

LIC 7/13/81



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

PART THREE OF
LICENSEE'S PROPOSED FINDINGS OF FACT
AND CONCLUSIONS OF LAW ON
PLANT DESIGN AND PROCEDURES ISSUES
IN THE FORM OF A PARTIAL INITIAL DECISION

SHAW, PITTMAN, POTTS & TROWBRIDGE

George F. Trowbridge
Thomas A. Baxter
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Counsel for Licensee

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U. Equipment Qualification

Board Question/UCS
Contention No. 12:

The accident demonstrated that the severity of the environment in which equipment important to safety must operate was underestimated and that equipment previously deemed to be environmentally qualified failed. One example was the pressurizer level instruments. The environmental qualification of safety-related equipment at TMI is deficient in three respects: 1) the parameters of the relevant accident environment have not been identified; 2) the length of time the equipment must operate in the environment has been underestimated; and 3) the methods used to qualify the equipment are not adequate to give reasonable assurance that the equipment will remain operable. TMI-1 should not be permitted to resume operation until all safety-related equipment has been demonstrated to be qualified to operate as required by GDC 4. The criteria for determining qualification should be those set forth in Regulatory Guide 1.89 or equivalent.

First Board Question
Regarding UCS Con-
tention No. 12:

The TMI-2 accident demonstrated that some safety-related equipment may have been exposed or was in imminent danger of being exposed to environmental stresses beyond that for which it was qualified. The board's concern is primarily with such equipment qualification. In addition, environmental stresses to safety-related equipment will be of concern to the extent that such equipment is not

included in existing staff requirements.

Second Board Question
Regarding USC Con-
tention No. 12:

Which items of Regulatory Guide 1.89 have been grandfathered with respect to TMI-1? Explain any justification for allowing restart without compliance with the grandfathered items.

Third Board Question
Regarding UCS Con-
tention No. 12:

What are the environmental qualification criteria which equipment inside of containment must meet with respect to radiation levels and length of time of exposure? (Address the Interim Staff Position on Environmental Qualification of Electrical Equipment, NUREG-0588).

551. UCS Contention No. 12 was amended by the Board with the limitation that it applied only to equipment important to safety in the containment and auxiliary buildings. LBP-79-34, 10 N.R.C. 828, 837 (1979). On July 31, 1980, UCS withdrew its Contention 12, but asked the Board to pursue it. The Board not only retained UCS Contention 12, but added its own questions (quoted above) related to the former contention. Consequently, the entire record we are about to address was developed only because the Board, in its discretion, elected to explore the issue.

552. Former UCS Contention No. 12 and the First Board Question on this contention assert that the environmental conditions experienced during the TMI-2 accident were beyond

those previously postulated for the design basis event ("DBE") and that safety-related electrical equipment failed to perform its intended safety function during the TMI-2 accident.

553. Contrary to the first assertion, the environment inside containment during the TMI-2 accident, with respect to temperature, pressure, radiation,¹⁷⁶ and chemical sprays, was well below the levels associated with a DBE (design basis) loss of coolant accident.¹⁷⁷ Braulke-1, ff. Tr. 6820, at 6 and Table 3 at 13. The only known environmental condition to which certain safety-related equipment at TMI-2 was exposed which was beyond that for which it was qualified was submergence due to flooding. See paragraphs 555-557, infra; Braulke-1, ff. Tr. 6820, at 4, 6; Braulke-2,¹⁷⁸ ff. Tr. 6820, at 1; Rosztoczy-2,¹⁷⁹ ff. Tr. 6927-A, at 1.

554. Former UCS Contention No. 12 also claims that safety-related electrical equipment at TMI-2 failed to perform

176 The DBE radiation value is based upon the release from the core of 100% of the noble gases, 50% of the halogens, and 1% of the solids. Excerpts from Licensee's Testimony of Robert W. Keaten, George R. Braulke and George J. Brazill in Response to UCS Contention No. 12, UCS Contention No. 14 and UCS Contention No. 3 (Safety Classification) ("Braulke-1"), ff. Tr. 6820, at 7, 8.

177 The humidity level experienced at TMI-2 was the same as that postulated for the DBE environment. Braulke-1, ff. Tr. 6820, Table 3 at 13.

178 Licensee's Testimony of George R. Braulke in Response to Board Questions on UCS Contention 12 ("Braulke-2").

179 NRC Staff Testimony of Zoltan R. Rosztoczy in Response to Board Questions on UCS Contention 12 ("Rosztoczy-2").

its intended safety function due to the environmental conditions to which it was exposed. During the initial stages of the accident, all instruments functioned as designed; further, no important instrument function for monitoring the plant during the stabilization, cooldown and transition to natural circulation was completely lost during the first thirty-four days following the accident. Braulke-1, ff. Tr. 6820, at 4 and Table 1 at 10; Tr. 6867 (Braulke). In addition, due to existing redundancy or available alternatives, the instrument failures which did occur at TMI-2 during the period of May 1, 1979 through August 21, 1980 posed no threat to the public health and safety. Braulke-1, ff. Tr. 6820, at 4, 5.

555. As noted in paragraph 553 above, the only known beyond-design-basis environmental stress at TMI-2 to which safety-related equipment was exposed was submergence. While the exact cause of equipment failures at TMI-2 cannot be ascertained until the instruments can be retrieved and analyzed, it is believed that the failure of safety-related instruments was due to flooding.¹⁸⁰ Braulke-1, ff. Tr. 6820, at 5; Tr. 6883-85 (Braulke). However, it should be noted that the submergence and subsequent failure of safety-related electrical equipment did not occur until after completion of its intended safety function. Braulke-1, ff. Tr. 6820, at 4.

180 It is thought that certain non-safety equipment failed for reasons other than submergence, in that the instruments are located above the flood level experienced at TMI-2. See Tr. 6883-85 (Braulke).

556. Based upon the experience of instrument submergence at TMI-2, Licensee recognized the need to calculate the flood level at TMI-1 in order to establish a level above which certain instruments should be located.¹⁸¹ Licensee has determined that a large-break loss-of-coolant accident would produce the worst case design basis water level inside containment of 5.66 feet above the reactor building basement floor.¹⁸² Croneberger, ff. Tr. 16,252, at 2, 3; Tr. 16,253-54 (Croneberger). After calculating the TMI-1 in-containment flood level, Licensee reviewed the location of all safety-related equipment which had failed at TMI-2 (see Braulke-1, ff. Tr. 6820, Tables 1 and 2 at 10-12) in order to assure that these instruments at TMI-1 were located above the calculated flood level. Licensee has found that the existing location of these safety-related instruments at TMI-1 is above the calculated flood level and, therefore, no relocation of this instrumentation is required. Tr. 16,256 (Croneberger).

557. Licensee has, however, raised the location of the steam generator and pressurizer level transmitters, which

181 At the operating license stage, Licensee had calculated the minimum water level in containment in order to assure adequate net positive suction head for ECCS and reactor building spray pumps; the maximum flood level had not been previously calculated. Croneberger, ff. Tr. 16,252, at 3

182 The original flooding calculations performed in 1979 indicated a water level of 5.94 feet; however, it has been determined that this original calculation was overly conservative and the flood level has now been determined to be 5.66 feet. Tr. 16,253-54 (Croneberger).

were previously located in the lowest elevation of the reactor building, to above the calculated design basis water level. These transmitters are parameters utilized to achieve safe shutdown and to assist in maintaining natural circulation, and which are believed to have failed at TMI-2 due to submergence. Croneberger, ff. Tr. 16,252, at 3.

558. In response, then, to that portion of UCS Contention No. 12 and the First Board Question which asserts that the TMI-1 environment exceeded the DBE environment, thereby causing failures of safety-related equipment, the Board finds that the TMI-2 accident environment, with the exception of the containment flooding, did not exceed the postulated design basis environment. Further, the Board believes that Licensee has taken appropriate action to assure that safety-related equipment and equipment important to safety will not fail due to submergence following a design basis loss of coolant accident.

559. The question of Licensee's compliance with the Regulatory Guide 1.89 criteria for equipment qualification is raised by both former UCS Contention No. 12 and the Second Board Question Regarding UCS Contention No. 12. The implementation section of Regulatory Guide 1.89 states that the guide will apply only to those construction permit applicants for which the Staff had issued its Safety Evaluation Report on or after July 1, 1974. Since TMI-1 received its operating license in April, 1974, Licensee is not required to meet the

criteria of this regulatory guide. Braulke-2, ff. Tr. 6820, at 2. Additionally, the Staff has not required the backfitting of Regulatory Guide 1.89 to any items of equipment at TMI-1. Rosztoczy-2, ff. Tr. 6927-A, at 2.

560. Although TMI-1 is not required to meet the criteria of Regulatory Guide 1.89, Licensee has been required, pursuant to IE Bulletin 79-01B, to review the environmental qualification of safety-related electrical equipment in accordance with the criteria set forth in the DOR Guidelines. These Guidelines provide more definitive criteria for equipment qualification than those set forth in Regulatory Guide 1.89. Braulke-2, ff. Tr. 6820, at 2-4; see also, Petition for Emergency and Remedial Action, CLI-80-21, 11 N.R.C. 707, 711-712 (1980). The Commission's program for an updated review of the environmental qualification of safety-related electrical equipment at nuclear power reactors, under IE Bulletin 79-01B, is discussed in paragraphs 562-568, infra.

561. The Third Board Question Regarding UCS Contention No. 12 requests information regarding the radiation level to which equipment inside containment must be qualified and the length of time in which such equipment must be capable of performing. Pursuant to the criteria set forth in the DOR guidelines and sample calculations described in NUREG-0588, safety-related equipment inside containment must be qualified to withstand radiation levels of 2×10^7 Rads (gamma). (See n.176 supra, which sets forth the radiation releases assumed in

determining this figure). Braulke-1, ff. Tr. 6820, at 7, 8; Braulke-2, ff. Tr. 6820, at 4, 5. The length of time to which equipment must be qualified is evaluated individually for each component, taking into account the safety function performed by that component. Rosztoczy-2, ff. Tr. 6927-A, at 3.

562. Further, independent of the specific actions taken at TMI-1 in response in the known environmental qualification lessons learned at TMI-2, Licensee is involved in a rigorous systematic review of the environmental qualification of TMI-1 safety-related electrical equipment subjected to harsh environments.¹⁸³ The results of this investigation are being submitted to the NRC Staff for evaluation in response to IE Bulletin 79-01B. Braulke-1, ff. Tr. 6802, at 4, 6; Rosztoczy-1,¹⁸⁴ ff. Tr. 6927-A, at 2, 3.

563. IE Bulletin 79-01B is specifically intended to obtain additional information needed to evaluate the adequacy of environmental qualification of safety-related electrical equipment in operating reactors. The Bulletin requires all operating reactor owners, including Licensee, to:

- a. Provide a master list by system of all electrical equipment exposed to a harsh environment and

183 Licensee also has been a participating member of the EPRI/Utility Equipment Qualification Group since the inception of that group, and continues its participation in the Babcock & Wilcox Owners Group Environmental Qualification Subcommittee. Braulke-1, ff. Tr. 6802, at 6.

184 NRC Staff Testimony of Zoltan R. Rosztoczy Relative to Environmental Qualification of Equipment Important to Safety (UCS Contention 12 in part), ("Rosztoczy-1").

required to function under postulated accident conditions.

b. Provide evidence of environmental qualification for each equipment item listed.

c. Provide service condition profiles (i.e., temperature, pressure, etc., as a function of time) and equipment operating time requirements for each equipment item listed.

d. Evaluate the qualification of the equipment items listed against the NRC Division of Operating Reactors "Guidelines for Evaluating Environmental Qualification of Class IE Electrical Equipment in Operating Reactors" (the "DOR Guidelines"), and provide a plan to resolve any deficiencies.

e. Identify the maximum expected flood level inside primary containment resulting from postulated accidents.

Braulke-1, ff. Tr. 6802, at 7.

564. The Staff's evaluation pursuant to IE Bulletin 79-01B will identify equipment that is qualified in accordance with the criteria, and equipment that needs to be replaced or requalified, along with a schedule for doing so. In addition, under the provisions of the license Technical Specifications, if a licensee determines during the review that a safety-related piece of equipment cannot perform its intended function during a postulated event or its failure can contribute to more

severe consequences, the licensee must file a Licensee Event Report (LER) and initiate appropriate corrective actions. Rosztoczy-1, ff. Tr. 6927-A, at 4.

565. In Petition for Emergency and Remedial Action, CLI-80-21, 11 N.R.C. 707 (1980), a matter initiated by UCS, the Commission endorsed the Staff's actions to use the DOR Guidelines to review operating plants and NUREG-0588 to review plants under licensing review as well as those pieces of equipment in operating plants which do not meet the DOR Guidelines. 11 N.R.C. at 711. The Commission formalized its endorsement as follows:

. . . pursuant to Section 161(b) of the Atomic Energy Act and based upon the record in this proceeding, the Commission is ordering today that these two documents form the requirements which licensees and applicants must meet in order to satisfy those aspects of 10 CFR 50, Appendix A, General Design Criteria (GDC)-4 which relate to environmental qualification of safety-related electrical equipment. Licensees of operating reactors are to comply with these requirements so that the applicable equipment in all operating plants shall meet the DOR Guidelines or NUREG-0588. Non-compliance can be the basis for appropriate enforcement action after the implementation deadlines ordered below. In order to leave no room for doubt on this issue, the staff is to prepare additional technical specifications for all operating plants which codify the documentation requirement paragraph of the Guidelines (paragraph 8.0). After approval by the Commission, these new technical specifications will be added to each license.

11 N.R.C. at 711-712 (footnote omitted). The Commission stated, in its decision, that it considers the Staff's review of the 79-01B Bulletin responses to be of high priority, and requested the Staff to keep the Commission and the public

apprised of any further findings of incomplete environmental qualification of safety-related electrical equipment, along with corrective actions taken or planned. Id. at 714. The Commission also held that:

By no later than June 30, 1982 all safety-related electrical equipment in all operating plants shall be qualified to the DOR Guidelines or NUREG-0588. These deadlines, however, do not excuse a licensee from the obligation to modify or replace inadequate equipment promptly.

Id. at 714-715. The Commission advised the Staff that where, in its review, the Staff is faced with situations where qualification documents are poor or where the existing documentation raises questions about the ability of the equipment to perform its intended function in accident conditions, the Staff is to make a technical judgment regarding continued operation. Id. at 715.

566. On October 24, 1980, the NRC Staff issued, in this docket, an immediately effective "Order for Modification of License," amending the TMI-1 operating license to add the following Commission-approved technical specifications:

- (a) By no later than June 30, 1982, all safety-related electrical equipment in the facility shall be qualified in accordance with the provisions of: Division of Operating Reactors "Guidelines for Evaluating Environmental Qualification of Class IE Electrical Equipment in Operating Reactors" (DOR Guidelines); or NUREG-0588, "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment," December 1979. Copies of these documents are attached to Order for Modification of License DPR-50 dated October 24, 1980.
- (b) By no later than December 1, 1980, complete and auditable records must be available and

maintained at a central location which describe the environmental qualification method used for all safety-related electrical equipment in sufficient detail to document the degree of compliance with the DOR Guidelines or NUREG-0588. Thereafter, such records should be updated and maintained current as equipment is replaced, further tested, or otherwise further qualified.

45 Fed. Reg. 75812 (November 17, 1980). The order also provided that Licensee or any person whose interest may be affected by the order might request a hearing. Id. at 75812-13.

567. Consequently, the Board finds that the issue of environmental qualification of safety-related electrical equipment is being pursued actively by the Commission and its Staff independently of this proceeding. The Commission's own thorough recitation of the history of the issue makes it clear that the subject was being pursued well before the TMI-2 accident occurred on March 28, 1979. See CLI-80-21, supra, 11 N.R.C. 707, 708-711 (1980). Environmental qualification of safety-related electrical equipment is not, then, a "lesson learned" first from the TMI-2 accident. Further, we find that the Commission has already established the criteria for equipment qualification at TMI-1 (and at other operating reactors) and a deadline by which qualification must be demonstrated. An order was already issued imposing these requirements as a condition of the TMI-1 operating license. The Commission has also provided for corrective action in the interim where the review pursuant to IE Bulletin 79-01B

indicates that such action is warranted. See paragraph 564, supra.

568. In addition, the Commission twice has denied requests by UCS for emergency relief in the form of a shutdown of operating reactors pending the completion of the new environmental qualification program. Petition for Emergency and Remedial Action, CLI-78-6, 7 N.R.C. 400 (1978), petition for reconsideration denied, CLI-80-21, supra, 11 N.R.C. 707 (1980). In its second denial of the shutdown request, the Commission expressly held, in language which is highly relevant to this Board's consideration of the environmental qualification issue in this proceeding:

We believe that current Commission requirements in the fire protection and environmental qualification areas and those actions we order today provide reasonable assurance that the public health and safety is being adequately protected during the time necessary for corrective action.

11. N.R.C. at 709 (1980). This Board has been presented with no persuasive basis, in the evidentiary record, for disagreeing with the Commission's judgment on this matter.

569. Indeed, because of the considerable activity being undertaken by this agency outside of this proceeding, and the key decisions which the Commission has already made on the fundamental issues surrounding our questions on the former UCS Contention 12, the Board views its concerns to have been answered above in our review of the known specific environmental qualification lessons learned from the TMI-2 accident. There we found that Licensee has taken appropriate

corrective action at TMI-1 in response to those lessons learned. See paragraphs 555-558, supra.

570. Nevertheless, the Staff also presented the results of a review, conducted especially for this proceeding, of the qualification of equipment, required to safely shut down TMI-1 following a loss of feedwater and small-break loss-of-coolant accident, to perform its safety function when subject to the environmental conditions to which it would be exposed during the period in which that safety function must be performed.¹⁸⁵ Rosztoczy, ff. Tr. 21,867, at 1.

571. Licensee provided the Staff with an identification of all Class IE electrical items, located in a small-break LOCA harsh environment, that are required to bring the plant to a safe shutdown. An analysis was performed to define the most severe environmental conditions -- i.e., temperature, pressure, humidity, chemical spray, submergence, and radiation levels -- that the equipment located both inside and outside containment could be subjected to. The analysis considered a range of break sizes concurrent with a loss of off-site power, loss of

¹⁸⁵ In order to perform this review, the Staff requested supplemental information from Licensee. See Rosztoczy, ff. Tr. 21,867, at 2, 3. This all took place after the issuance in March, 1981, of the Staff's safety evaluation report for TMI-1, pursuant to IE Bulletin 79-01B, on the Environmental Qualification of Safety-Related Electrical Equipment, where the Staff concluded that there is reasonable assurance of safe operation of TMI-1 pending completion of the corrective actions by June 30, 1982. See, id. and UCS Ex. 40 at 11.

main feedwater, and a worst case single failure. The environmental conditions defined as a result of this analysis were then used to evaluate the qualification of the required electrical equipment. Rosztoczy, ff. Tr. 21,867, at 2, 3, and attachments; Staff Ex. 16.

572. The Staff's review involved an evaluation of the list of equipment identified as required to mitigate the consequences of the small-break LOCA, the environmental (service) conditions specified for the equipment, and the qualification information provided for each piece of equipment. The qualification information reviewed was data extracted from referenced documentation which contain detailed information concerning the qualification of the equipment. Rosztoczy, ff. Tr. 21,867, at 3.

573. As a result of its review, the Staff agrees that Licensee has identified all the equipment, located in a harsh environment, required to safely shut down the reactor in the event of a loss of feedwater/small-break LOCA. Rosztoczy, ff. Tr. 21,867, at 3.

574. In its review of the environmental conditions specified for the equipment, the Staff performed its own analyses and calculations to assess the adequacy of Licensee's specified environmental conditions. The Staff determined that, with the exception of the radiation levels in the Auxiliary Building, the most severe environmental conditions that could result from this postulated event have been specified by

Licensee. Using its own higher estimate for the radiation doses in the Auxiliary Building, together with the other environmental conditions specified by Licensee, the Staff reviewed the environmental qualification information submitted by Licensee. Rosztoczy, ff. Tr. 21,867, at 3, 4.

575. As a result of its review, the Staff determined that all the identified electrical equipment located in a harsh environment has been demonstrated to be capable of performing its intended function following a loss of feedwater/small-break LOCA event, with a few exceptions which were described in the Staff's testimony. Rosztoczy, ff. Tr. 21,867, at 4-6. Based upon these results, the commitments made by Licensee with respect to the exceptions, and the conditions for restart recommended in the Staff's testimony (which address the exceptions), the Staff concluded that the equipment necessary to cope with a loss of feedwater/small-break LOCA event will have been demonstrated, prior to exceeding 5% power operation, to be capable of performing its safety functions when subjected to the environmental conditions to which it would be exposed during the period when its functions must be performed, should such an event occur. Id. at 7.

576. With the exception of the orders discussed above modifying technical specifications (paragraph 566, supra), and requiring the establishment of central files, the NRC has not imposed license conditions on any operating reactor as a result of the IE Bulletin 79-01B program. Tr. 22,107

(Rosztoczy). Neither has the Staff performed a similar review (loss of feedwater/small-break LOCA event) for any other operating reactor, or attempted to impose conditions, such as the six recommended in the Staff's testimony, with respect to any other licensee. Tr. 22,107-08 (Rosztoczy). Yet, the Staff testified that there is not anything unique about the equipment in TMI-1 and its qualifications, compared with the equipment in other operating reactors of the same vintage. Tr. 22,109-10 (Rosztoczy).

577. Nevertheless, because Licensee did not oppose them, recommended restart conditions 1 through 5 in the Staff's testimony are accepted by the Board. See Rosztoczy, ff. Tr. 21,867, at 6, 7. Recommended condition 6 states as follows:

Evaluate the information made available to them [Licensee] prior to criticality, concerning the recent testing on Limitorque motor operators, and determine whether the results of that testing are applicable to the operators in TMI-1 for the event being analyzed. Prior to exceeding 5% power operation, provide the results of this evaluation to the NRC for review.

Id. at 7. The motor operators which failed in the tests did so under more severe environmental conditions than expected for the event being analyzed at TMI-1. Id. at 5. Yet, Licensee has agreed to review and comment to NRC on the Westinghouse test reports after the NRC makes the reports available to Licensee. Enclosure to letter, June 12, 1981, Hukill (Metropolitan Edison) to Stolz (NRC), attached to Rosztoczy, ff. Tr. 21,867. Licensee's cross-examination, however,

reflects a concern with the schedule suggested for completion of Licensee's evaluation (prior to exceeding 5% power), since performance is dependent upon the Staff providing the information to Licensee (as late as just prior to criticality). Since the Staff has not imposed a requirement for such an evaluation as a condition for operation beyond 5% power at any other operating reactor, Tr. 22,120-22 (Rosztoczy), and since at least one Staff witness stated he did not have a good answer as to why TMI-1 should be on a different schedule for this evaluation, Tr. 22,124-25 (LaGrange), the Board modifies the recommended condition to require Licensee to provide the results of its evaluation to the NRC prior to exceeding 5% power operation, or ninety (90) days after receipt of the necessary information, whichever is later.

III. CONCLUSIONS OF LAW

578. The Board has considered all documentary and oral evidence presented by the parties on the contentions raised by intervenors, the questions raised by the Board, and the recommendations of the Director of Nuclear Reactor Regulation as stated in the Commission's Order and Notice of Hearing, CLI-79-8, 10 N.R.C. 141 (1979). Based upon a review of the entire record in this proceeding and the foregoing findings of fact, the Board enters the following conclusions of law with respect to plant design and procedures issues.

579. The short-term actions recommended by the Director of Nuclear Reactor Regulation, and set forth in Section II of the Commission's Order and Notice of Hearing, are sufficient to provide reasonable assurance that the Three Mile Island Unit 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. The necessity of these short-term actions was not contested.

580. The long-term actions recommended by the Director of Nuclear Reactor Regulation, and set forth in Section II of the Commission's Order and Notice of Hearing, are sufficient to provide reasonable assurance that the Three Mile Island Unit 1 facility can be operated for the long term without endangering the health and safety of the public, and should be required of Licensee as soon as practicable. The

necessity of these long-term actions, with the exception noted below, was not contested. Further, the Board concludes that Licensee has demonstrated reasonable progress toward the satisfactory completion of these long-term actions.

581. Based upon our findings of fact on the issue "Detection of Inadequate Core Cooling" (Licensee PF 24-91), the Board concludes that reactor vessel water level instrumentation has not now been shown to be a necessary long-term component of NUREG-0578 Recommendation 2.1.3.b, and that Licensee has demonstrated reasonable progress toward the satisfactory completion of that long-term action.

582. The Board's conclusions on the sufficiency of the short and long-term actions are based, in part, on Licensee's agreement to perform (i.e., failure to contest) certain other actions recommended by the Staff, beyond those set forth in Section II of the Commission's Order and Notice of Hearing, which were selected from NUREG-0694, NUREG-0737 and NUREG-0752. See Findings of Fact 518-526, supra. The Board concludes, however, for the reasons set forth in Findings of Fact 527 and 528, that the additional restart requirements recommended by the Staff with respect to NUREG-0737 items II.K.2.14, II.K.3.7, II.K.3.1 and II.K.3.2 are not necessary to provide reasonable assurance that the Three Mile Island Unit 1 facility can be operated without endangering the health and

safety of the public, and should not be required before
resumption of operation should be permitted.

Respectfully submitted,

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Dated: July 13, 1981