

UCS--SHOLLY, 5/18/81

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )

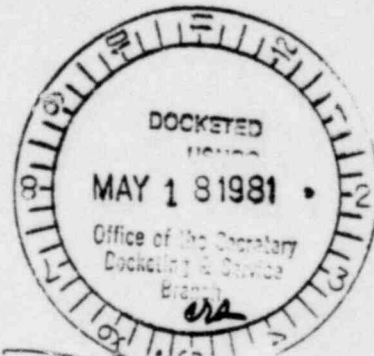
METROPOLITAN EDISON COMPANY, ET AL.)


(Three Mile Island Nuclear  
Station, Unit No. 1) )

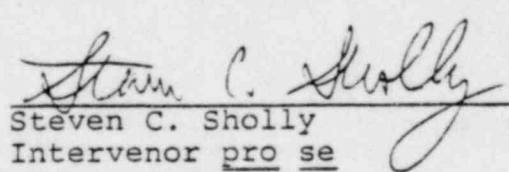
Docket No. 50-289  
(RESTART)

UNION OF CONCERNED SCIENTISTS AND  
STEVEN C. SHOLLY JOINT PROPOSED REPLY  
PROCEDURAL FINDINGS

Dated: 18 May 1981



  
Ellyn R. Weiss Esquire  
Counsel for UCS

  
Steven C. Sholly  
Intervenor pro se

8105280256a

## INTRODUCTION AND BACKGROUND

### A. Commission Hearing Orders

1. Metropolitan Edison Company (Licensee or Met Ed) is the holder of Facility Operating License No. DPR-50 which authorized the operation of the nuclear power reactor known as Three Mile Island Nuclear Station, Unit No. 1 (the facility or TMI-1), at steady state power levels not in excess of 2535 megawatts thermal (rated power). The facility is a Babcock and Wilcox (B&W) designed pressurized water reactor (PWR) located at the Licensee's site ten miles southeast of Harrisburg, Pennsylvania.

2. The Licensee is also the holder of Facility Operating License No. DPR-73, which had authorized the operation of the Three Mile Island Nuclear Station, Unit No. 2 (TMI-2) at power levels up to 2772 megawatts thermal. TMI-2 is located at the same site as TMI-1, and is also a B&W designed PWR.

3. On March 28, 1979, TMI-2 experienced a severe feedwater transient that led to a series of events culminating in a partially mitigated loss-of-coolant accident (LOCA) with significant core damage. At the time of the accident, TMI-1 was in a power ascension mode after completing a refueling outage and was immediately shut down by the Licensee. At the request of the NRC Project Manager, Licensee verbally committed on March 28, 1979, to give the NRC "significant advance notice" prior to taking TMI-1 out of cold shutdown. This verbal

commitment was later confirmed in a letter to the NRC dated April 16, 1979. [copy attached for reference]

4. On June 11, 1979, the NRC Staff and the Licensee met to discuss open items and proposed changes for TMI-1 prior to restart. At this meeting, the Licensee indicated that the facility would be ready for restart by about August 15, 1979. The NRC Staff made no commitments regarding any aspect of TMI-1 restart, noting that the basis upon which restart would be permitted had not been established. [copy of meeting summary and list of attendees attached for reference]

5. On June 28, 1979, the Licensee proposed a schedule of modifications and actions which would have led to a restart of TMI-1 on about September 1, 1979, and requested NRC Staff approval of this schedule. The Licensee committed to make certain modifications to the plant and take certain other actions prior to restart, and also committed to seek NRC Staff approval prior to restart of TMI-1. [copy of June 28, 1979, letter from Mr. Herbein to Mr. Denton attached for reference]

6. On July 2, 1979, the Commission issued an Order directing the TMI-1 be maintained in a shut down condition pending further order of the Commission. The Commission based this action on its conclusion that, "In view of the variety of issues raised by the accident at the Three Mile Island Unit No. 2 facility, the Commission presently lacks

the requisite reasonable assurance that the same licensee's Three Mile Island Unit No. 1 facility, a nuclear power reactor of similar design, can be operated without endangering the health and safety of the public." The Commission further determined that it was in the public interest that a hearing precede the restart of TMI-1.

7. In its Order and Notice of Hearing dated August 9, 1979, Metropolitan Edison Company (Three Mile Island Nuclear Station, Unit No. 1), CLI-79-8, 10 N.R.C. 141 (1979), the Commission specified the basis for its concerns about the operation of TMI-1 and set forth the procedures to govern further proceedings which would determine "whether any further operation will be permitted and, if so, under what conditions." In that Order, the Commission appointed this Atomic Safety and Licensing Board to rule on petitions to intervene and conduct the public hearing on the restart of TMI-1.

8. The August 9, 1979, Order noted that the NRC Staff's evaluation of the TMI-2 accident (both TMI units use a B&W-designed PWR) led the Staff to conclude "that B&W designed reactors appear to be unusually sensitive to certain off-normal transient conditions originating in the secondary system." 10 N.R.C. 141 at 143. Because of certain design features, the Order noted that the Staff had concluded that B&W-designed reactors "place more reliance on the reliability and performance characteristics of the auxiliary feedwater system, the integrated control system, and the emergency core cooling system (ECCS)



performance to recover from frequent anticipated transients, such as loss of offsite power and loss of normal feedwater, than do other PWR designs." The Order stated that the Staff concluded further that this, in turn, "places a large burden on the plant operators in the event of off-normal system behavior during such anticipated transients." 10 N.R.C. 141 at 143.

9. The August 9th Order explained that after a preliminary review of the TMI-2 accident chronology, the NRC Staff had initially identified several human errors that occurred during the accident, contributing significantly to its severity. The NRC Staff began an immediate reevaluation of the design features of B&W reactors to determine if additional safety improvements were necessary. As a result of the evaluation, all holders of operating licenses except Met Ed were instructed to take a number of immediate actions to avoid a repetition of errors, in accordance with bulletins issued by the Commission's Office of Inspection and Enforcement (IE). In addition, B&W owners were issued an IE Bulletin instructing them to take certain actions concerning B&W's unusual sensitivity to certain off-normal transient conditions originating in the secondary system. Besides the items identified for other B&W reactors, the NRC Staff identified additional safety concerns for TMI-1 to be resolved prior to restart.<sup>1</sup>

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<sup>1</sup> These concerns resulted from (1) potential interaction between Unit 1 and the damaged Unit 2, (2) questions about the management capabilities and technical resources of Met Ed, including the impact of the Unit 2 accident on these, (3) the potential effect of operations necessary to decontaminate the Unit 2 facility on Unit 1, and (4) recognized deficiencies in emergency plans and station operating procedures. 10 N.R.C. 141 at 143-44.

10. Based on the concerns raised by the TMI-2 accident, the Director of Nuclear Reactor Regulation recommended certain "short-term" actions be required of the Licensee.<sup>2</sup> The Commission

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2 The "short-term" actions:

1. The Licensee shall take the following actions:
  - (a) Upgrade the timeliness and reliability of the Emergency Feedwater (EFW) system by performing the items specified in Enclosure 1 of the Licensee's June 28m 1979 letter. Changes in design will be submitted to the NRC Staff for review.
  - (b) Develop and implement operating procedures for initiating and controlling EFW independent of Integrated Control System (ICS) control.
  - (c) Install a hard-wired control grade reactor trip on loss of main feedwater and/or turbine trip.
  - (d) Complete analyses for potential small breaks and develop and implement operating instructions to define operator action.
  - (e) Augment the retraining of all Reactor Operators and Senior Reactor Operators assigned to the control room including training in the areas of natural circulation and small break loss of coolant accidents including revised procedures and the TMI-2 accident. All operators will also receive training at the B&W simulator on the TMI-2 accident and the Licensee will conduct a 100 percent reexamination of all operators in these areas. NRC will administer complete examinations to all licensed personnel in accordance with 10 C.F.R. §50.20-23.
2. The Licensee shall provide for NRC review and approval of all applicable actions specified in IE Bulletins 79-05A, 79-05B, and 79-05C.
3. The Licensee shall improve his emergency preparedness in accordance with the following:
  - (a) Upgrade emergency plans to satisfy Regulatory Guide 1.101 with special attention to action level criteria based on plant parameters.

itself had additional concerns, which, although the Commission

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(continued)

- (b) Establish an Emergency Operations Center for Federal, State and Local Officials and designate a location and an alternate location and provide communications to the plant.
  - (c) Upgrade offsite monitoring capability, including additional thermoluminescent dosimeters or equivalent.
  - (d) Assess the relationship of State/Local plans to the Licensee plans so as to assure the capability to take emergency actions.
  - (e) Conduct a test exercise of its emergency plan.
- 4. The Licensee shall demonstrate that decontamination and/or restoration operations at TMI-2 will not affect safe operations at TMI-1. The Licensee shall provide separation and/or isolation of TMI-1/2 radioactive liquid transfer lines, fuel handling areas, ventilation systems, and sampling lines. Effluent monitoring instruments shall have the capability of discriminating between effluents resulting from Unit 1 or Unit 2 operations.
  - 5. The Licensee shall demonstrate that the waste management capability, including storage and processing, for solid, liquid, and gaseous wastes is adequate to assure safe operations of TMI-1, and that TMI-1 waste handling capability is not relied on by operations at TMI-2.
  - 6. The Licensee shall demonstrate his managerial capability and resources to operate Unit 1 while maintaining Unit 2 in a safe configuration and carrying out planned decontamination and/or restoration activities. Issues to be addressed include the adequacy of groups providing safety review and operational advice, the management and technical capability and training of operations staff, the adequacy of the operational Quality Assurance program and the facility procedures, and the capability of important support organizations such as Health Physics and Plant Maintenance.
  - 7. The Licensee shall demonstrate his financial qualifications to the extent relevant to his ability to operate TMI-1 safely.

believed need not be resolved prior to resumption of TMI-1 operation, must be addressed in a timely manner. The Director of Nuclear Reactor Regulation recommended that certain "long-term" actions be required of the Licensee to resolve these concerns and permit a finding of reasonable assurance of the safety of long-term operation.<sup>3</sup>

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(continued)

8. The Licensee shall comply with the Category A recommendations as specified in Table B-1 of NUREG-0578. [NUREG-0578 is the TMI-2 Lessons Learned Task Force Status Report] 10 N.R.C. 141 at 143-44.

3 The "long-term" actions:

1. Submit a failure mode and effects analysis of the ICS to the NRC Staff as soon as practicable.
2. Give continued attention to transient analysis and procedures for management of small breaks by a formal program set up to assure timely action of these matters.
3. Comply with the Category B recommendations as specified in Table B-1 of NUREG-0578.
4. Improve emergency preparedness in accordance with the following:
  - (a) Modify emergency plans to address changing capabilities of plant instrumentation.
  - (b) Extend the capability to take appropriate emergency actions for the population around the site to a distance of ten miles.

10 N.R.C. 141 at 145.



11. In its August 9, 1979, Order the Commission set forth the subjects to be considered at the hearing:

(A) Whether the "short-term actions" recommended by the Director of Nuclear Reactor Regulation are necessary and sufficient to provide reasonable assurance that the TMI-1 facility can be operated without endangering the health and safety of the public, and should be required before resumption of operation should be permitted.

(B) Whether the "long-term actions" recommended by the Director of Nuclear Reactor Regulation are necessary and sufficient to provide reasonable assurance that the facility can be operated for the long term without endangering the health and safety of the public, and should be required of the Licensee as soon as practicable. 10 N.R.C. 141 at 148.

12. The Commission's August 9th Order further guided the Board:

If the Board determines that operation can be resumed upon completion of certain specific short-term actions by the Licensee, it shall consider the extent to which the Licensee has demonstrated reasonable progress toward completion of the long-term actions described in this section. If it finds that the Licensee has demonstrated reasonable progress, it shall recommend resumption of operation upon completion of the short-term actions. If it cannot make such a finding, it shall recommend that operation be resumed at a date that it believes appropriately



reflects the importance of the action involved, the time lost because such progress had not been made on the prescribed schedule and the overriding need to provide adequate protection for the public health and safety. 10 N.R.C. 141 at 149.

13. The Order further provided that the hearing before this Board should be conducted in accordance with the provisions of the Commission's Rules of Practice governing adjudicatory licensing proceedings set forth in 10 C.F.R. Part 2. 10 N.R.C. 141 at 147.

14. On March 6, 1980, the Commission issued another Order, CLI-80-5, providing further guidance to the Board regarding the management competence issues by specifying 13 specific issues which the Board should examine. These issues are individually discussed in the management capability section of this recommended decision.

15. On March 14, 1980, the Commission a further Order to make clear that it was intended by the Commission that any party to the proceeding might raise as an issue whether one or more safety concerns, not specifically listed as "short-term" in the Commission's August 9, 1979, Order should be satisfactorily resolved prior to startup, so long as they satisfy the requirements (e.g., specificity and basis) applicable to contentions generally and there is a reasonable nexus between the issue and the TMI-2 accident. The Board's rulings on contentions had from the outset followed this approach and continued to do so throughout the proceeding.

16. Finally, on March 23, 1981, the Commission issued a further Order (CLI-81-3) which modified its August 9, 1979, Order by removing from the scope of this proceeding the matter of the Licensee's financial qualifications.

B. Interventions and Appearances

17. Many entities filed petitions to intervene in August and September of 1979. The Board admitted the following petitioners as intervenors in this proceeding: Union of Concerned Scientists (UCS, Three Mile Island Alert, Inc. (TMIA), Mr. Marvin I. Lewis,<sup>4</sup> Ms. Marjorie Aamodt, Mr. Steven C. Sholly, Anti-Nuclear Group Representing York (ANGRY), Environmental Coalition on Nuclear Power (ECNP),<sup>5</sup> Chesapeake Energy Alliance (CEA), Newberry Township TMI Steering Committee (Newberry Petitioners). The Commonwealth of Pennsylvania, the Pennsylvania Public Utilities Commission,

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<sup>4</sup> The Board ruled that Mr. Lewis had not shown standing in the proceeding and therefore dismissed most of Mr. Lewis' contentions. However, as a matter of discretion, the Board did allow Mr. Lewis to intervene solely with respect to his contention on the adequacy of the TMI-1 filter system for radioactive effluents -- a contention not advanced by any other intervenor.

<sup>5</sup> Regarding ECNP, in May of 1980 the Licensee moved for sanctions against ECNP based on this intervenor's default on a Board Order compelling discovery. We declined to dismiss ECNP as a party but did dismiss many of its contentions. Metropolitan Edison Company, (Three Mile Island Nuclear Station, Unit 1) LPB-80-17, 11 N.R.C. 893 (1980).

The New Jersey Board of Public Utilities, the Pennsylvania Consumer Advocate and Dauphin County were admitted as special participants under 10 C.F.R. §2.715(c). The Commonwealth of Pennsylvania participated actively and helpfully in all phases of the hearing and presented direct testimony of the Commonwealth's emergency plan. The Pennsylvania Public Utilities Commission and the Pennsylvania Consumer Advocate participated in only limited phases of the hearing. Dauphin County and the New Jersey Board of Public Utilities elected not to attend any of the evidentiary hearing.

18. We deferred ruling on People Against Nuclear Energy (PANE) status as intervenors until the Commission determined whether psychological stress issues (the only issues sought to be litigated by PANE) could be considered. The Board certified this question to the Commission in Metropolitan Edison Company (Three Mile Island Nuclear Station, Unit 1), LEP-80-8, 11 N.R.C. 297 (1980), where we concluded the Commission within its discretion may and should consider psychological stress under NEPA for the purpose of mitigating community fears about the operation of TMI-1. The Commission in a Memorandum and Order, CLI-80-39 of December 5, 1980, was evenly divided on the question. A vote of 2-2 on this question constituted an effective denial of requests to admit the psychological stress issue. We were told to consider this a denial of these contentions and that "there is no authorization for the Board

to admit psychological stress contentions." The Commission noted it would reconsider the question upon confirmation of a fifth Commissioner.

19. The Board denied petitions to intervene by Ms. Jane Lee, Ms. Frieda Berryhill, representing the Coalition of Nuclear Power Plant Postponement, and Victaulic Company, et al, either for lack of standing or failure to advance an acceptable contention, or both.

20. The Board received more than 1,000 written limited appearance statements directed either to the Board or to one or more Commissioners, which we considered and directed to be placed in the public record. In addition, the Board held special sessions to hear oral limited appearances on November 15, 16 and 17, 1979, and again on March 5, 1981. Subsequently the Board permitted additional limited appearances by appointment in the course of scheduled hearings. Over 200 individuals availed themselves of the opportunity to make statements.

21. The record of the hearing includes the written and oral testimony of witnesses presented by Licensee, the NRC Staff, the Commonwealth of Pennsylvania, the Union of Concerned Scientists, TMIA, ANGRY, ECNP, and Mrs. Aamodt. In the findings of fact below, citations to the direct written testimony received into evidence refer only to the last name of the witness(es) and to the transcript page immediately preceding the prepared testimony. For the convenience of the Board and the parties, we have also compiled an

alphabetical listing by witness, Appendix A to this decision, which fully identifies each piece of testimony sponsored by each witness and which identifies the location in the transcript of all of the written testimony.

22. The record also includes exhibits which were offered and received into evidence or rejected by the Board. Appendix B to this decision is a list of exhibits which were marked for identification and identifies those exhibits received or rejected by the Board.

#### C. Rulings on Contentions

23. The contentions which were allowed by the Board are enumerated later in this decision and are not repeated here. Nor does the Board attempt to recite the disposition of each of the many contentions which were challenged by Licensee or the Staff and which were either disallowed or revised by the Board. We do recite, however, some of the main principles which guided the Board in its rulings on contentions.

a. Scope of the Proceeding. The Board addressed the question of the scope of the proceeding in its First Special Prehearing Conference Order, dated December 18, 1979. The Board rejected the Licensee's position that only contentions related to the bases for suspending TMI-1's operating authority, as recited in the Commission's August 9, 1979, Order, should be allowed. In rejecting this position, the Board ruled, inter alia, that the charge of the Commission to consider the "sufficiency" of the recommended short- and long-term actions clearly drew the scope of the proceeding beyond the limits urged by the



Licensee. The Board also rejected the approach urged by some intervenors that any contention be allowed which would be allowable in an initial operating license proceeding. The Board ruled instead, in agreement with the position put forward by the NRC Staff and several other intervenors, that it would admit any otherwise allowable contention having a reasonable nexus to the TMI-2 accident. This principle guided the Board both in ruling on the admissibility of contentions and in its subsequent rulings on the admissibility of direct testimony, the scope of cross-examination, and in rulings on motions to compel discovery.

b. Class 9 accidents. The Union of Concerned Scientists proposed a contention alleging that the Staff's methodology for determining which among the realm of possible accident sequences are "credible" for the purposes of determining the plant's design basis, is fundamentally faulty (UCS Contention 13). The contention was admitted by the Board subject to further specification, with the caveat that the showing of the Licensee and the Staff would depend upon the specificity provided by UCS. The Board noted in its First Special Prehearing Conference Order (December 19, 1979) that: "(r)egardless of the final specificity of this contention, the Board itself expects the Staff to provide evidence addressing the general method by which the Staff has determined whether accidents within the scope of this proceeding fall within or outside the design basis." Other

parties were permitted to adopt UCS Contention 13. Steven C. Sholly also filed a contention on Class 9 accidents, specifying several accident scenarios based on the TMI-2 accident. This contention was subsequently withdrawn by the intervenor. UCS subsequently filed a timely motion for Summary Disposition with respect to UCS Contention 13, demonstrating, inter alia, that the NRC Staff had conceded under oath that it has not and cannot determine the probability of any particular accident sequence. UCS argued that it was entitled to judgment as a matter of law since its motion demonstrated that the Staff's methodology for identifying "credible" accidents had no rational basis. The Staff filed no response to the UCS motion. The motion was denied by the Board not as a judgment on its merits but because the Board considered the issue so important as to call for its treatment on the evidentiary record (Tr. 2229-31). The Board accepted the facts and arguments stated in the motion as providing sufficient specificity to permit litigation of the contention, while noting again that the nature of the Licensee's and Staff's responses would of necessity be framed in response to the generality of the contention (Tr. 2337; See also Tr. 2198-9, 2208-12, and 2221). During the hearing, UCS informed the Board that, due to a lack of resources compounded by the length of the proceeding, it would be unable to participate directly in the litigation of UCS Contention 13. However, consistent with its earlier rulings, the Board required the Staff to come forward with evidence on its methodology for classifying accidents as credible or incredible.

c. Basis and Specificity. The Board applied traditional tests in ruling on the admissibility of contentions based on basis and specificity. A number of contentions were admitted on a conditional basis for the purpose of proceeding with discovery, with the discovery process providing the means by which the contentions would be further specified. Contentions accepted on this basis were accepted with the caveat that they be further specified soon after the close of discovery. In some instances, particularly in the case of ECNP and CEA, the Board subsequently dismissed contentions where the intervenor failed to respond to interrogatories inquiring into the bases and specifics of contentions and where intervenors defaulted on Board Orders compelling them to respond.

d. Withdrawn Contentions. During the course of the hearings a number of intervenors withdrew contentions, citing a variety of reasons including a lack of resources to pursue the contentions and the fact that on some issues there were multiple contentions covering similar issues. It was the Board's practice to review contentions dropped by intervenors to assess the importance of the issues raised by the contentions and to ascertain whether the issues raised by the contention were adequately covered by the contentions of other intervenors. In a number of instances, where the Board determined that the record would be otherwise inadequate or incomplete, the Board adopted contentions as

Board questions and required the Licensee and the Staff to address the withdrawn contention in testimony. In some instances, the Board also permitted intervenors to adopt contentions which had been withdrawn by another intervenor.

24. In addition to rulings in accordance with the foregoing general principles, the Board made a number of special rulings on specific contentions which are discussed later in this decision in connection with the specific contentions.

25. The Board and the parties accepted Licensee's proposal to group contentions into the following major categories:

- a. Plant design and procedures.
- b. Separation of TMI-1 and TMI-2.
- c. Management qualifications of the Licensee.
- d. Emergency Planning.

This grouping and sequence of contentions was followed generally in the presentation of evidence at the hearing, although a number of pieces of supplemental testimony were generated as a result of Board questions or intervenor cross-examination and were fitted into the proceeding as preparation time and hearing time permitted. A fifth category of contentions, those dealing with financial qualifications, was eliminated from the hearing as a result of the Commission's Order of March 23, 1981.

26. The Commission's August 9, 1979, Order instructed the Board to consolidate participation of parties pursuant to 10 C.F.R. §2.715a to the maximum extent practicable consistent with the provisions of that regulation. The intervenors in general objected to consolidation, but agreed to voluntarily consolidate and present joint cases and conduct joint cross-examination. None of the parties favored involuntary consolidation by Board Order. The Board adopted the intervenor proposal and required the intervenors to designate a lead intervenor for the presentation of evidence and the conduct of cross-examination on issues where there were multiple, similar contentions. This practice, in general, worked satisfactorily.

#### D. Miscellaneous Rulings

27. In the period between the August 9, 1979 Order and commencement of the evidentiary hearing on October 15, 1980, the Board was called upon frequently not only to resolve differences as to the allowability of contentions but to rule on discovery disputes, prehearing and hearing schedules and a wide variety of other procedural matters. Prehearing conference orders dealing with these matters were issued on December 18, 1980, January 11, 1980, January 25, 1980, February 29, 1980 and May 22, 1980. The final prehearing conference was



held on August 12 and 13, 1980 in Harrisburg pursuant to 10 C.F.R. § 2.752, and the final prehearing conference order was issued August 20, 1980. In addition, the Board issued a large number of rulings on motions and requests submitted in separate filings. The total number of prehearing documents filed with or issued by the Board, exclusive of prefiled testimony, was well over 1,000.

29. The issuance of the Staff's safety evaluation report proved in this proceeding as in others to be a critical path item. Without attempting to assign blame or responsibility as between Licensee (who provided information required by the Staff to complete its evaluation) and the Staff (which generated detailed criteria for the short-term and long-term actions specified in the Commission's August 9, 1979 Order and reviewed materials submitted by Licensee), delay in the issuance of the safety evaluation report largely accounted for the delay in the commencement of the evidentiary hearing as compared to the target schedule attached to the Commission's August 9, 1979 Order. This delay enabled the Board to extend the discovery periods contemplated in the August 9, 1979 Order without delaying the commencement of the hearing. The Board also afforded intervenors an opportunity for supplemental discovery following the issuance of the safety evaluation report and major supplements and following several revisions

made by Licensee in its emergency plans in the course of the proceeding.

30. Some intervenors requested financial assistance from the Commission to support litigation of their contentions. These requests were initially denied by the Board as outside the scope of its authority. On May 16, 1980, the Commission announced that it generally favored intervenor funding as a matter of policy, but it nevertheless denied a request to provide financial assistance to intervenors in this proceeding in light of Congressional disapproval of the use of appropriated funds for such purposes in Fiscal Year 1980. Metropolitan Edison Company (Three Mile Island Nuclear Station, Unit No. 1), CLI-80-19, 11 N.R.C. 700 (1980). On the same day, in response to a certification to the Commission from this Board, the Commission announced it would not provide financial assistance to intervenors in this proceeding to address the psychological stress issue. Metropolitan Edison Company (Three Mile Island Nuclear Station, Unit No. 1), CLI-80-20, 11 N.R.C. 705 (1980). In another certification to the Commission dated August 8, 1980, the Board requested the Commission to extend its rule governing procedural assistance in adjudicatory licensing proceedings to this restart proceeding so as to allow the Board to consider intervenor requests for free transcripts. Metropolitan Edison Company (Three Mile Island Nuclear Station, Unit No. 1), LBP-80-23, 12 N.R.C. 227 (1980). As explained in its certifi-

cation, the Board viewed such assistance is an important contribution to the efficiency of the hearing process. In a Memorandum and Order dated August 15, 1980, the Commission granted the Board authority to extend the provisions of the procedural assistance rule to the parties in this proceeding. In a Memorandum dated December 4, 1980, however, the Chairman of the Commission cited a letter (dated December 3, 1980) by the Comptroller General of the United States that the NRC procedural assistance program may not lawfully use any Fiscal Year 1981 appropriation funds. The Commission directed the Board and the Staff to immediately cease such assistance.

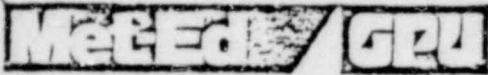
31. In response to numerous new documents, intervenors posed new contentions or revised existing contentions. The Board in general required such revisions to be submitted as soon as possible, but in any case no later than 30 days following the issuance of the documents. The Board notes that as a result of the investigations into the TMI-2 accident and related matters, there were issued during the course of this proceeding dozens of major reports which were related in varying degrees to the issues in this proceeding. Among the reports issued during the course of this hearing have been, inter alia:

- a. The Report of the President's Commission on the Accident at Three Mile Island, together with numerous Technical Staff Reports.
- b. The Report of the NRC's Special Inquiry Group (the so-called "Rogovin" investigation).
- c. The two reports of the TMI-2 Lessons Learned Task Force (NUREG-0578 and NUREG-0585).

- d. Generic Evaluation of Small Break Loss-of-Coolant Accident Behavior in Babcock & Wilcox Designed 177-FA Operating Plants (NUREG-0565).
- e. Transient Response of Babcock & Wilcox Designed Reactors (NUREG-0667).
- f. Major investigations by the Commission's Office of Inspection and Enforcement (including NUREG-0600 and NUREG-0760).

In addition, revisions to Commission rules and regulations had a similar impact on intervenor contentions, particularly in the area of emergency planning, where the Commission published two revisions of NUREG-0654 and a set of major revisions to the Commission's emergency planning regulations on August 19, 1980.

Such changes mandated a diligent effort on the part of all parties to keep abreast of changing circumstances throughout the proceeding, and also contributed, in some measure, to the delay in the proceeding compared to the suggested schedule set forth in the Commission's August 9, 1979, Order.



Metropolitan Edison Company  
Post Office Box 480  
Middletown, Pennsylvania 17057  
717 944-4041

April 16, 1979

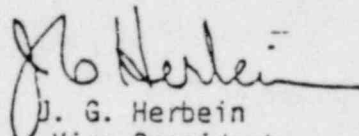
Office of Nuclear Reactor Regulation  
Attn: Mr. Harold R. Denton, Director  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Dear Sir:

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

This is to confirm the commitment which we made orally on Thursday, March 28, at the request of your project manager for Three Mile Island Unit 1 that Metropolitan Edison would provide significant advance notice to NRC prior to taking Unit 1 out of its present cold shutdown condition. We do not plan any such move until we have evaluated the course of events at Unit 2 and any significant implications they may have to the operation of Unit 1.

Sincerely,

  
J. G. Herbein  
Vice President-  
Generation

JGH:LWH:djh

cc: D. C. DiIanni

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*Handwritten notes and signatures:*  
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5) [unclear]  
6) [unclear]

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

50-289-1  
NRC PDR P

June 7, 1979

Docket No.: 50-289

MEMORANDUM FOR: Robert W. Reid, Chief, Operating Reactors Branch #4, DOR

FROM: D. DiIanni, Project Manager, ORB#4, DOR

SUBJECT: FORTHCOMING MEETING WITH METROPOLITAN EDISON COMPANY -  
THREE MILE ISLAND, UNIT NO. 1 (TMI-1)

TIME & DATE: 10:30 a.m., Monday  
June 11, 1979

LOCATION: P-500  
Bethesda, Maryland

PURPOSE: To discuss prerequisite open items  
for TMI-1 startup resulting from the  
TMI-2 event.

PARTICIPANTS: NRC

V. Stello, R. Vollmer, D. Ross  
R. Mattson, B. Grimes, R. Reid  
D. DiIanni, L. Chandler

I&E, REGION I

Representatives

GPU

E. Wallace, R. Arnold, D. Slear, R. Heward, R. Wilson

MET ED

J. G. Herbein, J. Seelinger, L. Tsaggeris

*D. DiIanni*

Dominic DiIanni, Project Manager  
Operating Reactors Branch #4  
Division of Operating Reactors

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

June 28, 1979

Docket No. 50-289

PERMIT TO OPERATE

LICENSEE: METROPOLITAN EDISON COMPANY (Met Ed/GPUSC)  
FACILITY: THREE MILE ISLAND UNIT NO. 1 (TMI-1)  
SUBJECT: MEETING SUMMARY ON THE OPEN ITEMS REGARDING TMI-1 RESTART

On June 11, 1979 the TMI-1 licensee met with the NRC staff to discuss open items and proposed changes for restart of TMI-1. \*

A list of attendees is enclosed.

The subject matter presented by the licensee is as follows:

- (a) Retraining Program
- (b) Procedure Changes
- (c) Plant Modifications
- (d) Emergency Plan
- (e) Safety Analysis & Studies

A summary of these items is as follows and further details on the presentation concerning these topics are attached.

Retraining Program

The licensee committed to retraining approximately 40 reactor operators needed to cover the operating shifts. Furthermore, the licensee committed to have a degreed engineer present during plant operation to assist the shift supervisor. As part of the retraining programs, the operators will be taking college level technical courses in fluid flow, heat transfer and Thermodynamics. The staff indicated the qualification of the instructors for these courses should be addressed. The licensee was also advised to contact the NRC Operating Licensing Branch regarding the content of the technical courses for the operators. A criterion for retraining operators should be developed and be made part of the restart report. The proposed schedule for retraining shows the NRC examination

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period starts August 10, 1979 and to last for one week. NRC will consider this request with respect to other commitments for this period.

### Procedures

A total of 80 to 100 procedures are scheduled for review and revision as necessary to meet the criteria presented in the enclosure (Procedure Changes). The procedure review is being completed at an approximate rate of 3 per day and the licensee plans that the procedure reviews will be completed by the end of July 1979. The staff indicated that some of the procedures will be reviewed by the NRC staff and that the training schedule should reflect possible changes to the procedures as a result of the NRC review.

### Modifications

The licensee proposed plant modifications some of which were committed to be completed prior to reactor restart and the remaining modifications to be completed as soon as practicable (See Enclosure 5 ).

The licensee committed to study the feasibility of installing reactor vessel level indication as well as remote (from outside containment) reactor vessel venting. The licensee also committed to resolving the problem of containment purge. Presently the licensee has committed to a valve analysis instead of limiting purging to 90 hours per year.

### Emergency Plan

The licensee proposed to make changes to the emergency plan covering those items over which the licensee has direct control. The existing emergency plan submitted to the staff appears to be inadequate as to the depth of details existing in the plan. The licensee was requested to review Reg. Guide 1.101 in this regard. It was agreed that staff would discuss with the licensee the requirements in this area. However, reapproval of the emergency plan would be required prior to restart.

### Safety Analysis & Studies

The licensee plans to review certain of the existing safety analyses as outlined in Enclosure 8. This review is expected to be completed prior to the restart of TMI-1.

### Staff Comments & Future Plans

It was agreed to have a meeting during the week of June 25th (actual date to be established) at the site to discuss the future efforts on the TMI-1 restart. Although an agenda was discussed it will be finalized before the meeting.

It was indicated that it is likely that there will be a public meeting near the site where technical issues are discussed with the public. The question of a public hearing will be determined.

The question of TMI-1/TMI-2 physical separation during all operating modes of the two units would need to be addressed. The objective is that operating conditions of both units will not affect each other due to proximity and/or commonality of service facilities.

A complete response to the bulletins may not be necessary. The staff will give the licensee guidance as to those specific items to be covered in the bulletins.

Conclusion

The licensee indicated that according to his schedule he would be ready for restart about August 15, 1979.

These discussions resulted in no agreements or commitments by the staff regarding any aspect of the TMI-1 restart. The basis upon which TMI-1 would be allowed to restart, and the associated schedule, have not yet been established.

Original signed by

D. C. DiIanni, Project Manager  
Operating Reactors Branch #4  
Division of Operating Reactors

Enclosures:

1. List of Attendees
2. Agenda
3. Retraining program
4. Procedures changes
5. Control modifications
6. Studies Required Prior to Restart
7. Emergency Plan
8. Safety Analysis

cc w/enclosures: See attached list

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|--------|-----------|-------------|------------|------------|---------|
| OFFICE | ORB#4-DOR | C-ORB#4-DOR | AD-ORB-DOR | AD-SEP-DOR | DD:DPM  |
| NAME   | DDI (cb)  | W. G. (cb)  | W. G. (cb) | W. G. (cb) | DROSS   |
| DATE   | 7/9/79    | 7/9/79      | 7/9/79     | 7/11/79    | 7/11/79 |

## TMI-1 Restart Meeting

June 11, 1979

### Attendees

#### Name

#### Organization

D. C. DiIanni  
Harley Silver  
R. H. Vollmer  
H. R. Denton  
Darrell Eisenhut  
Brian Grimes  
Bob Capra  
Bob Reid  
T. M. Novak  
Lawrence Chandler  
G. R. Klinger  
H. B. Kister  
John R. Sears  
Peter Tam

NRC

H. Dieckamp  
R. C. Arnold  
R. W. Heward, Jr.  
E. G. Wallace  
D. G. Slear  
R. F. Wilson

GPU

J. G. Herbein  
J. L. Seelinger  
A. Tsaggaris

MET ED

George F. Trowbridge

SHAW, PITTMAN  
(Counsel)

W. P. Cornsife

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Post Office Box 542  
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Writer's Direct Dial Number

June 28, 1979

Mr. Harold Denton  
Director of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Sir:

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

By letter dated April 16, 1979 (GQL 0376), we committed to providing significant advance notice prior to taking TMI-1 out of cold shutdown. We have identified a number of modifications/actions to be completed prior to the TMI-1 restart. We expect to be able to complete these changes on or about September 1, 1979 and it is our hope that we would be able to receive the necessary approvals from the NRC to support that schedule. However, the reactor will not be restarted until items 1(a) through 1(h) below are completed and we have received your approval.

1. Modifications/Actions to be completed prior to TMI-1 Startup (short-term):
  - (a) Upgrade of the timeliness and the reliability of the Auxiliary Feedwater System as described in Enclosure 1. Changes in the design will be submitted to the NRC for review.
  - (b) Develop and implement operating procedures for initiating and controlling the Auxiliary Feedwater System independent of the ICS control.
  - (c) Install a hard-wired control-grade reactor trip on loss of main feedwater and/or turbine trip.
  - (d) Develop and implement procedures and instructions to define operator actions for small break loss of coolant accidents. Review recent B&W analyses of small break loss of coolant accidents and confirm their applicability to TMI-1.
  - (e) Augmented retraining of all Reactor Operators and Senior Reactor Operators assigned to the control room will be conducted including training in the areas of natural circulation, small break loss of coolant accidents and the TMI-2 accident. All operators will also receive training at the B&W simulator on the TMI-2 accident. Met-Ed will conduct 100% reexamination of all operators.

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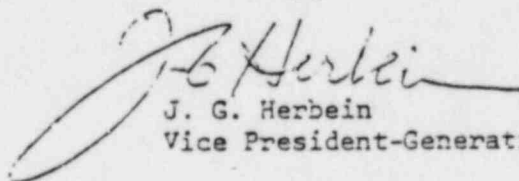
- (f) Complete those additional items in Enclosure 3 designated as short term.
- (g) Upgrade station emergency response capability as described in Enclosure 2.
- (h) A degreed "shift" engineer will be on site at all times during plant operation to provide additional support and advise shift operating personnel.

In addition to the above short term improvements, Met-Ed requests the NRC to recertify the TMI-1 operators. Further, Met-Ed will accomplish the below listed long term items on an expedited basis:

- 2. Modifications/Actions to be completed on an expedited basis but not necessarily before startup of TMI-1 (long term):
  - (a) Provide, as soon as practicable, a failure mode and effects analysis of the ICS. (This task is underway with high priority at B & W).
  - (b) The hard-wired trips referenced above under item 1(c) will be upgraded to safety grade insofar as practicable.

In addition to the above short term and long term items, Enclosure 3 also provides a list of additional items which Met-Ed intends to accomplish. These items, we believe, will further enhance the capability and reliability of the reactor to respond to various transient events.

Sincerely,



J. G. Herbein  
Vice President-Generation

JGH:LWH:tas

Enclosures

cc: Mr. R. W. Reid  
Mr. D. C. DiTanni

ENCLOSURE 1

AUXILIARY FEEDWATER UPGRADING

1. Automatic initiation of the motor driven AFW pumps upon loss of both feedwater pumps or loss of four (4) Reactor Coolant Pumps.
2. Modification of the AFW control valves such that they fail open on loss of air.
3. Automatic block loading of the motor driven AFW pumps on the diesel.
4. Incorporation of AFW in the TMI-1 technical specifications as specified in IE Bulletin 79-05A, item 8. Verification that technical specification requirements of AFW capacity are in accordance with the accident analysis will be conducted.
5. Provide indication in the control room of AFW flow to each Steam Generator.
6. Provide procedures and training to assure that AFW is available and properly applied when required. Procedures will identify the need to verify proper operation when AFW is initiated.
7. To assure that AFW will be aligned in a timely manner to inject on all AFW demand events when in the surveillance test mode, procedures will be implemented and training conducted to provide an operator at the necessary location in communications with the control room during the surveillance mode to carry out alignment changes necessary upon AFW demand events.
8. Design review and modifications, as necessary, will be conducted to provide control room annunciation for all auto start conditions of the AFW system.

EMERGENCY RESPONSE CAPABILITY UPGRADING

1. Provide the capability to supplement the shift and emergency organization personnel with a Met-Ed/GPU organization for off site emergency support when called for by the Emergency Plan. In addition, provide for a comprehensive organization to coordinate long term accident recovery and protective action.
2. Upgrade communications on site and off site in and to the TMI Emergency Control Centers.
3. Provide additional emergency equipment including respirators, dosimetry devices, and monitoring/analysis equipment. Significantly expand the radial and azimuthal distribution of TLD's as part of the routine radiological environmental monitoring program.

### ENCLOSURE 3

#### OTHER MODIFICATIONS TO BE COMPLETED BEFORE STARTUP

##### OR AS SOON AS PRACTICABLE THEREAFTER

#### A. Before Startup (Short Term)

1. Reduce the high pressure reactor trip to 2300 psig.
2. Upgrade selected instruments and valve operators in containment by applying heat shrink tubing to electrical connections for water tightness.
3. Hookup 16 incore thermocouples to the plant computer with readout capability to 2300°F.
4. Revise containment isolation signals to isolate all lines which do not degrade core cooling upon initiation of HPI or other appropriate signal such as high radiation.
5. Revise valve position indications to show actual valve position versus demanded position on all appropriate valves.
6. Improve plant computer printout and alarm capability.
7. Raise the PORV setpoint to 2450 psig.
8. Provide an unambiguous indication of PORV position.
9. Provide remote essential maintenance for the decay heat removal pumps to minimize post accident personnel radiation exposure and improve reliability.
10. Install a H<sub>2</sub> recombiner with provision to hookup a second one.
11. Install the approved HPI cross connection to eliminate the need for prompt operator action after small break loss of coolant accident as described in our letter dated November 21, 1978 (GQL-1619).
12. Raise selected Steam Generator level instruments to 72 inches above the containment floor.
13. Complete modifications to provide TMI-1 sampling capability independent of TMI-2 and to isolate the TMI-1 Fuel Handling Building ventilation from TMI-2.

#### B. As Soon As Practicable (Long Term)

1. Hookup all 52 incore thermocouples as specified in A.3 above.
2. Improve plant computer data and trend display capability.



3. Install an instrument to alarm and indicate RCS approach to saturation conditions.
4. Increase the range of RCS temperature indication for the hot and cold legs.
5. Automate switchover of the ECCS pumps from the BWST to the Reactor Building sump.
6. Upgrade the Reactor Building Spray system to eliminate sodium thiosulfate addition.
7. Upgrade the coating of the Reactor Building and Auxiliary Building lower levels to reduce penetration of radioactive contaminants where additionally required.
8. Provide for Reactor Building sump level measurement and sampling.
9. Provide a system for waste gas tank venting to Containment.
10. Raise the pressurizer level instrument to 72 inches above the containment floor.

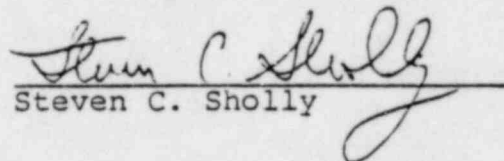
UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

CERTIFICATE OF SERVICE

I hereby certify that single copies of "UNION OF CONCERNED SCIENTISTS AND STEVEN C. SHOLLY JOINT PROPOSED REPLY PROCEDURAL FINDINGS", dated 18 May 1981, were served upon the persons on the attached service list by Express Mail or by deposit in the U.S. Mail, first class postage prepaid (as indicated below) this 18th day of May, 1981.

  
Steven C. Sholly

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