August 29 - October 3, 1983, violations of NRC requirements were identified. The violations involved a radiological occurrence in which a substantial potential existed for a radiation exposure in excess of NRC regulatory limits; two examples of nonautomatic containment isolation valves being left open when they were required to be closed; four instances in which procedures important to safety were not followed; a failure to properly classify an event in accordance with the Emergency Plan Implementing Procedure; the improper revision of a procedure used to check injection of radioactive tracer gas into the reactor coolant system; and failure to complete a required report and the resultant failure to notify the NRC of an unplanned release.

To emphasize the need for you to redouble your efforts to ensure that procedures are properly implemented including procedures for verifying correct performance of operating activities, the Nuclear Regulatory Commission proposes to impose a civil penalty of Forty Thousand Dollars (\$40,000) for these violations. In accordance with the NRC Enforcement Policy, 10 CFR Part 2, Appendix C, the violations are set forth below:

A. Violations Assessed a Civil Penalty

1. Technical Specification 3.6.1 requires that containment integrity be maintained when reactor coolant (RC) pressure is 300 psig or greater, RC temperature is 200°F or greater, and nuclear fuel is in the core. Technical Specification 1.7 defines containment integrity and specifies as one of its conditions that all nonautomatic containment isolation valves are closed as required by the "Containment Integrity Checklist" attached to the operating procedure "Containment Integrity and Access Limits."

Operating Procedure (OP) 1101-3 Revision 27, August 18, 1983, (Temporary Change Notice No. 1-83-0158, dated August 24, 1983) Containment Integrity and Access Limits, Enclosure 1, Reactor Building (Containment) Integrity Checklist, requires for containment integrity, in part, that nonautomatic containment isolation valve IA-V20, Instrument Air Isolation Valve, be closed (paragraph 18.2) and non-automatic containment isolation valve FS-V405, Fire Service Test Connection/Drain Isolation Valve, be closed and capped (paragraph 17.1).

Contrary to the above, with RC pressure greater than 300 psig, with RC temperature greater than 200°F, and with nuclear fuel in the core:

- a. Nonautomatic containment isolation valve IA-V20 was not closed between August 27, 1983 and September 20, 1983; and,
  - b. Nonautomatic containment isolation valve FS-V405 was neither closed nor capped between August 27, 1983 and September 16, 1983.
2. Technical Specification 6.8.1 requires, in part, that written procedures important to safety shall be established, implemented, and maintained.

Contrary to the above, on four occasions, written procedures important to safety were not properly implemented, as evidenced by the following:

- a. Operating Procedure (OP) 1104-43, Revision 19, February 11, 1983, Nuclear Plant Sampling, paragraph 3.2.2.12.c and Enclosure 1, require, in part, that the Makeup Tank Liquid Sample Flush Valve, (CA-V95), be closed after a makeup tank liquid sample is collected.

However, between August 20 and 29, 1983, CA-V95 was open with no makeup tank liquid sample being collected.

- b. Operating Procedure 1104-43, Revision 19, dated February 11, 1983, Nuclear Plant Sampling, paragraph 3.2.2.15.g and Enclosure 1, require, in part, that Makeup Tank Gas Sample Return Isolation Valve (CA-V47) and Makeup Tank Gas Sample Bomb Bypass Valve, (CA-V48) be closed after a makeup tank gas space sample is collected.

However, on August 27, 1983, Valves CA-V47 and CA-V48 were open with no makeup tank gas space sample being collected.

- c. Emergency Plan Implementing Procedure (EPIP) 1004.15, Temporary Change Notice No. 1-83-0201, dated September 30, 1983, Post Accident In-Plant Sampling, paragraph 5.1.7 and Attachment 4, require that Reactor Coolant Letdown Sample Valve (CA-V16) be closed prior to implementing the procedure for obtaining a Reactor Coolant System (RCS) sample.

However, on September 30, 1983, the procedure for obtaining an RCS sample was implemented, but valve CA-V16 was not closed.

- d. Administrative Procedure (AP) 1002, Revision 27, dated August 1, 1983, Rules for the Protection of Employees Working on Electrical and Mechanical Apparatus, paragraph D.1.1 and Enclosure 1, requires, in part, that for apparatus to be taken out of service, an application from operations personnel must be completed to assure technical specification operability requirements are met.

However, on August 23, 1983, the Condenser Off Gas System Radiation Effluent Monitor, RM-A5, a monitor required by the technical specifications to be operable, was taken out of service for approximately 30 - 40 minutes by closing the sample pump inlet

isolation valve VA-V17 without the required application from operations personnel being completed.

3. 10 CFR 50.54(q) requires the licensee to follow and maintain in effect emergency plans which meet the standards of 10 CFR 50.47(b) and the requirements of 10 CFR Part 50, Appendix E.

Technical Specification 6.8.1 requires written procedures be established, implemented and maintained covering, among other things, emergency plan implementation.

Emergency Plan Implementing Procedure 1004.1, Revision 9, August 22, 1983, Unusual Event, paragraphs 1.0 and 3.4.1b define a condition that shall be regarded as an Unusual Event at TMI-1 with respect to exceeding the technical specification primary system leakrate. Paragraph 3.4.1b lists the indications of this initiating condition, in part, as confirmed (procedurally indicated) unidentified reactor coolant leakrate greater than 1 gallon per minute (gpm). Further, paragraph 3.3.1 considers plant conditions which may indicate a potential degradation of the level of safety of the plant to be regarded as an Unusual Event.

Contrary to the above, on September 22, 1983, as of 6:00 PM, a plant condition of a confirmed (procedurally indicated) unidentified primary system leakrate in excess of 1.0 gpm (calculated as 1.2 gpm) was not classified as an Unusual Event.

4. Technical Specification 6.8.1 requires, in part, that procedures important to safety shall be implemented covering Emergency Plan Implementation and Administrative Procedures.

Administrative Procedure (AP) 1001A, Revision 4, dated June 14, 1983, Procedure Review and Approval, paragraphs 3.3 and 3.4 require, in part, that the control and approval process for revision/changes to procedures is by use of a Procedure Change Request (PCR) form (Figure 1001A-1) or a Temporary Change Notice (TCN) form (Figure 1001A-2). Administrative Procedure 1001B, Revision 4, dated October 13, 1982, Procedure Utilization, paragraph 3.3.10, states, in part, that Special Temporary Procedures (STP) are subject to the same level of control and approval as their permanent counterparts.

Contrary to the above, on August 29, 1983, STP No. 83-115, dated August 27, 1983, Injection of Radioactive Tracer Gas into the RCS, was revised/changed in that certain valves to be checked in a prerequisite valve lineup were added to this list and this revision was made without the use of a PCR or TCN. The revision/change consisted of adding certain flow path isolation or boundary isolation valves to prevent inadvertent release of radioactive material.



5. 10 CFR 50.54(q) requires the licensee to follow and maintain in effect emergency plans which meet the standards of 10 CFR 50.47(b) and the requirements of 10 CFR Part 50, Appendix E.

Technical Specification 6.8.1 requires written procedures be established, implemented and maintained covering, among other things, emergency plan implementation.

Emergency Procedure 1202-12, Revision 14, dated May 18, 1983, Excessive Radiation Levels, paragraph 2.3.a.1.e and Enclosure II, require that a Planned/Unplanned Release Report be initiated by the shift supervisor when an atmospheric monitor reaches the alert setpoint.

Administrative Procedure 1044, Revision 12, June 30, 1983, Event Review and Reporting Requirements, paragraph 3.2.2.a.8, and 10 CFR 50.72, require notification of the NRC within one hour upon occurrence of any accidental, unplanned or uncontrolled radioactive release.

Contrary to the above, a Planned/Unplanned Release Report for an uncontrolled release of krypton-85 was not initiated by the shift supervisor after the fuel handling building atmosphere monitor RM-A4 reached the high alarm setpoint (higher than Alert) and plant effluent atmospheric monitor RM-A8 reached the Alert setpoint between 4:45 PM and 4:55 PM on August 29, 1983. In addition, the NRC was not notified until approximately 8:56 PM, August 29, 1983 of the release.

Collectively, these violations have been categorized as a Severity Level III problem. (Supplement I) Civil Penalty - \$40,000.

B. Violation Not Assessed a Civil Penalty

Technical Specification 6.11 requires, in part, that procedures for personnel radiation protection shall be adhered to for all operations involving personnel radiation exposure.

Contrary to the above, on June 20, 1983, procedures for personnel radiation protection were not adhered to during decontamination of a "Hittman" liner, an operation involving personnel radiation exposure, as evidenced by the following:

- a. Radiological Control Procedure (RCP) 1610.1, Revision 6, January 10, 1983, entitled Control of Locked High Radiation Areas, paragraph 6.6, and Appendix A to this procedure, paragraph 5.0, require, in part, that the Rad Con foreman/technician inform each individual entering a locked high radiation area of their stay time and/or maximum exposure limit and to exit the area prior to exceeding that limit.

However, on June 20, 1983, Radiation Contamination (Rad Con) foremen/technicians responsible for the control of exposure during the transfer of a "Hittman" liner containing solidified radioactive waste (spent resin) did not inform individuals entering a locked



high radiation area of their stay time and/or maximum exposure limits, and that they should exit the area prior to exceeding those limits.

- b. Radiological Control Procedure (RCP) 1613, Revision 22, March 4, 1983; entitled Radiation Work Permits (RWP), Appendix B, paragraph 2.1.a states, in part: "...an RWP will be terminated if conditions in the area degrade significantly from the conditions stated on the original RWP." Further, RCP 1613, Appendix A, paragraph 1.4 requires, in part, that, after completing an RWP, the RWP, plus all applicable forms, such as ALARA reviews, will be taken to the Rad Con department and discussed with the Rad Con representative to assure understanding by the workers of the scope of the job and the radiological control requirements. Additionally, RCP 1613, paragraph 5.1.3, requires that, if current survey information is not available to prepare the RWP, the most recent survey will serve as a guide for completing the RWP.

However, on June 20, 1983, during the transfer of a "Hittman" liner containing solidified radioactive waste (spent resin):

- 1) The RWP was not terminated even though the conditions in the area, namely, an average dose rate of 6 R/hr, were a significant degradation of the conditions stated in the original RWP, namely, a dose rate of 75 mR/hr;
- 2) All personnel involved in the operation were not given a pre-job briefing to ensure they understood the scope of the job nor did Rad Con personnel specify to the workers all applicable radiological control requirements as stated on the ALARA review; and,
- 3) Survey information obtained on June 17, 1983 was used in preparing the RWP in lieu of more recent survey information obtained on June 19, 1983.

- c. Radiological Control Procedure 1641, Revision 10, April 15, 1983, Dosimetry Use and Exposure Controls, paragraph 5.3.2.4, requires that personnel wearing self-reading dosimeters (SRDs) shall periodically observe the dosimeter readings and return to the control point any time the low range dosimeter reading reaches 75% of full scale.

However, on June 20, 1983, two radwaste operators did not observe the readings on their SRDs while working for a period of 20 minutes in a locked high radiation area during the decontamination of a "Hittman" liner containing solidified radioactive waste (spent resin), whose contact dose rate averaged 6 R/hr. Upon completing their task and returning to the control point, the SRDs were observed to be off-scale high.

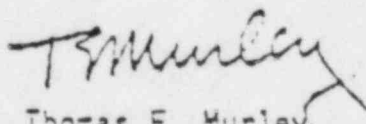
This is a Severity Level III violation (Supplement IV).

Pursuant to the provisions of 10 CFR 2.201, GPU Nuclear Corporation is hereby required to submit to the Director, Office of Inspection and Enforcement, USNRC, Washington, DC 20555, with a copy to this office, within 30 days of the date of this Notice, a written statement or explanation in reply, including for each alleged violation: (1) admission or denial of the alleged violation; (2) the reasons for the violation, if admitted; (3) the corrective steps that will be taken and the results achieved; (4) the corrective steps that will be taken to avoid further violations; and (5) the date when full compliance will be achieved. As stated in the letter, response is not necessary for Violation B. Consideration may be given to extending the response time for good cause shown. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, this response shall be submitted under oath or affirmation.

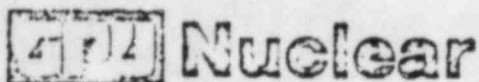
Within the same time as provided for the response required above under 10 CFR 2.201, GPU Nuclear Corporation may pay the civil penalty in the amount of Forty Thousand Dollars or may protest imposition of the civil penalty in whole or in part by a written answer. Should GPU Nuclear Corporation fail to answer within the time specified, the Director, Office of Inspection and Enforcement, will issue an order imposing the civil penalty in the amount proposed above. Should GPU Nuclear Corporation elect to file an answer in accordance with 10 CFR 2.205 protesting the civil penalty, such answer may: (1) deny the violations listed in this Notice in whole or in part; (2) demonstrate extenuating circumstances; (3) show error in this Notice; or (4) show other reasons why the penalty should not be imposed. In addition to protesting the civil penalty in whole or in part, such answer may request remission or mitigation of the penalty. In requesting mitigation of the proposed penalty, the five factors contained in Section IV.B of 10 CFR Part 2, Appendix C should be addressed. Any written answer in accordance with 10 CFR 2.205 should be set forth separately from the statement or explanation in reply pursuant to 10 CFR 2.201, but may incorporate by specific reference (e.g., citing page and paragraph numbers) to avoid repetition. The attention of GPU Nuclear Corporation is directed to the other provisions of 10 CFR 2.205 regarding the procedure for imposing a civil penalty.

Upon failure to pay any civil penalty due, which has been subsequently determined in accordance with the applicable provisions of 10 CFR 2.205, this matter may be referred to the Attorney General, and the penalty, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234c of the Act, 42 U.S.C. 2232.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Thomas E. Murley  
Regional Administrator

Dated at King of Prussia, Pennsylvania  
this 27th day of February 1984



GPU Nuclear Corporation  
Post Office Box 480  
Route 441 South  
Middletown, Pennsylvania 17057-0191  
717 944-7621  
TELEX 84-2386  
Writer's Direct Dial Number:

5211-84-2087  
April 2, 1984

Mr. R. C. DeYoung  
Director, Office of Inspector and Enforcement  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

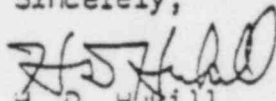
Dear Mr. DeYoung:

Three Mile Island Nuclear Station, Unit I (TMI-1)  
Operating License No. DPR-50  
Docket No. 50-289  
Response to Notice of Violation and Proposed Civil Penalty,  
Regarding Inspections 83-25 and 83-26 and Enforcement Conference 83-33 Revision

Attached is a revised page two to our March 30, 1984 response to the above Notice of Violation and Proposed Civil Penalty. The revised page corrects three clerical errors. The changes are indicated by margin bars on the attached revised page.

We regret any inconvenience that these errors may have caused.

Sincerely,

  
H. D. Hurill,  
Director, TMI-1

HDH:CWS:mle  
Attachment

cc: Dr. Thomas E. Murley  
R. Conte

We have reviewed the Notice of Violation against the revised enforcement action policy statement. The revised statement explicitly allows aggregation of violations for the assignment of a severity level as has been done in this instance. However, in providing the flexibility to aggregate certain violations, the Commission had in mind focusing attention on an "underlying problem or programmatic deficiencies when appropriate." 49 Fed. Reg. 8584 (1984). We do not believe that test is met here and thus question whether aggregation in this instance is appropriate. In fact, we agree with the statement in Mr. Starostecki's December 23, 1983 letter that "these problems are considered to be isolated cases and not indicative of a programmatic problem". Further, review of the items in the Notice of Violation, taken individually or even collectively, do not rise to the severity of problems enumerated as illustrative of Category III severity items in the revised statement -- viewed either as operational matters (Supplement I) or as health physics concerns (Supplement IV). Thus, we question the appropriateness of categorizing our violation as Category III at all. Finally, viewed even as a Category III violation, we note that the Commission has changed its policy with regard to this category from "usually imposing" fines to simply "considering" fines. Surely, when compared with the illustrative examples within the range of Category III severity, the items noted in our proposed violation notice cannot be viewed as severe.

The second development since the civil penalty was proposed is your's and Dr. Murley's visit to TMI-1 on March 5, 1984. During the visit you met individually with management, supervisory personnel, and first level employees. We can understand that prior to this visit you may have believed that it was necessary to invoke a civil penalty to promote proper attention and reaction within the TMI-1 organization as a whole. Based on our prompt and comprehensive corrective actions, which from the enforcement conference and your inspection at the site we understand you accept, and based on the positive attitudes which you observed during your visit, we believe that a civil penalty is unnecessary to further NRC's enforcement objectives.

Other positive indications of this organization's approach are:

1. Unannounced Off-Shift Tours by Management.
2. On-Shift QA Monitors.
3. Site Managers meetings periodically where problems such as these violations and other significant matters are discussed for general understanding and multidisciplinary feedback.
4. The Establishment of the Nuclear Safety and Compliance Committee.
5. Frequent discussions between management and the operators.





GPU Nuclear Corporation  
Post Office Box 480  
Route 441 South  
Middletown, Pennsylvania 17057-0191  
717 944-7621  
TELEX 84-2386  
Writer's Direct Dial Number:

5211-84-2085  
March 30, 1984

Dr. Thomas E. Murley  
Region I, Regional Administrator  
U. S. Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, PA. 19406

Dear Dr. Murley:

Three Mile Island Nuclear Station Unit I, (TMI-1)  
Operating License No. DPR-50  
Docket No. 50-289  
Licensed Operator Experience Review and Summary

Although TMI-1 is not a Near Term Operating License (NTOL) plant, we are aware of NRC's recent heightened interest in licensed operator experience at NTOL plants coming on line. Because of our long period shutdown and the large number of new operators that have been licensed during this period, our situation in regard to operating experience is somewhat akin to that of the NTOL's. In preparation for restart, therefore, we have made a thorough study of our licensed operators' prior experience to ensure ourselves that the experience level is adequate to safely startup and operate the plant. We also have reviewed experience level in relation to shift assignments to make certain that the experience level among the various operating shifts is relatively consistent. We decided to compare our situation to the NTOL Working Group's proposal, as we find this to be a convenient baseline for comparison.

The attachments to this letter indicate the operating experience of TMI-1 licensed operators on each shift for both a six-shift rotation and a four-shift rotation. We believe that the attachments clearly demonstrate that TMI-1 possesses the requisite experience in its staff of licensed operators to safely startup the plant and to perform power escalation testing in a deliberate and controlled manner. Thus, for example, while the baseline for NTOLs provides for 6 years of nuclear plant experience and 13 years of power plant experience, our crews at TMI-1 far exceed that amount of experience.

It should be noted that the operating experience indicated for each licensed operator is based on our own employment and training records supplemented by information provided to us by the individuals themselves. Additionally, because of the uncertainties involved in applying the NTOL Working Group experience factors due to the lack of detailed records on prior experience, we have added conservatism by (1) decreasing the power/nuclear plant experience level calculated for each individual to the next lower 1/2 man-year, and (2) by not including the Licensed Classroom Training and Exam factor in compiling the experience level for any operators. The worksheets used to develop the attachments to this letter are available for review on site.

There are several other factors that provide added confidence that we have the needed overall experience on each shift to safely startup the unit and proceed to full power operation. These include:

- TMI-1 operators have maintained normal plant functions on an ongoing shift routine. This has allowed many hours of exposure to equipment operation, including set up and recovery from maintenance functions, performance of surveillance testing, and many hours of system walk-down and training access that can only be provided by functional plant systems.
- The recent hot functional testing of the steam generators of about 42 days provided invaluable hot operating experience for all shift crews. During this hot testing period, the majority of refueling interval surveillances were conducted, giving the staff a large exposure to difficult and infrequent operations.
- A qualification program with official sign off cards for both licensed and auxiliary operators was developed to require equipment, system and evolution checkout, operation or walkdown as appropriate during hot testing and power escalation testing (PET). This program was designed to require that each operator perform specific evolutions and tasks, dependent on plant conditions, or if the evolution could not actually be performed, a walkdown be conducted. These cards were used during hot steam generator testing and will be continued throughout PET. Completion of these qualification cards will give us the assurance that each operator has participated in, or has as a minimum, observed or walked-thru those evolutions he could reasonably be expected to encounter during normal plant operations
- PET has been designed to be conducted in a very closely controlled and deliberate manner. Two 30-day periods each at reduced power (48% and 75%) have been designed into the program specifically to provide operator training and familiarization time. At the conclusion of PET, the qualification cards of each operator will be reviewed to ensure all operators have completed the required evolution or walk-thru, as appropriate. The plant will not proceed to full power commercial operation until operators have completed all essential evolutions.
- The Shift Organization at TMI-1 has been developed and expanded to provide the Operations Shift Supervisor sufficient talent and expertise to perform work and investigate problems with minimum disruption to on-shift Operations personnel. Around the clock STA, rad con, chemistry and maintenance shift coverage is in place.

The shift maintenance crew consists of a Foreman with considerable experience at TMI and a maintenance crew of about 11 technicians reporting to him. The experience of the Maintenance Foreman and his crew is an invaluable asset to the Shift Supervisor.

- A degreed individual from the QA Department has been assigned on shift around the clock to monitor operations and maintenance performance.
- An Off-Shift Management Tour program, which provides for periodic unannounced off-shift tours in the plant by management, has been in place for several years.
- The ATOG program has been implemented. Implementation of this program, was carried out using our "crew team concept" mode of training and operation. Each crew was tested on the simulator as a crew and will be tested in the Control Room as a crew.
- TMI-1 currently has 13 qualified SROs and 20 qualified ROs in the shift operating crews. Three of the ROs have passed the simulator and oral examinations for SRO and are awaiting results of their written examinations. A class for seven new ROs commenced in February.
- Morale at Unit 1, especially among the licensed operators, remains remarkably high in spite of the numerous setbacks and frustrations experienced over the past few years. As a measure of this, only one licensed operator has resigned in more than two years. Our people express confidence that permission to restart will be granted and that they can accomplish this in a safe and professional manner.
- Each crew of licensed operators spent thirteen days in training at the B&W simulator in 1983 and have spent five days already in 1984. We plan three additional days at the simulator for each crew in April and May (included in attached experience charts). This training period will be primarily devoted to PET evolutions and normal plant operations and malfunctions. To ensure the effectiveness of the simulator training program, senior management directly participated or observed and will continue to do so. Additionally, for each simulator session since January 1983, the operating crew was required to pass an operating examination administered by a TMI-1 Emergency Director at the end of the training period. This practice will continue in the future. All simulator training is done using the "crew team concept" in order to improve and practice the individual operators' abilities to work with and communicate with each other.
- All licensed operators have been examined using the new NRC examination procedures regardless of their pre-accident license status.
- All licensed operators without on-line operating experience at TMI-1 have passed an NRC-administered simulator examination.

- During startup and testing, experienced Startup and Test personnel will be on shift to provide guidance and assistance to the operating crew.

As previously noted, Attachment I to this letter indicates the operating experience of licensed operators at TMI-1 on a six-shift rotation and Attachment 2 indicates the operating experience of licensed operators if a four-shift rotation were employed. Using either shift rotation, we far exceed the NTOL Utility Working Group's recommendations for power plant experience and nuclear plant experience. However, with a six-shift rotation we do not meet the NTOL Group's recommendations in regard to the following two specific hot operational experience factors:

2nd SRO 6 Weeks at >20% Power (Not met on 4 of the existing 6 shifts)

Shift Supervisor Startup/Shutdown (On one shift, the Shift Supervisor has made a shutdown, but no startups).

In a four-shift rotation we greatly exceed all the experience recommendations of the NTOL Utility Working Group.

GPUN strongly endorses and plans to utilize the six-shift rotation plan for licensed operators during startup and PET for the following reason:

- There is more than adequate nuclear power plant experience (total) in all shifts.
- On a six-shift rotation, we will have at least five licensed operators on each shift (3 SROs and 2 ROs or 2 SROs and 3 ROs) which exceeds the requirements for 2 SROs and 2 ROs per shift.
- These crews have trained and worked together for a considerable period of time and have developed a "crew team concept", not only with the licensed operators, but also with the auxiliary operators and other shift supporting groups. By "crew team concept", we mean that everyone on shift has a position and each position has specific, but different responsibilities. By each individual applying himself to his own responsibilities and integrating these responsibilities with the others on shift, the "crew team concept" takes place. Once the individuals learn to communicate and work together they are a team. Each crew, not including Maintenance, Rad Con, and Security support personnel, consists of a Shift Supervisor (SRO), Shift Foreman (SRO), Primary CRO (RO), Secondary CRO (RO), Switching and Tagging CRO, STA, and six Auxiliary Operators. The CROs are interchangeable, but will always know which position they are filling. the "team concept" is an important ingredient to safe and professional operations.
- Remaining on a six-shift rotation continues to provide one week in every six for training.

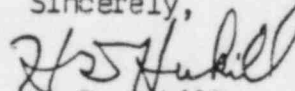


- Four-section rotation has the undesirable result of more people in the Control Room because of the large number of licensed operators in each shift.
- Control, responsibility, and chain of command must be very clearly spelled out because of the large number of ROs and SROs on shift in a four-section rotation.
- The six-shift rotation has been strongly endorsed by the Commonwealth of Pennsylvania and GPUNC.
- It has taken considerable time, effort and planning to get enough people licensed to man six shifts. Now that this has been achieved, we should not retrench unless absolutely necessary.

In reviewing the shift manning requirements, a five-shift rotation was also investigated. We would come very close to meeting the NTOL Working Group's recommended experience levels on five shifts, but would have to use management and Training personnel to do so. It is considered that this would be extremely disruptive to the overall management and control of the plant and was, therefore, eliminated as an option at the present time.

If you desire more information or want to discuss this matter in more detail, please so advise us.

Sincerely,

  
H. D. Hukill,  
Director, TMI-1

HDH:mle  
Attachments

cc: R. Conte  
J. F. Stolz

ATTACHMENT 1  
(Six Shift Rotation)

OPERATING SHIFT EXPERIENCE

"A" SHIFT

POSITION	POWER PLANT EXPER. (IN YRS)	NUCLEAR POWER PLANT EXPER. (IN YRS)	LICENSE	HOT PARTICIPATION EXPERIENCE AT TMI		
				> 20% POWER OPERATION TIME	STARTUP AND SHUTDOWN EXPER.	*6 MONTHS ON SHIFT AT HOT CONDITIONS
SHIFT SUPERVISOR (NULL)	9.5	6.5	SRO	4 1/2 yrs.	Y	Y
SENIOR OPERATOR (BRANTLEY)	12.5	3.5	SRO	+11 months	N	N
LICENSED OPERATOR (KELLER)	6.5	2.0	RO			
LICENSED OPERATOR (MASTERS)	14.0	4.5	RO			
LICENSED OPERATOR (TREADWAY)	10.0	3.5	RO			
TOTAL	52.5	20.0				

+AT POWER TRAINING TIME  
INCLUDED

\* LICENSED TRAINING TIME  
ON SHIFT INCLUDED.

Y = YES

N = NO

"B" SHIFT

POSITION	POWER PLANT EXPER. (IN YRS)	NUCLEAR POWER PLANT EXPER. (IN YRS)	LICENSE	HOT PARTICIPATION EXPERIENCE AT TMI		
				> 20% POWER OPERATION TIME	STARTUP AND SHUTDOWN EXPER.	*6 MONTHS ON SHIFT AT HOT CONDITIONS
SHIFT SUPERVISOR (SMITH, D. E.)	14.5	4.5	SRO	+17 months	Y	Y
SENIOR OPERATOR (PAULES)	7.0	3.0	SRO	0	N	N
SENIOR OPERATOR (WYNNE)	6.0	2.0	**RO	0	N	N
LICENSED OPERATOR (BEZILLA)	3.5	1.0	RO			
LICENSED OPERATOR (LANE)	5.0	3.0	RO			
LICENSED OPERATOR (NILAND)	5.5	3.0	RO			
TOTAL	41.5	16.5				

+AT POWER TRAINING TIME  
INCLUDED

\* LICENSED TRAINING TIME  
ON SHIFT INCLUDED.

Y = YES

N = NO

\*\*AWAITING NRC SRO WRITTEN EXAM  
RESULTS - PASSED NRC SIMULATOR  
AND ORAL EXAMS.

"C" SHIFT

POSITION	POWER PLANT EXPER. (IN YRS)	NUCLEAR POWER PLANT EXPER. (IN YRS)	LICENSE	HOT PARTICIPATION EXPERIENCE AT TMI		
				> 20% POWER OPERATION TIME	STARTUP AND SHUTDOWN EXPER.	*6 MONTHS ON SHIFT AT HOT CONDITIONS
SHIFT SUPERVISOR (SMITH, D. A.)	11.0	5.0	SRO	+10 mos.	SU-No SD-Yes	Y
SENIOR OPERATOR (DAVIS)	7.0	4.0	SRO	0	N	N
SENIOR OPERATOR (HASS)	7.5	3.5	**RO	0	N	N
LICENSED OPERATOR (CAMPBELL)	5.0	1.0	RO			
LICENSED OPERATOR (MOORE)	6.0	2.0	RO			
TOTAL	36.5	15.5				

\*LICENSING TRAINING TIME  
ON SHIFT INCLUDED.

+AT POWER TRAINING TIME  
INCLUDED

Y = YES

N = NO

\*\*AWAITING NRC SRO WRITTEN EXAM  
RESULTS. PASSED NRC SIMULATOR  
AND ORAL EXAMS.



"D" SHIFT

POSITION	POWER PLANT EXPER. (IN YRS)	NUCLEAR POWER PLANT EXPER. (IN YRS)	LICENSE	HOT PARTICIPATION EXPERIENCE AT TMI		
				> 20% POWER OPERATION TIME	STARTUP AND SHUTDOWN EXPER.	*6 MONTHS ON SHIFT AT HOT CONDITIONS
SHIFT SUPERVISOR (JANES)	18.5	6.5	SRO	2.75 yrs.	Y	Y
SENIOR OPERATOR (HERMAN)	12.5	2.0	SRO	+7 mos.	Y	Y
LICENSED OPERATOR (CHALECKI)	12.0	6.5	RO			
LICENSED OPERATOR (WALSH)	6.0	3.0	RO			
LICENSED OPERATOR (MONSON)	5.5	1.5	RO			
TOTAL	54.5	19.5				

+AT POWER TRAINING TIME  
INCLUDED

\* LICENSING TRAINING TIME  
ON SHIFT INCLUDED.

Y = YES

N = NO

"E" SHIFT

POSITION	POWER PLANT EXPER. (IN YRS)	NUCLEAR POWER PLANT EXPER. (IN YRS)	LICENSE	HOT PARTICIPATION EXPERIENCE AT TMI		
				> 20% POWER OPERATION TIME	STARTUP AND SHUTDOWN EXPER.	*6 MONTHS ON SHIFT AT HOT CONDITIONS
SHIFT SUPERVISOR (BOYER)	8.5	2.5	SRO	+1.4 yrs	Y	Y
SENIOR OPERATOR (FRASER)	8.0	4.5	SRO	0	N	N
SENIOR OPERATOR (MAAG)	7.5	3.5	**RO	0	N	N
LICENSED OPERATOR (HEILMAN)	10.0	6.5	RO			
LICENSED OPERATOR (WILLENBECHER)	4.0	.50	RO			
LICENSED OPERATOR (GALLAGHER)	8.5	4.5	RO			
TOTAL	46.5	22.0				

+AT POWER TRAINING TIME  
INCLUDED

\* LICENSING TRAINING TIME  
ON SHIFT INCLUDED.

Y = YES

N = NO

\*\*AWAITING NRC SRO WRITTEN EXAM  
RESULTS. PASSED NRC SIMULATOR  
AND ORAL EXAMS.

"F" SHIFT

POSITION	POWER PLANT EXPER. (IN YRS)	NUCLEAR POWER PLANT EXPER. (IN YRS)	LICENSE	HOT PARTICIPATION EXPERIENCE AT TMI		
				> 20% POWER OPERATION TIME	STARTUP AND SHUTDOWN EXPER.	*6 MONTHS ON SHIFT AT HOT CONDITIONS
SHIFT SUPERVISOR (CROUSE)	17.5	9.0	SRO	4.16 yrs.	Y	Y
SENIOR OPERATOR (MARTIN)	9.5	5.0	SRO	0	N	N
LICENSED OPERATOR (GOODLAVAGE)	10.0	6.5	RO			
LICENSED OPERATOR (BUGELHOLL)	5.0	2.0	RO			
LICENSED OPERATOR (BIXLER)	4.0	1.5	RO			
TOTAL	46.0	24.0				

\* LICENSING TRAINING TIME  
ON SHIFT INCLUDED.

Y = YES  
N = NO

# OFF SHIFT PERSONNEL

POSITION	POWER PLANT EXPER. (IN YRS)	NUCLEAR POWER PLANT EXPER. (IN YRS)	LICENSE	HOT PARTICIPATION EXPERIENCE AT TMI		
				> 20% POWER OPERATION TIME	STARTUP AND SHUTDOWN EXPER.	*6 MONTHS ON SHIFT AT HOT CONDITIONS
(Olive)	8.5	3.0	SRO	0	N	N
(Ross)	17.5	10.0	SRO	++5 yrs.	Y	Y
(Shipman)	12.0	4.0	SRO	+1 yrs.	Y	Y
(Boltz)	10.0	6.5	SRO	4.5 years	Y	Y
(Kacinko)	3.5	1.5	RO	0	N	N
(Wilt)	4.5	.50	RO	0	N	N
TOTAL:	56.0	25.5				

+ AT POWER TRAINING TIME INCLUDED

++Not included 2 years hot operations at other PWR.

\* Licensing Training Time on shift included.

Y = Yes

N = No



ATTACHMENT 2  
(Four Shift Rotation)

OPERATING SHIFT EXPERIENCE

"A" SHIFT

POSITION	POWER PLANT EXPER. (IN YRS)	NUCLEAR POWER PLANT EXPER. (IN YRS)	LICENSE	HOT PARTICIPATION EXPERIENCE AT TMI		
				> 20% POWER OPERATION TIME	STARTUP AND SHUTDOWN EXPER.	*6 MONTHS ON SHIFT AT HOT CONDITIONS
SHIFT SUPERVISOR (NOLL)	9.5	6.5	SRO	4 1/2 yrs	Y	Y
SENIOR OPERATOR (BRANTLEY)	12.5	3.5	SRO	+11 mos.	Y	Y
SENIOR OPERATOR (OLIVE)	8.5	3.0	SRO	0	N	N
SENIOR OPERATOR (WYNNE)	6.0	2.0	**RO	0	N	N
LICENSED OPERATOR (MASTERS)	14.0	4.5	RO			
LICENSED OPERATOR (KELLER)	6.5	2.0	RO			
LICENSED OPERATOR (TREADWAY)	10.0	3.5	RO			
LICENSED OPERATOR (LANE)	5.0	3.0	RO			
TOTAL	72.0	28.0				

+AT POWER TRAINING TIME  
INCLUDED  
\*LICENSING TRAINING TIME  
ON SHIFT INCLUDED  
\*\*AWAITING NRC SRO WRITTEN EXAM  
RESULTS. PASSED NRC SIMULATOR  
AND ORAL EXAMS.

Y = YES  
N = NO

"B" SHIFT

POSITION	POWER PLANT EXPER. (IN YRS)	NUCLEAR POWER PLANT EXPER. (IN YRS)	LICENSE	HOT PARTICIPATION EXPERIENCE AT TMI		
				> 20% POWER OPERATION TIME	STARTUP AND SHUTDOWN EXPER.	*6 MONTHS ON SHIFT AT HOT CONDITIONS
SHIFT SUPERVISOR (JANES)	18.5	6.5	SRO	2.75 yrs.	Y	Y
SENIOR OPERATOR (HERMAN)	12.5	2.0	SRO	+7 mos.	Y	Y
SENIOR OPERATOR (MAAG)	7.5	3.5	**RO	0	N	N
SENIOR OPERATOR (HASS)	7.5	3.5	**RO	0	N	N
LICENSED OPERATOR (CHALECKI)	12.0	6.5	RO			
LICENSED OPERATOR (WALSH)	6.0	3.0	RO			
LICENSED OPERATOR (MONSON)	5.5	1.5	RO			
LICENSED OPERATOR (NILAND)	5.5	3.0	RO			
TOTAL	75.0	29.5				

+AT POWER TRAINING TIME  
INCLUDED  
\*LICENSING TRAINING TIME  
ON SHIFT INCLUDED  
\*\*AWAITING NRC SRO WRITTEN  
RESULTS. PASSED NRC SIMULATOR  
AND ORAL EXAMS.

Y=Yes  
N=No

"C" SHIFT

POSITION	POWER PLANT EXPER. (IN YRS)	NUCLEAR POWER PLANT EXPER. (IN YRS)	LICENSE	HOT PARTICIPATION EXPERIENCE AT TMI		
				> 20% POWER OPERATION TIME	STARTUP AND SHUTDOWN EXPER.	*6 MONTHS ON SHIFT AT HOT CONDITIONS
SHIFT SUPERVISOR (BOYER)	8.5	2.5	SRO	+1.4 yrs.	Y	Y
SENIOR OPERATOR (SMITH, D.E.)	14.5	4.5	SRO	+17 mos.	Y	Y
SENIOR OPERATOR (FRASER)	8.0	4.5	SRO	0	N	N
SENIOR OPERATOR (PAULES)	7.0	3.0	SRO	0	N	N
LICENSED OPERATOR (HEILMAN)	10.0	6.5	RO			
LICENSED OPERATOR (WILLENBECHER)	4.0	.50	RO			
LICENSED OPERATOR (GALLAGHER)	8.5	4.5	RO			
LICENSED OPERATOR (BEZILLA)	3.5	1.0	RO			
LICENSED OPERATOR (MOORE)	6.0	2.0	RO			
TOTAL	70.0	29.0				

+AT POWER TRAINING TIME  
INCLUDED  
\*LICENSING TRAINING TIME  
ON SHIFT INCLUDED

Y=YES  
N=NO

"D" SHIFT

POSITION	POWER PLANT EXPER. (IN YRS)	NUCLEAR POWER PLANT EXPER. (IN YRS)	LICENSE	HOT PARTICIPATION EXPERIENCE AT TMI		
				> 20% POWER OPERATION TIME	STARTUP AND SHUTDOWN EXPER.	*6 MONTHS ON SHIFT AT HOT CONDITIONS
SHIFT SUPERVISOR (CROUSE)	17.5	9.0	SRO	4.16 yrs.	Y	Y
SENIOR OPERATOR (SMITH, D.A.)	11.0	5.0	SRO	+10 mos.	SU-N SD-Y	Y
SENIOR OPERATOR (MARTIN)	9.5	5.0	SRO	0	N	N
SENIOR OPERATOR (DAVIS)	7.0	4.0	SRO	0	N	N
LICENSED OPERATOR (GOODLAVAGE)	10.0	6.5	RO			
LICENSED OPERATOR (BUGELHOLL)	5.0	2.0	RO			
LICENSED OPERATOR (BIXLER)	4.0	1.5	RO			
LICENSED OPERATOR (CAMPBELL)	5.0	1.0	RO			
TOTAL	69.0	34.0				

+AT POWER TRAINING TIME  
INCLUDED  
\*LICENSING TRAINING TIME  
ON SHIFT INCLUDED

Y=YES  
N=NO



OFF SHIFT PERSONNEL

POSITION	POWER PLANT EXPER. (YRS)	NUCLEAR POWER PLANT EXPER. (IN YRS)	LICENSE	HOT PARTICIPATION EXPERIENCE AT TMI		
				> 20% POWER OPERATION TIME	STARTUP AND SHUTDOWN EXPER.	*6 MONTHS ON SHIFT AT HOT CONDITIONS
(ROSS)	17.5	10.0	SRO	++5 yrs.	Y	Y
(SHIPMAN)	12.0	4.0	SRO	+1 yrs.	Y	Y
(BOLTZ)	10.0	6.5	SRO	4.5 yrs.	Y	Y
(KACINKO)	3.5	1.5	RO	0	N	N
(WILT)	4.5	.5	RO	0	N	N
TOTAL	47.5	22.5				

+AT POWER TRAINING TIME  
INCLUDED

++NOT INCLUDED 2 YRS. HOT OPERATIONS AT OTHER PWR.

\*LICENSING TRAINING TIME  
ON SHIFT INCLUDED

Y=YES

N=NO



**GPU Nuclear Corporation**  
Post Office Box 480  
Route 441 South  
Middletown, Pennsylvania 17057  
717 944-7621  
TELEX 84 2386  
Writer's Direct Dial Number:

March 28, 1984

Mr. E. P. Wilkinson, President  
Institute of Nuclear Power Operations  
1820 Water Place  
Atlanta, Georgia 30339

Dear Mr. Wilkinson:

Enclosed is a status report of actions taken in response to the findings from the May 1983 INPO TMI-1 evaluation.

To avoid the necessity to cross-reference between the status report and the Evaluation Report you published, we have elected to include your findings and recommendations, our initial response, and the current status of the findings all in this one document.

Sincerely,

A handwritten signature in cursive script that reads "P. R. Clark".

P. R. Clark  
President

PRC/HDH/pjl

Enclosure

cc: H. D. Hukill

Finding  
(OA.5-1)

Increased emphasis is needed on industrial safety. Although the established program is effective in correcting identified safety deficiencies, the trend of lost-time accidents has not improved, and several examples of lack of adherence to safety rules were noted. A company safety manual has been under review for some time, but has not been approved for use.

Recommendation

Upgrade the existing industrial safety program with emphasis on the following areas:

- a. timely approval and issue of company policies regarding industrial safety
- b. strengthened supervisory involvement in promoting adherence to safe work practices
- c. improved safety awareness and compliance with safety rules by all personnel

Response

The need for improvement in the area of industrial safety had been recognized, and several actions had been initiated to accomplish it. These actions included the establishment of a 1983 goal of reducing the number of reportable and lost-time accidents/injuries by 25 percent from the 1982 level and the preparation of a draft Nuclear Corporation Safety Manual, which is now under review by the operating companies. Subsequently, each department in the plant has been assigned specific goals for the reduction of accidents/injuries over the next six months. Progress in meeting these goals will be reviewed by senior management with the appropriate department head on a periodic basis to measure effectiveness and to implement further actions when adequate progress is not being achieved. Training of all supervisors on the contents of the revised Safety Manual and their responsibility for its implementation and the enforcement of safe work practices will be accomplished by September 1983. This will be followed by safety training of all company employees involved in industrial-related functions or who work in an industrial environment. Adequate safety training is already being conducted through the general employee training and retraining programs for those individuals who are not normally associated with industrial work or environments.

Status

The GPU Nuclear Safety and Health Manual has been approved and issued to all GPU Nuclear employees at the plant, including all supervisors. In order for this manual to become the official safety guidelines for bargaining unit personnel (Met-Ed employees), we need the union's acceptance, which can only be obtained through successful negotiations

(OA.5-1 Continued)

and ratification of an agreement containing a provision to adopt the GPU Nuclear Safety and Health Manual. Approximately 30 training sessions have been conducted for supervisory personnel on the contents of the manual, and they have been instructed to use it as the basic guidance in planning and monitoring employee work activities. In January 1984 the Safety and Health section of General Employee Training (GET) was expanded to cover in more detail the Safety and Health programs at TMI. In 1983 a goal to reduce the lost time and reportable accidents by 25% from the level in 1982 was established. An actual reduction of 21% was achieved. For 1984, the TMI-1 goal is to further reduce the number of reportable and lost time accidents by 10% below the 1983 level. In addition, a program was initiated in late 1983 which requires that the individuals involved in a lost time accident, their immediate supervisor, and the on-site Safety Manager meet with the Vice President/Director TMI-1 to review the accident and discuss measures that can be taken to prevent recurrence of similar type accidents.



Finding  
(QA.6-1)

Vendor technical manual content, distribution, and use are not rigorously controlled. Some manuals marked "Controlled Copy" were noted in the plant without evidence of proper control. Some maintenance procedures refer to portions of technical manuals for detailed work instructions even though the referenced portions have not been reviewed for technical adequacy.

Recommendation

Establish improved control of vendor technical manuals to ensure they are complete and current. Ensure that portions of manuals used to control work are technically adequate.

Response

A list of about 60 technical manuals, which were considered to be the most important for plant operation and maintenance, has been selected for priority review and updating, including vendor participation as required. The revised manuals will be issued as "controlled documents" using the normal document control system. This is a long-term project that may take two years to complete. Procedures are in place for the control of these manuals. All manuals that are currently in the plant will be stamped "for information only". As controlled copies from the initial list of 60 manuals are received, additional manuals will be selected for review and upgrading as part of this continuing program. When a manual has been issued as a controlled document, all "information only" copies of that manual will be purged from the plant.

Maintenance Procedure 1407-1, Corrective Maintenance, will be revised by November 1983 to require that an engineering review be conducted of the applicable portions of technical manuals whenever technical manuals are used to control work.

Status

All technical manuals in the plant have had the "Controlled Copy" stamp deleted and have been marked "For Information Only" except for those revised and updated manuals that have been officially received from the Technical Functions Division. These updated manuals are marked "Controlled Copy" and are maintained in the Maintenance Library. As an adjunct to the program already established to upgrade technical manuals on a selected basis, we have in response to the NRC's generic letter on the Salem ATWS event, committed to reviewing and updating all vendor safety related documentation within the next three years. Contracts are scheduled to be in place and work started on this effort by the third quarter of 1984.

Maintenance Procedure 1407-1 had been revised to require Engineering review of "Information Only" technical manuals prior to use. However, QA review identified problems in the implementation of this commitment. The problems basically stemmed from the fact that full and absolute compliance with the commitment would have placed an unrealistic additional

(QA.6-1 Continued)

workload on the Engineering staff at the plant, which consequently would have resulted in a significant impact on productivity with very little, if any, corresponding improvement in the technical adequacy of the manual or the work being performed. We have, therefore, decided to revise the requirements put into Maintenance Procedure 1407-1 to provide definitive criteria under which Engineering review is required. This criteria will also be added to other appropriate procedures, such as those governing preventive maintenance and surveillances, so that standard guidance for use and review of technical manuals will be provided for all situations in which technical manuals will or could be used. The exact criteria is still being developed and will be based on the type of activity the technical manual will be used for; such that plant safety or operability types of information will require Engineering review, whereas use of technical manuals as general information and non-safety related work would not. For example, the Engineering review might not be required when the technical manual is used for a relatively simple disassembly of a component, but would be required for maintenance requiring specific bolt torques, lubrication requirements, tolerances, etc. Efforts to revise procedures and implement this new approach are underway and should be completed by July 1984.

The entire subject of up-to-date and correct technical manuals is a major generic issue facing all utilities that will require a dedicated effort and considerable time to correct. In some cases the original manufacturer of a piece of equipment is no longer in business. Additionally, on occasion, even when a technical representative of a manufacturer is called on site to assist in the repair of a major component, he arrives with a manual admittedly out-of-date because the manufacturer has never updated it. GPUN is aggressively addressing this issue, but the solution of the basic problem as a whole is extremely difficult, and as noted above, will take several years to correct.

Finding  
(OP.2-1)

Shift supervisory personnel need to be more effectively involved in routine operations activities outside the control room. Although supervisory tours are conducted, routine activities of operations personnel are not consistently monitored to ensure conformance with station policies and good operating practices.

Recommendation

Emphasize shift supervisory involvement in routine operations activities outside the control room.

Response

This is considered to be a significant finding and, as such, will receive considerable management attention. As noted, supervisory tours are being conducted, but the supervisors do not consistently and effectively monitor to ensure personnel conform with station policies and good operating practices. The requirements for monitoring plant evolutions, and especially operator/maintenance technician performance and compliance with station policies and good operating practices, have been and will continue to be emphasized to all supervisory personnel, especially the shift supervisors and shift foremen. In addition, the following actions will be taken in response to this finding:

- a. Managers involved in the Off-Shift Tour Program have been instructed to review supervisor involvement in activities in the plant outside the control room. This includes the requirement to actually accompany the shift supervisor, shift foreman, and shift maintenance foreman on their tours of the plant on a periodic basis.
- b. A senior, experienced former SRO-licensed shift supervisor will be assigned and report directly to the Operations and Maintenance Director. His primary responsibility will be to monitor operations and maintenance activities in the plant on a continuing basis. This assignment will be effective by August 1983.
- c. For at least the next one to two years, a degreed engineer, in addition to the STA, will be assigned as a QA operations monitor on a 24-hour shift assignment basis whenever the plant is critical. These monitors will report to the QA manager on site and will be responsible for monitoring and reporting plant operator and maintenance technician performance and adherence to high standards and good operating practices.

(OP.2-1 Continued)

Status

The need for shift supervisory personnel to be more effectively involved in routine operations activities outside the Control Room has and continues to receive considerable management attention. The following specific actions have been taken or are underway to directly or indirectly address this issue:

- a. Managers involved in the Off Shift Tour Program have been instructed to review supervisor involvement in activities in the plant outside the Control Room. On many occasions the manager conducting the Off Shift Tour actually accompanies the Shift Supervisor/Foreman on his rounds of the plant. This requirement was emphasized by the Vice President/Director in writing to all managers and further discussed by him at a Plant Managers Meeting.
- b. A senior, experienced former SRO-licensed Shift Supervisor was assigned directly to the Operations and Maintenance Director with the primary responsibility to monitor operations and maintenance activities on a continuing basis. Unfortunately, due to unplanned personnel changes, this individual was promoted to Radwaste Manager. To fill the gap created by his transfer, licensed SROs are being assigned to the position of Operations and Maintenance Supervisor on a six week rotating basis. The duties of this position will include monitoring operations and maintenance activities on a continuing basis.
- c. A degreed individual, in addition to the STA, has been assigned as a QA operations monitor on a 24-hour shift assignment basis. Our commitment is that this individual will be on shift whenever the plant is critical; however, in practice, the position is being manned on a continual basis even with the plant in the cold shutdown condition.



Finding  
(OP.3-1)

Additional emphasis is needed to improve operator response to equipment alarms, particularly those outside the control room. Equipment is sometimes operated with unresolved local alarms.

Recommendation

Emphasize to operators the need for timely and thorough investigation of equipment alarms. Increase supervisory involvement in shift activities to ensure that alarms on operating equipment are minimized.

Response

All operators will be reinstructed by October 1983 on the absolute requirement for timely and thorough investigation, response, and reporting of equipment and system alarms. Supervisors have also been instructed to re-emphasize the importance of proper alarm response to their operators. Although the above action is needed and will be done on a periodic basis, the real key to solving this finding will be a continuing management emphasis that achieves direct, on-the-spot observation and instruction, as appropriate, by the operators' first-line supervision.

Status

All Shift Supervisors, Foremen and their crews have been instructed on the proper response to alarms. This subject has also been included in the Operator Training Program. The actions taken to improve shift supervisory involvement in routine activities outside the Control Room, as discussed in finding OP.2-1, should also result in improved operator response to alarms outside the Control Room as a result of the additional scrutiny and on the spot management of the plant operators' activities.

Finding (OP.3-2)	Performance of independent verification of valve position needs improvement. The second verification of valve position is sometimes performed by observing the first individual check the valve position rather than performing an independent second check.
Recommendation	Revise current operating practices to ensure that the second valve position verification is accomplished by an independent check.
Response	Guidance to ensure that the second valve position verification is accomplished by an independent check will be included in the next revision to Administrative Procedure 1029, Conduct of Operations. This procedure is currently under review, and the change should be issued by September 1983. To ensure this guidance is understood and is being followed, supervisors will be instructed to monitor selected valve lineup evolutions as part of their plant tours.
Status	A revision to Administrative Procedure 1029, Conduct of Operations, which clearly spells out the requirements for independent verification of valve position has been issued. To ensure operators understand this guidance and are complying with it, follow-on lineup checks are and will continue to be conducted by supervisory personnel for certain safety related systems such as the containment integrity lineup.

Finding (OP.4-1)	Operator and supervisor knowledge need improvement in some areas. Some auxiliary operators could not explain proper operation of the diesel engine support systems. Additionally, some control room operators and supervisors had difficulty discussing electrical distribution controls and using electrical drawings to analyze unusual transients.
Recommendation	Improve supervisor and operator knowledge in the areas identified above. Include these areas in the existing pre-startup training program.
Response	<p>Training in the diesel generator and its auxiliaries will be included in the training cycle for both licensed and non-licensed operators. Practical demonstrations will be included as part of this training. Also, training in electrical diagram and logic drawings will be included in the operator training program. The initial phase of these training modules will be conducted by November 1983.</p> <p>Additionally, a joint review of the training program by the Operations and Training departments will be completed by June 1984 to identify any other general weak areas that are not currently covered by the training program.</p> <p>The Operations Plant Manual, which is currently under development, will provide a significant improvement in ensuring that the operators are provided appropriate information and background for training in important plant systems and equipment. This manual is scheduled to be completed by January 1984.</p>
Status	<p>Training on the diesel generator and its auxiliaries and training in electrical print reading have been conducted.</p> <p>The Operations Plant Manual (9 volumes) has been issued and is about 80% complete. We anticipate that essentially all chapters in the manual will be completed and incorporated into the manual by June 1984. This manual represents a significant improvement in training information/aids for licensed operators, as well as other personnel who require plant systems training.</p> <p>The joint review of the training program by members of the Operations and Training Departments has been completed and a final report issued. The recommendations of the report are under review and those agreed to by management will be incorporated into the operator training programs by the end of 1984.</p>

Finding (OP.5-1)	Some emergency and operating procedures need improvement to enhance their usability. Some cautions follow the action steps to which they apply, and some notes contain procedural steps. It is recognized that extensive effort has been made to improve emergency and operating procedures.
Recommendation	During normal review and revision of plant procedures, identify and correct the type of problems noted above.
Response	Administrative Procedure 1001D will be revised by October 1983 to include the requirement that cautions precede rather than follow the action steps to which they apply and that procedural steps are clearly indicated as part of the procedure and not contained in notes. Current procedures will be reviewed for these conditions and corrections made as appropriate during the required biannual procedure review process. Emergency procedures will be given priority.
Status	Administrative Procedure 1001D has been revised to clearly indicate that cautions precede the action steps to which they apply and that procedural steps are not contained in notes. Current procedures are being reviewed for these conditions, and corrections made as appropriate during the required biannual procedure review process.



Finding  
(MA.1-1)

Control of maintenance activities needs improvement. Maintenance activities are not always formally documented to reflect appropriate review and authorization of changes in work scope. QA requirements, use of procedures and vendor manuals, and post-maintenance test requirements need to be established and documented prior to continuing jobs with changes in work scope.

Recommendation

Improve control of maintenance activities. Ensure that proper review and approval by appropriate managers is documented for extended work scope.

Response

A procedure change to Maintenance Procedure 1407-1 is being prepared to incorporate the guidelines indicated below for reviewing and approving changes in work scope. This change will be implemented by October 1983.

Work done on an item will be limited to that which falls within the boundary of the instructions in the job ticket. Additional maintenance work determined to be needed as a result of troubleshooting or the performance of the authorized work will be controlled by a new job ticket or by addition of the new work to the initial job ticket by the responsible manager or supervisor. In the event a change in work scope is added to the initial job ticket, it will receive review and approval appropriate to the new scope prior to commencement of the work.

Work on the backshifts will be controlled in the same manner, with the exception of emergency maintenance.

Status

Maintenance procedure 1407-1 has been changed to incorporate the guidance and direction indicated in our initial response to this finding.

Finding  
(MA.3-1)

The plant needs to improve the identification and processing of deficiencies for corrective maintenance action. Many valve, flange, and pump deficiencies are not included in the work control system. In addition, some caution tags identify deficiencies that are not included in the work control system.

Recommendation

Develop measures to ensure timely identification and processing of plant deficiencies for corrective maintenance. INPO Good Practice MA-301, "Plant Material Deficiency Identification", could be of assistance in this effort.

Response

By January 1984, a formal system will be established so that all employees, especially Operations Department personnel, can identify material deficiencies and determine if the deficiency is covered by a job ticket or not. For an interim period, a senior, experienced former SRO licensed shift supervisor will be assigned responsibility by August 1983 for monitoring general overall maintenance conditions in the plant and ensuring that material deficiencies are identified and job tickets are prepared as required. He will coordinate efforts between Operations and Maintenance, ensuring that the concerns of the operators are communicated to Maintenance and that appropriate follow-up action is taken.

Status

A program has been established whereby the Manager of Operations is provided a computer printout weekly of all outstanding corrective maintenance job tickets categorized by equipment and system. This computer printout is maintained in the Control Room where it is used to confirm that a job ticket is in the system for deficiencies that are noted by the shift operating crew; or if a job ticket has not been issued for an identified deficiency, one is prepared. This printout provides the shift operating crew an up-to-date status of those deficiencies that have been identified previously and job tickets prepared. The printout has also proven to be very helpful in reducing the number of duplicate job tickets submitted.

Finding  
(MA.9-1)

Improvement is needed in warehousing practices to ensure that the quality of stored items is maintained. Storage requirements, preventive maintenance, and environmental and shelf-life controls are not adequately implemented.

Recommendation

Establish programs that address storage requirements and preventive maintenance for stored equipment and material. Upgrade existing efforts in the area of environmental and shelf-life controls. Ensure these programs include materials in "direct turnover" status.

Response

The vacant position of director of materials management has recently been filled by a highly qualified individual with extensive experience. One of his primary responsibilities is improving warehousing practices at all three GPU nuclear plants. He has initiated development of a long-term master plan with milestone completion dates for achieving these improvements. The plan should be completed by August 1983. The items noted in this finding are all included in the master plan and should be essentially completed and in place by July 1984. Preventive maintenance (PM) requirements, where applicable, for spare parts are currently being incorporated in the Maintenance Department's PM program. This effort should be completed and the PM program for spare parts implemented by October 1983.

Status

A Warehouse Reassessment Master Plan which addresses the concerns in the finding in addition to other needed improvement items has been issued and implemented. This plan integrates all required warehousing improvement items into a total program with milestone events and action items which are checked and tracked on a weekly basis for progress. See subject plan attached hereto.

Finding  
(MA.9-2)

The warehouse spare parts program does not fully support the Maintenance Department. Problem areas include the following:

- a. Some items for critical plant equipment are kept in uncontrolled shop and plant storage areas. Items are issued in standard quantities, and current procedures do not provide for returning unused items to inventory.
- b. Consumables required for the preventive maintenance program are not always available.
- c. Maintenance Department is sometimes not informed when their recommendations for spare parts stocking are revised or disapproved. This sometimes results in inadequate spare parts inventory and causes increased direct purchasing of material and supplies.
- d. Maintenance planners spend the majority of their time in parts procurement activities because of inadequate warehouse inventory, direct purchase activities, and tracking of spare parts inventory requests.

Recommendation

Implement appropriate actions, including those listed below, to strengthen warehouse support of the Maintenance Department.

- a. Upgrade the spare parts issue and return procedures to accommodate returning unused items to inventory. Provide for traceability and storage of usable equipment removed from the plant or equipment obtained by direct purchase.
- b. Revise the spare parts provisioning program to ensure Maintenance Department input in determining items to be stocked and stocking levels.
- c. Improve the timeliness of the review process for spare parts inventory requests.
- d. In conjunction with b and c, consider a weekly status report to maintenance planners on outstanding purchase requisitions and spare parts inventory requests.

Response

Implementation of the recommendations in this finding are included in the master plan for upgrading the warehouse. The specific responses and actions to be carried out with approximate completion dates are indicated below:

- a. The master plan will assess the needed process for return of unused items to inventory and storage. In conjunction with QA and site Maintenance, an appropriate procedure will be established by January 1984.



- b. Coordination with site activities will be expanded to complement the existing PM program for early identification of PM consumable items. This, along with priority procurement action, should be in place and operable by October 1983.
- c. Current procedures (7231-WHP-6480) call for return to the originator of all revisions/disapprovals of spare parts stocking recommendations. Materials Management will take action to ensure full compliance with the existing procedure and coordinate effectively with originators of spare part recommendations.
- d. Full implementation of master plan actions, to be essentially completed by July 1984, should enhance warehouse support to site maintenance. This involves improved identification of inventory requirements and on-line access to status of purchase requisitions, purchase orders, and stores inventory.

Status

A Warehouse Reassessment Master Plan which addresses the concerns in this finding in addition to other needed improvement items has been issued and implemented. This plan integrates all required warehousing improvement items into a total program with milestone events and action items which are checked and tracked on a weekly basis for progress. See subject plan attached hereto.

Finding  
(TS.3-1)

The operating experience review program should be improved. Although some vendor bulletins are currently being addressed, a comprehensive program is not in place to review and process appropriate vendor information.

Recommendation

Modify the program currently being used to process INPO and NRC information, as described in GPU Nuclear procedure No. EP-017, to specifically include vendor information, or develop and implement a separate program to ensure that vendor information is properly reviewed and processed.

Response

A procedure will be developed that will formalize the process of reviewing and tracking action on information provided from vendors. Special attention will be given to the results of the recently completed Salem review in this area. This program will integrate the actions taken by Systems Engineering, Engineering Projects, Plant Maintenance, and Plant Engineering on vendor information received from vendors, will ensure that it receives the appropriate technical review, and will ensure that applicable items are sent to the appropriate department for inclusion in maintenance and operating procedures, design changes, and training, as required. The procedure for this program is scheduled to be implemented by October 1983.

Status

A revision has been made to Technical Functions' Procedure EP-017 which formalizes the review and implementation of vendor technical information.

Finding  
(TS.4-1)

Some temporary modifications are installed on operating systems without a technical design review. Procedure AP 1013 for electrical jumpers, lifted leads, and mechanical bypasses requires only a limited safety evaluation. It does not require technical design reviews similar to those performed for permanent modifications.

Recommendation

Conduct technical design reviews of electrical jumpers, lifted leads, and mechanical bypasses currently in place on operating systems. Implement controls to ensure technical design reviews are performed on future temporary modifications prior to placing modified systems in service.

Response

A design review by Plant Engineering of electrical jumpers, lifted leads, and mechanical bypasses currently in place will be conducted prior to restart. The procedure for installation of these devices will be modified by October 1983 to require the review and concurrence of Plant Engineering (an engineer in the applicable discipline) for all electrical jumpers, lifted leads, and mechanical bypasses that are not already specifically approved by plant procedures prior to making these temporary modifications to in-service systems.

Status .

A safety evaluation/design review has been performed by Plant Engineering of all electrical jumpers, lifted leads, and mechanical bypasses currently in place for greater than one year. Plant Engineering has reviewed all electrical jumpers, lifted leads and mechanical bypasses in place less than a year to determine which ones have to be removed prior to startup. For those that will remain, a safety evaluation/design review will be completed prior to startup. Many of these have already been completed. Procedure AP-1013 has been changed to require the review and concurrence of Plant Engineering (an engineer in the applicable discipline) for all electrical jumpers, lifted leads and mechanical bypasses that are not already specifically approved by plant procedures prior to making these temporary modifications to in-service systems.

Finding  
(TS.4-2)

The review of plant modification designs needs improvement. Plant personnel do not always perform operability and maintainability reviews. Designers sometimes fail to identify physical obstructions and structural restrictions.

Recommendation

Ensure that plant modification designs are reviewed for operability and maintainability. Increase involvement of Operations and Maintenance personnel in the reviews. Ensure that reviews include plant walkdowns by designers prior to construction.

Response

Constructibility reviews have been held on TMI-1 modifications over the past year. A revision to Procedure EMP-014 was in progress at the time this finding was issued. The revision specifically calls for operability/maintainability/constructibility reviews of the modification design when the engineering is at or near the 80 percent completion stage. The operability/maintainability/constructibility review meeting is designed as a multidisciplinary meeting held at the plant. The review is scheduled such that there is sufficient design material available to scope out the design change, but is early enough to permit changes in the design, if necessary. EMP-014 will require an examination of the detailed design for operability and maintainability by plant personnel and a walkdown by the design engineers prior to issuing the modifications for construction.

The revision to EMP-014 is scheduled for issue by August 1983.

Status

The revision to procedure EMP-014 incorporating the commitments in our original response has been issued.



Finding (TS.5-1)	Formal controls need to be established for software development and revision on the computer used by the nuclear engineer. This computer is used for important reactor physics calculations in support of plant operation.
Recommendation	Develop administrative controls for software development and revision.
Response	The need for more formally controlling the development, revision, and use of computer software has been previously identified by Plant Engineering and listed as a Nuclear Engineering goal. A Plant Engineering Procedure, PEP-5, will be issued that incorporates the guidance in Technical Functions Procedure EP-007, "Standard Computer Program Controls". This will reflect current practices in software control and provide written guidance to help ensure that new programs and revisions continue to be handled in an appropriate manner. This procedure will be implemented by December 1983.
Status	A Plant Engineering Procedure PEP-5, Plant Engineering Computer Software Control, has been approved and issued. This procedure addresses current practices in software control and provides written guidance to help ensure that new programs and revisions are handled in the appropriate manner.

Finding  
(TS.6-1)

Improvements are needed in the plant performance monitoring program. Some instrumentation used for data collection is not included in the surveillance or preventive maintenance calibration programs. The responsibility for performing data analysis is not clearly defined. Important system or component degradation may not be readily detected due to the time delay between data collection and transmittal for analysis.

Recommendation

Include instrumentation used for plant performance monitoring data collection in a routine calibration program. Establish clear responsibilities for data analysis. Consider increasing the frequency of data transmittal for analysis to ensure system or component trends do not go undetected.

Response

The following actions are planned to address the finding:

- a. Instrumentation used for the Plant Thermal Performance Monitoring Program will be added to the Preventive Maintenance Calibration Program by October 1983.
- b. The responsibility for data analysis lies within the Technical Functions Division. Further delineation of responsibilities within Technical Functions is needed. The Formal Description (Engineering Standard) of the program will be completed by October 1983 and will specify the responsibilities of the Plant Analysis Section, both on site and at Headquarters and of other Technical Functions sections.
- c. The intent of the Plant Performance Monitoring Program is to detect changes in plant or equipment performance that are slowly developing in nature. Plant degradations that are rapid in nature would be detected by normal Operations Department watchstanding practices, by STA monitoring, and through the use of plant annunciator and computer-based alarm systems. In addition, Operations engineers perform a daily review of plant operating logs.

Plant data are analyzed on a monthly basis. This frequency ensures the availability of sufficient data to clearly define a trend. This frequency is supported by one year's experience gained through conduct of a performance monitoring program at GPU's Oyster Creek Nuclear Generating Station.

The Plant Analysis Section will require the Plant Performance Monitoring Program to identify desired program enhancements on a refueling cycle interval based on actual TMI-1 experience. The frequency of data analysis will be included as part of the cyclic review.

(TS.6-1 Continued)

Status

Instrumentation used for the Plant Performance Monitoring Program has been identified to the plant by the Technical Functions Division and included in the Preventive Maintenance Program. A Technical Data Report documenting methods and responsibilities for producing the TMI-1 Plant Performance Report will be issued by April 1984.

Finding  
(TQ.3-1)

Improvements are needed in the on-the-job training (OJT) program for licensed operators. Although good OJT study guides exist for some major plant evolutions covered by procedures, additional study guides should be developed to identify the actions, knowledge, and skill requirements for each OJT task or checkout.

Recommendation

Develop guidelines for actions, knowledge, and skills required for successful completion of each OJT task or checkout. INPO Good Practice TQ-501, "Development and Implementation of On-the-Job Training Programs", may be of assistance in this effort.

Response

A special review team consisting of licensed operators and personnel from the Training Department has been established to review the entire operator training program. Improvement of OJT guidelines and procedures is a specific area being reviewed by the team. TQ-501 is being used as a guideline in performing this review. The results of this review are expected to be available in August 1983. The target date for issuance of revised guidelines for OJT checkouts is January 1984.

Status

The Replacement Operator Training Program has been revised and is in the final stages of management approval. It includes guidelines for actions, knowledge, and skills required for successful completion of each OJT task or checkout. The recommendations of the Operator Training Review Team (discussed in our initial response) were included in the revised OJT guidelines. The Review Team recommended that some additional OJT requirements be added and that redundant requirements be deleted. INPO Good Practice TQ-501 was also used in developing the new OJT guidelines. The revised Replacement Operator Training Program has been implemented for the Replacement CRO class which commenced in February.



Finding  
(TQ.5-1)

Mechanical, electrical, instrument, and utility maintenance personnel need initial training in basic maintenance fundamentals or plant systems prior to job assignment in the plant.

Recommendation

Provide systems overview and maintenance fundamentals training to all personnel prior to their assignment to in-plant maintenance duties. Evaluate the existing skills and knowledge of experienced personnel entering the maintenance force, and provide initial training as necessary. INPO documents "Guidelines for Mechanical Maintenance Personnel Qualification" (GPG-05), "Guidelines for Electrical Maintenance Personnel Qualification" (GPG-07), and "Guidelines for Instrument and Control Technician Qualification" (GPG-08) could be of assistance in this effort.

Response

A program will be developed by January 1984 to provide training in generic maintenance fundamentals, basic plant systems, and administrative requirements to newly hired utility personnel prior to independent job assignment in the plant. Craft-specific training will be provided when an individual advances from the utility classification to a craft (mechanical, electrical, instrument) classification. Provisions will be included to allow personnel with prior training and experience to be exempt from portions of the program based on demonstrated knowledge level and performance.

A program for plant familiarization and procedural training for those individuals who are hired directly into a higher classification will be developed and implemented by January 1984. In addition, the knowledge and skills of such individuals will be evaluated to determine if any remedial training in maintenance fundamentals or craft skills is needed, and such training will be accomplished prior to independent job assignment in the plant.

Status

An indoctrination program has been developed that will be given to all entry level and selected other I&C, Electrical, Mechanical and Utility employees upon initial assignment to the Maintenance Department. This program is 10 days in length. The first class commenced in March 1984 and included as a minimum the following topics:

- Blueprint Reading
- Schematics and Symbols
- Shop Math
- Measurements
- Hand Tools and Portable Power Tools
- Procedures

(TQ.5-1 Continued)

Cranes and Rigging  
Safety (Fall Protection, Hard Hats, Scaffolds, Ladders,  
etc.)  
Primary Systems Overview  
Secondary Systems Overview  
Electrical Systems Overview  
First Aid

Craft-specific training for an individual who advances from the Utility classification to a specific craft (Mechanical, Electrical, Instrument) classification will be included in the QJT program which is being developed and will be implemented in August 1984 (See TQ.5-2).

Finding  
(TQ.5-2)

OJT for mechanical, electrical, and utility maintenance personnel needs improvement. OJT tasks and checkouts have not been established to ensure that these personnel are appropriately trained or evaluated in required skills and knowledge.

Recommendation

Develop and implement a more structured OJT program incorporating the following:

- a. identification of tasks to be performed, simulated, or discussed
- b. identification of individuals or classifications of individuals qualified and responsible for conducting OJT
- c. skill and knowledge required for each identified task to be performed, simulated, or discussed
- d. identification of individuals or classifications of individuals qualified and responsible for conducting final checkouts
- e. assurance that individuals have demonstrated competency in specified tasks prior to job assignment

The existing minor maintenance qualification sheets, which document competency on selected minor maintenance tasks, could be expanded to document completion of OJT. INPO Good Practice TQ-501, "Development and Implementation of On-the-Job Training Programs", could be of assistance in this effort.

Response

A more formal and structured OJT program for mechanical, electrical and utility maintenance personnel will be developed and implemented by August 1984. This program will include the recommendations listed above.

Status

A schedule has been promulgated and actively pursued to develop and implement a more structured and formal OJT program for mechanical, electrical and utility maintenance personnel. By August 1, 1984, we expect the program to be fully developed and initial implementation started.

Finding  
(TQ.9-1)

Improvements are needed in the study and reference material available for use in systems training. Existing system descriptions are out of date. The plant is aware of this situation, and an Operations Plant Manual is being written to provide updated system descriptions.

Recommendation

Complete the development of the Operations Plant Manual. Implement a process to ensure that the newly developed material will be kept updated to reflect system modifications.

Response

The Operations Plant Manual is scheduled to be completed by January 1984. A specific individual has been assigned as coordinator for this manual, with an individual "owner" assigned to each section. It will be the owner's responsibility to review periodically and update his/her section of the manual in accordance with a specific schedule. Individuals using the manual can recommend changes, as appropriate, by simply contacting the owner of the section involved. Updates required due to modifications to plant equipment/systems will be formally controlled through Administrative Procedure 1043, Control of Plant Modifications.

Status

As noted in Finding OP.4-1, the Operations Plant Manual (9 volumes) has been issued and is about 80% complete. We anticipate that essentially all chapters in the manual will be completed and incorporated into the manual by June 1984. A system is in place to keep the manual updated to reflect modifications made to the plant.



Finding  
(RP.1-1)

The criteria used for extending radiation work permits (RWP) is not sufficiently defined. Most routine RWPs are extended for seven days without a requirement to resurvey areas on a routine basis to ensure that radiological conditions have not changed.

Recommendation

Provide additional guidance in the RWP procedure on extending RWPs. Establish resurvey requirements for extended RWPs.

Response

The RWP procedure is being revised to include criteria for extending RWPs and the requirement to resurvey extended RWP work areas at least every 72 hours. Additionally, the procedure revision will require that copies of extended RWPs be placed at a discrete location for daily foreman review. The revision to this procedure will be implemented by October 1983.

Status

The actions necessary to correct this finding are considered complete. The RWP procedure (RCP 1613) has been revised such that RWP's are normally written for a 24 hour period. Specific supervisory review and approval is required to extend the use of these RWP's. In no case are RWP's allowed to be in effect greater than 7 days. On a daily basis all RWP's worked are evaluated by supervisory personnel relative to the need for further radiological evaluations.

Finding  
(RP.4-1)

The station ALARA program has not been fully implemented. Additional items needing implementation are as follows:

- a. man-rem estimates and exposure goals for specific jobs
- b. man-rem action levels requiring post-job reviews

Recommendation

Complete implementation of the station ALARA program by addressing the areas noted above.

Response

The following actions are planned to address the finding:

- a. Radiological Controls will expand efforts to establish man-rem estimates and goals for specific low level exposure work. This will be accomplished through increased use of the man-rem estimate section of the RWP and/or ALARA reviews, coupled with implementation of an Exposure Tracking Number (ETN) system. This effort is expected to be completed by November 1983.
- b. The ALARA procedure will be revised to include guidelines for determining when a post-job review is required. The revision to this procedure should be implemented by November 1983.

Status

The actions necessary to correct this finding are currently being implemented. A major revision to the ALARA procedure (RCP 1651) has been submitted which incorporates the ALARA review and person-rem estimating of all radiological tasks expected to expend greater than .5 person-rem. The procedure change also establishes post job review criteria based upon deviation from estimated to actual person-rem and total dose expenditure. ETN numbers are currently being assigned to all Unit 1 RWP's which undergo specific ALARA review. ETN numbers will be assigned to all RWP's generated following the installation of the complete ETN library and completion of appropriate technician training. The completion date of this item is projected to be April 30, 1984.

Finding  
(RP.8-1)

The quality control program for the new thermoluminescent dosimeter (TLD) system does not include spiked TLDs whose identity is unknown to personnel performing the analysis.

Recommendation

Expand the existing dosimetry quality control program to include spiked TLDs whose identity is unknown to personnel performing the analysis. Develop acceptance criteria for the accuracy of these dosimeter results, and evaluate cases where acceptance criteria are not met.

Response

The existing TLD quality control program will be expanded to include use of spiked TLDs, whose identity is unknown to personnel performing the analysis, on a periodic basis in addition to the use of known spiked TLDs as is presently done. Acceptance criteria for dosimeter results will be established that include appropriate evaluation and action when the acceptance criteria are not met. These actions will be completed by November 1983.

Status

A dosimetry procedure is being written to formalize the existing Panasonic QA/QC Program, which will meet the requirements of the National Bureau of Standards Laboratory Accreditation Program for Personnel Dosimetry Processors. This dosimetry procedure will be completed by May 31, 1984. In the interim, the blind spike program previously used for the Harshaw System will continue to be used for the Panasonic TLDs. This test achieves the QA/QC criteria required for a blind spike program.

Finding  
(RP.8-2)

Improvements are needed in the self-reading pocket dosimeter (SRPD) program. The following areas need improvement:

- a. the identification of faulty SRPDs when there are unfavorable comparisons with TLDs
- b. the criteria for investigating the results of comparisons between TLDs and SRPDs
- c. the cause of the high percentage of SRPDs that fail the calibration check

Recommendation

Revise the SRPD program to include the following:

- a. Issue SRPDs to workers by serial number. Perform calibration checks on SRPDs when unfavorable comparisons with TLDs occur.
- b. Lower the threshold and acceptable deviation percentage values for SRPD and TLD comparison.
- c. Establish operating histories for SRPDs and remove problem dosimeters.

INPO Good Practice EPN-03, "Comparison of Dosimetry Results", could be of assistance in this effort.

Response

The following actions will be taken to address the finding:

- a. By November 1983, SRPD issue by serial number will be examined, and implementation of this program will be made if it is determined to be efficient and useful.
- b. The existing criteria for SRPD/TLD comparisons will be examined by November 1983, and necessary corrective action will be initiated.
- c. The performance test failure rate of SRPDs will be reviewed on a periodic basis and corrective actions taken as necessary.

Status

The issue of direct-reading pocket dosimeters (DRPDs) by serial number to individuals was examined for feasibility. Based on a preliminary evaluation and review completed in December 1983, the following actions are being taken:

On a trial basis DRPDs were permanently assigned by serial number to Radiological Controls Field Operations personnel in TMI-1 and TMI-2 for two months on March 1, 1984. Also, DRPDs were permanently assigned by serial



(RP. 8-2 Continued)

number to individuals working on the TMI-1 reactor coolant pump. The administrative and technical problems encountered during the above trials will be assessed to determine the feasibility of permanently assigning DRPDs to other individuals. The DRPD/TLD ratios noted during the above trials will be evaluated to assess the impact of and need for changing our current comparative criteria.

Finding  
(CY.1-1)

Supervision of chemistry technicians needs strengthening. The chemistry foreman assigned to supervise chemistry technicians is also performing other responsibilities that require significant amounts of time and limit his attention to laboratory activities. As a result, chemistry technician activities are not always prioritized or monitored for optimum use of technician time.

Recommendation

Initiate appropriate actions to improve supervision of chemistry technicians.

Response

The ability to provide additional supervision of technician activities has been strengthened by the following actions:

- a. Additional clerical support has been assigned to assist the chemistry foreman responsible for technician activities.
- b. An additional chemistry professional was hired to provide technical support for laboratory activities, including procedure review and preparation, and instrument installation, calibration, and troubleshooting. The foreman previously responsible for this work will be able to devote more time to technician supervision.
- c. An additional foreman on temporary assignment from the Training Department will provide additional supervision throughout the restart program until one additional chemistry supervisor is hired.
- d. The assignment of additional first-level supervisors is under consideration.

Status

The addition of another first-level supervisor (Chemistry Foreman) is currently being actively considered to provide additional control of technician activities and to support the transfer of effluent analyses from Radiological Controls to Plant Chemistry.

The actions taken as described in our initial response have allowed the Chemistry Foreman to spend approximately 50% more time in the laboratory supervising the technicians. The additional clerical support provided resulted in considerably less administrative effort required of the foreman, and the addition of a professional chemist relieved the foreman of special project work and Operations Department interface duties. The additional foreman who was on temporary assignment from the Training Department is no longer supporting the Plant Chemistry Department.

Finding  
(CY.1-2)

Coordination of activities between on-site and off-site Chemistry Departments needs strengthening. For example, the preparation and approval process for station chemistry procedures is not always timely and sometimes results in procedures that are unnecessarily complex. Also, the installation and calibration of new analytical equipment are not always timely.

Recommendation

Improve the coordination of activities between the on-site and off-site Chemistry Departments including addressing the items noted above.

Response

GPU Nuclear Corporation will continue to refine the chemistry assignment matrix so that the responsibilities of all affected parties, both on-site and off-site, are clearly defined and understood. A monthly chemistry management meeting is being conducted at which major problems and interface difficulties are discussed and resolved. This meeting will also be used to focus attention on and establish priorities for the support needs of the plant to meet the chemistry upgrade program schedule. The procedure review process will be shortened by issuing drafts for review, and then calling all responsible reviewers to the site to witness procedure performance and provide final concurrence.

Status

The coordination in the chemistry area between on-site and off-site parties has improved considerably. Responsibilities of all affected parties are reasonably well defined and better understood now that we have had ample time to use and exercise the responsibility matrix. The extensive procedure rewrite program that was on-going in May 1983 has been completed, so we are now using our normal procedure review process which is adequate for the present volume of new procedures and procedure changes generated. Monthly meetings, as well as daily communications, between Plant Chemistry and Technical Functions are still being conducted to ensure close coordination and definition of responsibilities between the two organizations. These meetings and communications are also used to identify emergent actions and assign priorities.

Finding (CY.2-1)	Chemistry technicians need additional training in fundamental water chemistry and plant systems knowledge.
Recommendation	Assess the knowledge level of individual technicians in the areas noted in the finding, and develop a training program to correct identified deficiencies.
Response	The chemistry technicians knowledge level in the area of fundamental water chemistry and plant systems will be assessed by written and oral examination by October 1983. Deficiencies in knowledge will be corrected through training provided by the training modules already developed. Experienced technicians with demonstrated knowledge level and practical ability will be reassigned to shift coverage to better utilize their level of knowledge and to conduct QJT for the new technicians. A schedule for training chemistry technicians to improve deficiencies identified by testing will be provided by December 1983.
Status	In the last quarter of 1983, all "A" Chemistry Technicians were requalified in accordance with the TMI-1 Plant Chemistry Procedure for technician qualification (N1836). Requalification consisted of (1) a written examination (including questions on Technical Specifications, plant design and processes and chemistry and radiochemistry analyses), (2) an oral examination on selected plant systems (including a walk around) and (3) the performance of each analytical procedure by each technician in the presence of a chemistry supervisor. As a result of the requalification program, it was noted that no significant difference existed between the knowledge level of the experienced (operating plant) and the newer technicians. The reassignment of technicians to provide a better distribution of experienced technicians was, therefore, not considered to be necessary. Two experienced technicians are currently assigned to daylight only shifts to provide greater support for new equipment (Ion Chromatograph, Total Organic Carbon Analyzer and Graphite Furnace) and radiochemistry counting. The results of the written examination have been analyzed and a training schedule has been established to upgrade technician knowledge in areas of demonstrated weakness. The training will be provided as part of the cyclic training program.



Finding  
(CY.4-1)

Laboratory work areas are not always maintained in accordance with good housekeeping practices. Work areas were dusty, and countertops were cluttered.

Recommendation

Provide more emphasis on laboratory housekeeping practices. The chemistry laboratories should be kept clean and uncluttered to provide an atmosphere that promotes optimum analytical accuracy.

Response

More emphasis is being placed on laboratory housekeeping practices. The importance of good housekeeping practices has been reemphasized to all Chemistry Department personnel. Chemistry Department managers/supervisors have been instructed to monitor housekeeping practices on a continuing basis and to immediately take appropriate corrective actions when housekeeping is found to be deteriorating. Monitoring of the laboratory since the evaluation has not identified housekeeping as a continuing problem. Dust in the laboratory is due to an inadequate ventilation system filter. An engineering project to investigate ventilation system inadequacies will be initiated in 1984.

Status

As noted in the initial response, continued emphasis is being placed on good laboratory housekeeping practices. However, due to the limited space available in the laboratories and the need to locate the numerous new "state of the art" equipments that have been purchased recently, the countertop space available to the technicians is severely limited. This limited work space gives the laboratories the appearance of being cluttered. A major expansion of the chemistry laboratories is the only real solution to this problem. This will be evaluated, but in reality may not be feasible in the short term or desirable due to overall space limitations and time/cost considerations.

A Technical Functions Work Request has been submitted to review the primary and secondary laboratory ventilation and environmental control systems and to design necessary modifications to reduce contaminants (dust) from the air and provide better temperature control.

Finding  
(CY.5-1)

Safety practices associated with chemistry activities need improvement. Eating, drinking, and smoking were observed in the secondary laboratory where poisonous chemicals are stored and handled. In addition, safety equipment is not always used or accessible.

Recommendation

Place more attention on chemistry and laboratory safety practices. Eating, drinking, and smoking should not be allowed in the secondary laboratory. Keep the areas around safety equipment such as eye wash fountains and emergency showers clear so that emergency access to these facilities will not be affected. Ensure that technicians wear proper eye protection while working in the laboratory.

Response

All chemistry managers/supervisors have been instructed to be alert to initiate immediate corrective actions for laboratory safety deficiencies and unsafe practices. Obstructions to field safety equipment, as noted during the evaluation, have been removed.

There currently is not adequate space available for a separate eating, drinking, and smoking area in the close vicinity of the secondary laboratory. As an interim measure, a specific location will be established within the laboratory where the technicians will be permitted to eat, drink, and smoke. Chemistry analyses will not be performed in this area. As a long-term solution, a project is currently being evaluated for inclusion in the 1984 capital budget that will modify the rad con/chemistry work areas and provide a space that will be adequate for both radiation technicians and chemistry technicians to eat, drink, and smoke.

Status

All eating, drinking, and smoking in the secondary laboratory has been stopped. An alternate facility near the laboratory has been provided for these purposes. Chemistry managers and supervisors are reminded on a periodic basis to be alert for laboratory safety deficiencies and unsafe practices and to initiate immediate corrective actions as appropriate.

SUMMARY OF OUTSTANDING RESPONSE ACTION FROM PREVIOUS EVALUATION (1981)

Finding (OA.3-1)	Written qualification requirements are current for supervisory and technical positions. For positions below first-line supervisors, the qualification requirements need updating.
Recommendation	Update and maintain current job specifications for appropriate positions below first-line supervisors. INPO is coordinating an industry-wide job analysis project for certain operator, maintenance, and technician positions. GPU may wish to utilize the results in defining qualification requirements for applicable TMI positions.
Response	GPU has been involved with EEI efforts on validation of job requirements for power plant personnel. GPU will be using that effort and the referenced INPO-led effort in the development of new job specifications for nonexempt personnel. The revised job specifications and a procedure to maintain these current are scheduled to be completed by December 1982.
Status (May 1983)	Supervisory and non-supervisory exempt job specifications have been updated, and a program is in place to continue updating as changes occur. Action for exempt positions is considered complete. The nonexempt position specifications are subject to union negotiation and have not been approved. However, since a new union contract was recently signed, the negotiation and approval of these position specifications are expected to be completed in the near future.
Current Status (March 1984)	<p>Most of the critical non-exempt job specifications have been rewritten and negotiated with the union since this finding was originally written. We have in place updated specifications for Rad Con Technicians, Chemistry Technicians, I&amp;C Technicians, and Operations Technicians. We still need to negotiate new job specifications with the union for Mechanical and Electrical Maintenance Technicians and upgrade mode of progression requirements for Auxiliary Operators to incorporate requalification requirements. These efforts are included in the TMI-1 Division's 1984 Goals. Formal union negotiations are not scheduled until 1985 to coincide with the expiration of the current agreement, and our progress on these items will depend on the union's willingness to discuss these items outside of formal negotiations.</p> <p>The required action to update supervisory and non-supervisory exempt job specifications is complete.</p>

Finding  
(TS.4-1)

Plant operators are not able readily to determine some system configurations with available drawings. The current system of revising drawings and maintaining accurate information in the control room is adequate. However, systems that were modified prior to the new drawing control procedure have not had their drawings updated. In order to correct this problem, GPU has initiated a program to update these drawings prior to plant startup.

Recommendation

The program to update drawings used by operators should be continued to completion.

Response

GPU will have baseline engineering drawings essential for plant operations updated and in the control room prior to restart. Review of all old modification packages, which predated the new control procedures, to ensure that previous modifications are properly reflected on the drawings will be completed by the end of 1982.

Status  
(May 1983)

Efforts are progressing to update drawings for 237 modifications processed under the old change modification program. Currently, 193 of the modifications have been installed, 156 walked down by design drafting, and 44 have not been installed. Drawings for all 193 modifications installed will be updated by the time of restart. Drawings for modifications to be installed under this program in the future will be revised as the modifications are installed. This item should be completed by restart.

Current Status  
(March 1984)

Drawings for all 193 modifications have now been updated. Drawings for future modifications will be revised as the modifications are installed.



Finding  
(TS.4-2)

Improved controls are needed to ensure piping system mechanical stresses are not changed without appropriate engineering review. The use of lead blankets around system pipes for shielding purposes should receive a technical review prior to each installation. An evaluation is in progress by GPU Technical Functions personnel to determine the effects on systems that currently have add-on lead shielding in place.

Recommendation

Complete the engineering evaluation of lead blankets currently in place and develop a program or guidelines to control the future placement of temporary shielding on plant piping systems and equipment.

Response

This problem had been identified by the plant staff earlier this year and engineering guidelines are being developed to control the placement of lead shielding on or in the vicinity of piping systems and equipment. These guidelines will be implemented by April 1, 1982. To correct the immediate problem, a radiation survey of the areas where lead blankets were installed was conducted. As a result, a large amount of the temporary shielding was removed due to reduced radiation levels because of the long period the plant has been shutdown. An engineering evaluation of lead blankets still installed will be completed and appropriate modifications made before restart of the unit.

Status  
(May 1983)

Some temporary lead shielding is still in place on plant systems. Most of this shielding will be removed by restart. An engineering evaluation will be made of the remaining temporary shielding to justify continued use. A procedure has been drafted and is scheduled to be issued by restart. The draft procedure appears to provide the necessary guidance and to require appropriate reviews to control future use of lead shielding.

Current Status  
(March 1984)

An engineering evaluation of all temporary lead shielding in place on plant systems has been conducted. This evaluation determined that much of the temporary shielding must be removed prior to restart. This has been accomplished for the most part, however some shielding has been intentionally left in place and will not be removed until just before restart. This shielding is clearly identified and tracked in the Master Restart Prerequisite List to ensure it is, in fact, removed prior to restart. A procedure has been issued to control the use of temporary lead shielding on plant systems in the future.

Finding (TQ.2-1)	A training program for middle-level managers in plant systems and technology is needed. Currently, such courses exist for individuals at the operator/technician level and at the senior management level. However, individuals in positions between these levels receive no such training.
Recommendation	Provide plant systems and technology training to middle-level managers. Existing programs for personnel at operator/technician levels and/or senior management levels could be utilized in this effort.
Response	GPU agrees that a formal training program for middle-level managers in plant systems and technology is needed. A specific course on pressurized water reactor (PWR) systems and technology is under development and is scheduled to be available in July 1982. Attendance at this course, or portions thereof, will be determined on an individual basis taking into consideration the background, work assignments, and professional development objectives of the individual employee.
Status (May 1983)	A course in plant systems and technology has been implemented for corporate and site managers. When this initial course is completed in the fall of 1983, it will be modified based on feedback from attendees and an assessment of the needs of middle management. The modified course is expected to be in place and offered to managers by December 1983.
Current Status (March 1984)	The course in plant systems and technology for corporate and site engineers was given to those selected to attend by responsible managers in 1983. The response to this course by those attending was very positive. A course has been developed for middle-level managers. This course was prepared using a combination of the material presented previously to senior managers and that presented in the plant systems and technology course for engineers. The availability and contents of this course will be made known to senior management, and it will be presented when the number of requests for individuals to attend submitted by senior management so dictate. It is already planned to conduct this course for selected managers, including some directors, from the Technical Functions Division later this year.

SOER STATUS

Per your request, the status of each recommendation listed in the "pending - awaiting decision" or "pending - awaiting implementation" is indicated below:

PENDING - AWAITING DECISION

<u>SOER Number</u>	<u>Recommendation Number(s)</u>	<u>Status</u>
81-6	2	Pending
81-8	1, 4	Pending
81-15	1a, 1b	Pending
81-16	1, 3	Complete
82-7	1, 2	Pending
82-10	1, 2, 3, 4, 5, 6, 7	Complete
82-11	5	Complete
82-12	1	Pending
82-13	1, 3, 6, 7	Pending
	2, 8, 10	Complete
82-15	1, 4	Complete
82-16	1	Complete
83-1	1, 2, 3, 6, 7, 10, 11, 12	Complete
83-8*	1 - 10, 12	Complete
	11	Pending

\* Red Tab

PENDING - AWAITING IMPLEMENTATION

<u>SOER Number</u>	<u>Recommendation Number(s)</u>	<u>Status</u>
81-5	4	Pending
81-6	1, 1a	Pending
81-10	1	Pending
81-15	2c	Complete
82-8	1	Pending

PENDING - AWAITING IMPLEMENTATION (CONTINUED)

<u>SOER Number</u>	<u>Recommendation Number(s)</u>	<u>Status</u>
82-11	1, 2, 4	Complete
	3	Pending
82-13	5, 9, 11	Pending
	12, 13	Complete
82-15	1, 3	Pending
83-1	11	Pending
	9, 13, 14	Complete

Subject: Revision 4 to TMI Warehouse  
Reassessment Program

Date: March 1, 1984

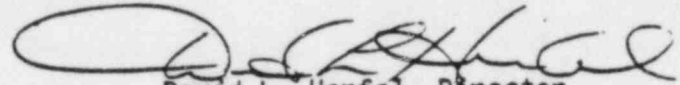
From: Director, Materials Management

Location: Parsippany (CHB)

6:10 AM MAR 6 1984

To: R.P. Fasulo

The attached Master Plan for the TMI Warehouse has been updated to show current status and most current revisions.



David L. Herfel, Director  
Materials Management

DLH:rh  
cc: R. Kazebee  
P. Shea



TMI REASSESSMENT PLAN

MASTER PLAN

January 28, 1984

(Revision 4 Dated January 24, 1984)

Revision 4 Dated February 24, 1984

Content and Justification For Revisions

- Rev. 4.1  
(F-3) Events F-1 and F-2, which are precursors to Event F-3 have been completed; however, inadequate user feedback has resulted in an impasse relative to updating and refining SL/PM requirements (F-3). This issue is currently under Senior Management review. IMPACT: Until adequate user support and input is obtained, complete implementation of this event will be deliberate. As a result, inventoried DTO items may not have end-use integrity.
- Rev. 4.2  
(F-5,F-6) These events are tied to F-3. See Rev. 4.1.
- Rev. 4.3  
(G-5,6,7) Manning assigned to this event has been diverted to manage our efforts relative to DTO, particularly at Oyster Creek, the unusually high volume of DTO at Oyster Creek (\$10M at O.C., \$600K at TMI) has necessitated a rescheduling of these events. IMPACT: These events will slip 2-3 weeks which will not significantly affect level of storage efforts.
- Rev. 4.4  
(I-3.A-F) Technical problems associated with prototyping, in Reading, will cause slippage in successive tasks necessary to complete CRT Order Entry. Tasks A-F have been rescheduled for completion as follows:  
A - 3/19/84; B - 3/26/84; C - 3/19/84; D - 4/2/84;  
E - 4/9/84; F - 4/9/84  
IMPACT: Since the Remote Order Entry/Delivery System is operational, the impact of this delay will be minimal and will not compromise the intent of Event I.
- Rev. 4.5  
(J-4,J-5) This effort was slowed down due to the time required to reach an agreement with various parties (M&C, Bechtel, Plant Maintenance) on how best the system should operate. IMPACT: A two month slippage will result, however, no significant or adverse results will occur relative to overall objectives.

Revision 3 Dated January 6, 1984

Content and Justification For Revisions

- Rev. 3.1  
(F-5 - F-7) One month slippage due to slip in F-2; Slippage in F-2 was due to problems encountered with the conversion of data from Wang to the main frame computer.  
IMPACT: This slippage will not significantly affect direct turnover efforts.
- Rev. 3.2  
Added 9(a) 9(a) Publish "For Sale" list was added. Scheduled completion date is 3/5/84.  
IMPACT: None
- Rev. 3.3  
(H-3 - H-7) Engineering (see attached memorandum from J. Colitz, dated 11/15/83) has suspended efforts until additional justification is provided to warrant continued effort. P. Shea will meet with J. Colitz during the week of 1/9/84 to resolve.  
IMPACT: In the absence of technical support continuation and completion of this effort is dubious. I will follow this event closely and, if appropriate, seek higher level resolution.

Revision 2 Dated November 23, 1983

Content And Justification For Revisions

Rev. 2.1      Technical problems were encountered with the conversion of  
(F-2)      data from Wang to the main-frame computer. Completion date  
will slip to 12/5/83.

IMPACT: The resultant slippage will not have any significant effects on direct turnover efforts.

Rev. 2.2      Statement of Intent was completed 11/21/83 as a result of the  
(I-1&I-8)      addition of events I-10 through I-12 which required reprioritizing remote order entry/delivery requirements. A determination has been made as to phone system requirements (I-8) and efforts are underway to purchase a system; however, slippage in I-1 has resulted in slippage of I-8.

IMPACT: NONE - Event I-12 has been implemented (11/3/83) to nullify slippage in I-1 & I-8.

Rev. 2.3      Evaluate phone system. Efforts are underway to purchase a  
(I-9)      phone recording system and install. Some slippage will result since funds must be reallocated (expense to capital). Once the order is issued more definitive dates for completion will be known.

IMPACT: NONE (See impact statement for Rev. 2.2)

Revision 1 Dated November 2, 1983

Content And Justification For Revisions

Rev. 1.1  
(E-3)

The start date for training with Purchasing and development of the hot list was delayed with the hiring of a warehouse coordinator; the warehouse coordinator was on-board 10/31/83. Start date slipped to week of 10/31/83.

Impact: None



# TMI WAREHOUSING PROJECT PLAN

Event A: Consolidation of Warehousing  
Event B: Warehouse 1 Issue Point  
Event C: Warehouse 2 Move to Warehouse 1

## Objective(s)

1. Focus supervision on high activity areas.
2. Improve labor utilization
3. Improve issue point service
4. Free up on-site storage space

The consolidation of operations into Warehouse I converts II and III to a part-time manning status. Further, the supervisor from these facilities is moved to the issue point in Warehouse I where all issue activities will be focused. These moves afford the user full-time, 7-day, immediate access to all active inventories, including DTO.

Space freed up in Warehouses II and III is for use as a job marshalling, a laydown area in support of site operation. This is a new service not now provided.

EVENT	Assignee	1983	OCT	NOV	DEC	1984	FEB	MAR	APR	MAY
		SEP				JAN				
CONSOLIDATION OF WAREHOUSING		1 12 192a	1 10 172411	2 142128	3 12 192a	2 9 162130	4 122037	5 12 192a	1 1 162130	2 14 2128
1-Consolidate Warehouse 4 & 5	Kazadee	—	COMPLETE							
2-Move C-Ray to Warehouse 4 & 5	"	—	COMPLETE							
3-Consolidate high volume stk. near issue point	"					CONTINUING				
4-Move DTO operation to C-Ray	"			COMPLETE						
5-Move supervisor to issue point	"	—	COMPLETE							
ALL ISSUES FROM WAREHOUSE 1	Kazadee		COMPLETE							
MOVE ACTIVE WAREHOUSE 2 STOCK										
1-Clear & rack front of C-Ray	Kazadee		COMPLETE							
2-Move active whse. 2 Stock to whse. 1	"					COMPLETE				
3-Reduce manning at whse. 2 & 3	"					COMPLETE				
4-Part-time manning whse. 3	"					COMPLETE				

Event D: Warehouse 3 Staging Area  
Event E: Personnel

Objectives(s)

1. Improve site service
2. Improve information flow among Warehousing, Material Control, Operations, Maintenance and Engineering

The Warehouse Coordinator acts as the pivot point or conduit for information flow among the groups. Duties include:

1. Work with Planners from operating groups in clearing jobs;
2. Expedite and prioritize materials through Receiving, Q/A, and the Warehouse;
3. Operate laydown area for physical allocation of materials for special jobs;
4. Assist in returning materials to stock or for storage;
5. Alert Material Control of changes in demand for stock items.

This must be converted into a permanent position.

These are new services being offered and will enhance the interface between Materials Management and the operating groups.

[illegible]

**Objective(s):** 1. Identify proper level of storage for DIO materials.

2. Integrate into Preventive Maintenance and Shelf Life Programs.
3. Force disposition on D10 dead stock.

In this project area, the Requisitioner/User of DFO materials will be asked, and must provide, information relative to PM and shelf life requirements, special packaging and special conditions of storage. Procurement must assure that this information is present on all new orders cut.

[illegible]

## Event G: Level of Storage

### Objective

Assure proper storage conditions for all stock.

Presently, there is no mechanism to alert warehouse personnel of special storage conditions or packaging on inventory items. Materials Management will generate a listing, by item, on all Q/A and Active items showing actual storage level. This must be reviewed and validated by site engineering, entering any special considerations. This done, the data will be loaded into the data base, carried and displayed on future documents. A second listing for backfitting inactive stock in inventory will be distributed and worked. The success, failure, and timeliness of this project area hinge upon close support from the various groups assigned responsibility to analysis and generate feedback.

EVENT	ASSIGNEE	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
		5 12 1974	3 10 17 24 31	7 14 21 28	5 12 19 26	2 9 16 23 30	6 13 20 27	5 12 19 26	2 9 16 23 30	7 14 21 28
LEVELS OF STORAGE										
1-Develop list by levels of storage-active stock	Englert	- - - - -	- - - - -	- - - - -	- - - - -	COMPLETE				
2-Distribute						COMPLETE				
3-Analyze	Colitz						COMPLETE			
4-Receive feedback	Englert						COMPLETE			
5-Load file	Englert							SLIP TO 2-27-84		
6-Relocate stock if necessary	Kazdoo							SLIP TO 3-5-84		
7-Relocate stock if necessary	Kazdoo							SLIP TO 3-5-84		
8-Develop list by levels of storage-inactive stock	Englert	- - - - -	- - - - -	- - - - -	- - - - -					
9-Distribute	Englert									
10-Analyze	Colitz									
11-Receive feedback	Englert									
12-Load file	Englert									
13-Relocate if necessary	Kazdoo									
14-Relocate if necessary										



Event H: Dead Stock



## Event I: Remote Order Entry/Delivery

## Objective(s)

1. Improve site service.
2. Labor savings.

Many labor hours are lost passing through the security lock into the protected envelope going to and from the warehouse for materials and supplies. In this phase of the Project Plan, the warehouse will initiate routine delivery schedules to selected areas within the security fence on orders transmitted to the issue point either by telephone or by order entry on a CRT in the operating area printing the material order in the warehouse. When in operation, the CRT will probably be used for multiple line requests, phone entry for single line items.

This is a new service not now provided to the site.

NOTE: This Event involves alternative means of notification of requirements from the "protected area": computer or phone. We will examine the alternatives in parallel, implementing the phone system, if practical, while further analysis is performed on the computer network alternative.

EVENT		1983	OCT	NOV	DEC	1984	FEB	MAR	APR	MAY	JUN
		SEP				JAN					
REMOTE ORDER ENTRY/DEL'Y		5 12 192A	1 10 172431	7 142128	5 12 192A	2 9 162330	6 132027	5 12 192A	2 9 162330	7 142128	4 11 181
1. Delivery	Kazebee			COMPLETE - CONTINUING							
2. Phone Order											
A. Develop working draft of procedure	Kazebee/Lendacki					COMPLETE					
B. Install equip.	Kazebee					COMPLETE					
C. Train	Kazebee					COMPLETE					
D. Announce Start-up	Kazebee					COMPLETE					
E. Start Pilot Operation	Kazebee										
F. Start full operation	Kazebee							CONTINUING			
G. Complete final draft of Procedure	Lendacki										
3. CRT Order Entry											
A. Prototype @ Reading	Rusticus							SLIPPED TO 3-19-84			
B. Develop working draft of procedure	Kazebee/Lendacki							SLIPPED TO 3-26-84			
C. Prototype at TMI	Rusticus							SLIPPED TO 3-19-84			
D. Train	Kazebee/Rusticus							SLIPPED TO 4-2-84			
E. Complete final draft of Procedure	Lendacki							SLIPPED 4-9-84			
F. Install System	Kazebee/Rusticus							SLIPPED TO 4-9-84			

# Event J: Plant Stores Materials

## Objective(s)

1. Reduce (eliminate) congestion and clutter caused by plant materials stored in shop and operating areas.
2. Provide controlled storage for these items and incorporate them into the existing PM and Shelf Life programs, as required.
3. Provide an accurate, consolidated status listing of Plant Stores Materials.

The plant personnel will identify the material to be returned and, with minimal information, return it to Materials Management for any of the following reasons:

1. Long term storage;
2. To be sold;
3. Tools for specific jobs organized as kits;
4. To be added into stock.

Quantities and storage requirements for these items are not known at this time and may require an additional allocation of space to warehousing. The computer mechanism to handle these transactions is developed but must be tested, debugged, and implemented.

This is a new service not now offered to the site.

EVENT	ASSIGNEE	1983	OCT	NOV	DEC	1984	FEB	MAR	APR	MAY
		SEP				JAN				
PLANT STORES MATERIAL		5 12 1978	2 10 177431	7 142128	5 12 1978	2 9 1A2130	6 137027	5 12 1978	2 9 1A2130	7 14 2178
1-Develop statement of intent	Shea	- - - - -	- - - - -	- - - - -	- - - - -	COMPLETE				
2-Review with MAC maint. & operations	Kazadee Shea					COMPLETE				
3-Develop operating agreement	Kazadee Shea					COMPLETE				
4-Approve	Herfel								SLIP TO 3-12-84	
5-Draft/approve procedures	Haney								SLIP TO 3-12-84	
6-Man & train	Kazadee									
7-Identify items, PM/SL, levels of storage	User									
8-Identify & upgrade stock	Kazadee									
9-Receive stock	Kazadee									
10-Audit procedures and implementation	Shea									