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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of)
GPU NUCLEAR CORPORATION)
(Three Mile Island Nuclear)
Station, Unit No. 1))

Docket No. 50-289

(10 CFR 2.206)

UNION OF CONCERNED SCIENTISTS' PRELIMINARY
RESPONSE TO DIRECTOR'S DECISION AND REQUEST FOR
DEFERRAL OF NOVEMBER 6 MEETING, FOR OPPORTUNITY TO
ADDRESS COMMISSION AND FOR PRODUCTION OF CERTAIN DOCUMENTS

The Commission is tentatively scheduled to meet on November 6, 1984, to have a briefing and possible vote on UCS's 2.206 petition concerning the TMI-1 Emergency Feedwater System. UCS requests that the Commission defer this meeting to allow UCS a reasonable time to submit its review of and response to Mr. Denton's decision. We also request an opportunity to address you orally if the Staff is to present a briefing.

As the Commission is aware, UCS is currently engaged in preparations for the remanded TMI-1 restart hearings, as well as in ongoing proceedings before the Commission to determine the necessity for and scope of those hearings. The full-time efforts of UCS counsel and cognizant technical staff has been required for the past two months to meet those obligations, which include review of thousands of pages of documents, the preparation for and conduct of

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over 15 depositions in Washington, Harrisburg, and King of Prussia, numerous prehearing conferences and teleconferences, the preparation of direct testimony and cross-examination and the filing of briefs before the Commission. These obligations have prevented UCS from preparing a complete review of Mr. Denton's decision and the bases therefor.^{1/}

As a result of our preliminary review to date, we wish to call your attention to two very important areas where we believe that facts have not been presented to support Mr. Denton's decision. The first concerns the Staff's conclusion that, although 5 audits were required to address the question, the Staff can now be assured that the necessary equipment in the emergency feedwater system is qualified to survive accident environments. In judging the weight that can be attached to this conclusion, you should be aware that the Staff stated with equal assurance in its June 1980 Restart Safety Evaluation of TMI-1 that the EFW system was fully qualified for a main steam line break. NUREG-0680, p. C1-10. However, when the documentation allegedly supporting this claim was finally audited as a result of UCS's petition, this assurance was shown to be without merit. The Director's Decision, dated September 25, 1984, and the supporting Safety Evaluation Report, dated September 13, 1984, make it clear that the EFW system was not in fact so qualified, that much of the alleged documentation did not exist, and that replacement of certain components and other plant modifications were required.

^{1/} The filing of this paper now was not intended to disrupt the Commission's decision making process. In addition to being fully occupied with the obligations discussed above, we were aware that the Commission previously postponed a similar meeting scheduled for October and, from several telephone calls to the Office the Secretary, that the November 6 meeting was only "tentative."

This is totally consistent with the pattern of the environmental qualification review for TMI-1 during the last five years. There have been several instances where GPU and the Staff were unable to support their claims that TMI-1 equipment was qualified when called upon to do so. For example, on July 26, 1984, the Commission gave the Staff 14 days "to certify the status of environmental qualification of equipment [within the scope of the restart proceeding] as discussed above for radiation levels associated with large break LOCAs in accordance with the DOR guidelines." CLI-84-11, Sl. op. at 9, July 26, 1984. To date, the Staff has been unable to do so even though it has claimed for years that TMI-1 was safe enough to restart. In fact, in its latest briefing of the Commission on the status of the environmental qualification program, the Staff characterized TMI-1 as uniquely bad compared to other plants that have been audited. During the Commission briefing on September 4, 1984, the following exchange took place:

MR. NOONAN: * * * TMI was, it was unique because we went to that plant we found that the records were not there. They clearly were not there.

COMMISSIONER ASSELSTINE: Had they said they were there?

MR. NOONAN: They said they were there. They said to us that everything was qualified. We said, "We want to come look and see the supporting documentation." We went up there and they did have records but they were no where near complete. Some were handwritten statements. After a couple of meetings . . .

COMMISSIONER ASSELSTINE: Were the records sufficient to show that the equipment was qualified?

MR. NOONAN: No sir . . .

Discussion and Vote on Environmental Qualification of Electrical Equipment - Commission Meeting Transcript, September 4, 1984, pp. 64-65.

It is true that later in the briefing, the Staff claimed that the records were now there and that they now support qualification. Id., pp. 65-66. Yet,

while the Staff is now again concluding that the EFW components are environmentally qualified, the Staff has not provided for review the documentation which is claimed to support that conclusion. Furthermore, much of the documentation now relied on by GPU and the Staff to refute UCS was created after UCS filed its 2.206 petition. For example, in its June 1980 Restart Safety Evaluation Report, the Staff concluded that "the motor-driven EFW pumps will start and operate under the worst postulated environmental conditions." NUREG-0680, p. C1-10. Now, more than four years later, the Staff relies upon WCAP 10575, Rev. 0, "Evaluation of the Operation of Emergency Feedwater Pump Motors in a High Energy Line Break Environment for GPU's TMI Unit 1 Nuclear Power Plant," dated June 19, 1984. See "Safety Evaluation by the Office of Nuclear Reactor Regulation Supporting Director's Decision Under 10 CFR 2.206 (Environmental Qualification of Emergency Feedwater)," September 13, 1984, p. 23. Furthermore, the electrical terminations for the EFW pump motors were replaced because their "qualification could not be documented...." Id., p. 16. The documentation purported to establish the qualification of the replacement terminations (Kerite splices) is dated July 27, 1984, and August 3, 1984. Id., pp. 35-36.

Given the history of this issue, and this utility, we do not see how the Commission could possibly endorse the Staff's conclusion now without at least directing it to provide the underlying documentation so that UCS and the Commission can review and evaluate it. We therefore request the Commission to order this material released and to provide for a reasonable period of time to review it.

The second general area that clearly requires your attention concerns the basis for the Staff's overall judgement that TMI-1 can be operated without

undue risk to public health and safety. The Staff concedes that the EFW system still does not meet NRC regulations applicable to a system important to safety in that it can be "rendered ineffective" by a single failure. Director's Decision, pp. 24-25. Yet, without anything approaching a rigorous analysis, the Staff concludes that TMI-1 can be safely operated nonetheless. The only basis for this assertion, and even this is implicit, is essentially a qualitative probabalistic analysis. That is, the Staff apparently believes that an accident is unlikely to happen. Id., pp. 25, 27-31. We can imagine no clearer rejection of Governor Thornburgh's position that "[t]here should be no choice at all between resolving safety questions before cranking up a nuclear reactor, or simply putting off those questions and crossing our fingers." Statement of Dick Thornburgh, Governor of Pennsylvania, Before the U.S. Nuclear Regulatory Commission, August 15, 1984, p. 2.

In this connection, the Staff's understanding of the status of the EFW hardware, as well as its view of what is necessary for safety and in what time frame, has changed greatly in the past four years. In the original June, 1980 Staff Restart Safety Evaluation, the Staff found that the EFW system would be "fully safety grade" by mid-1981. NUREG-0680, p. C8-37. Replacement of the flow control valves was stated to be the pacing item for this schedule. GPU proposed to delay completing the upgrade until the first refueling outage after restart. The Staff refused to permit this delay; it stated that it would "require that the fully safety grade modification described above be installed within 60 days after receipt of the required equipment." Id. This "requirement" presumably reflected the staff's recognition of the safety importance of a fully safety-grade EFW system.

In the past four years, TMI-1 has moved further away from achieving a fully safety-grade EFW system than it was in 1980 in the sense that it is now known a) that many more changes are needed to the system (i.e., it is much further from safety-grade than the Staff believed) and b) the Staff is no longer "requiring" completion of the safety-grade upgrade within 60 days of acquisition of the pacing equipment.

In fact, as of October 3, 1984, GPU had completed only 3 of 15 major changes to the EFW system required to make it fully safety grade, i.e., to meet the requirement that was originally directed to be met by mid-1981. See H.D. Hukill, Director, TMI-1, to D.G. Eisenhut, Director, Division of Licensing, October 3, 1984, attachment, second and third unnumbered pages. (This material was transmitted to the Commission via a letter from GPU counsel Baxter to Mr. Chilk, October 9, 1984.) GPU did not even release the basic engineering for the necessary electrical cable and conduit work until August, 1984. Id. at fourth page. Upon reviewing the scope of the necessary work at this incredibly late date, GPU has discovered that it will need, inter alia, 60,000 feet of cable, 7,000 feet of new cable tray and conduit and 11 new control cabinets. The construction work cannot be completed until the third quarter of 1985, with three months required after that for startup and test activities requiring plant shutdown. Id.

Even more astonishing, this end of 1985 schedule "assumes TMI-1 shutdown during the entire construction phase." That is, if restart is permitted at any earlier date, the work will be put off. Hukill to Eisenhut, supra, p. 1, emphasis added. GPU has unequivocally stated: "We plan to construct modifications or portions thereof which would not prevent the plant being ready to restart when restart is authorized. At any point in time, we intend

to have TMI-1 in a configuration which would support restart within 4-6 weeks of NRC permission to restart." Id. Thus, so long as there is any chance of the Commission authorizing restart, GPU will not even begin any portions of the EFW upgrade which would take longer than 4-6 weeks! Since the major piping changes necessary would apparently take some four months from the time cutting into the existing pipes began (Id., attachment, unnumbered third page), this GPU policy would result in continually putting off beginning that crucial work so long as restart appears possible. It could not be more clear that there is no "schedule" for completing the EFW upgrade and there will never be unless the Commission directs that it be done. That this could be the case for a plant shut down for 5 1/2 years -- almost enough time to build an entire new plant -- is almost beyond belief.

GPU is not required to build an entirely new plant; but as each year passes, GPU announces that the date for completion of the EFW upgrade has slipped another year into the future. During a meeting in Bethesda, Maryland on December 16, 1983, GPU told the Staff that, assuming that TMI-1 was shut down for the entire period, the redundant EFW flow control valves and block valves would be installed by August 1984, and that all other modifications necessary to upgrade the EFW system to a safety grade system would be completed by December 1984.^{2/} During that same meeting, the Staff commented that GPU's commitment to complete the long term EFW modifications during the first refueling outage after restart had been made so long ago that if restart had occurred when anticipated, the modifications would have been completed before now. The only consistency one can perceive in the treatment of this

^{2/} See Summary of Afternoon Meeting with GPU Nuclear Corporation on December 16, 1983," dated December 22, 1983, Enclosure 2 ("handouts and other information received from the licensee"), three unnumbered pages entitled "Hearing Related Long Term Action Items" and "Emergency Feedwater Upgrade." Copies of these three pages are attached.

issue since 1980 is that the flexibility of the Staff's "requirements" has kept pace with the flexibility of GPU's successive schedules. The Commission's 1979 order requirement that "reasonable progress" be shown toward completion of all long-term modifications as a condition for restart has been completely flouted. CLI-79-8, 10 NRC 141, 146 (1979).

Against this background, the Staff's claim that the plant is nonetheless sufficiently safe to operate lacks support or credibility. The fact is that the Staff has no technical analysis of the degree of reliability of the EFW system. The only attempt thus far was a quantitative reliability analysis of only one aspect of the system — its ability to operate to mitigate a small break loss of coolant or loss of main feedwater accident. The ASLB found the EFW system insufficiently reliable largely on the basis of this analysis. LBP-81-59, 14 NRC 1211, 1355-1370 (1981). The Commission overruled that decision on the grounds that the analysis, which relied to some extent on generic information "may not" have been exactly applicable to TMI-1. CLI-84-11, Sl. op. at 13, July 26, 1984. Now the Staff has no technical analysis at all; it relies entirely on unsupported judgment. If the Commission was unwilling to accept the former, it surely has no basis for accepting the latter.

UCS offers these two examples to illustrate to you that the issues treated by the Director's Decision are complex and require close scrutiny. It should be noted in this regard that the Staff took nine months to respond to the UCS petition, although it was originally directed by the Commission to complete its response in two months. We believe that our request for time to respond to you in writing and orally is more than reasonable.

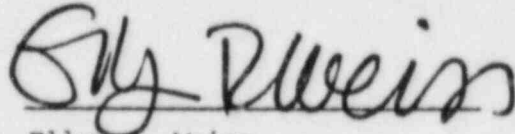
We also wish to point out that, as far as UCS is aware, neither the OI investigation of whether GPU has made material false statements to NRC in connection with the environmental qualification program nor the OIA investigation of whether the NRC Staff provided false or misleading information to the Boards or the Commission on the environmental qualification issue have been completed. See Director's Decision, pp. 19-20.

Although we have not completed our review of the Staff's identification of each specific aspect of the TMI-1 EFW system which does not comply with the regulations applicable to systems important to safety, Mr. Denton's decision appears to be incomplete in this regard. For example, we recently learned that the TMI-1 EFW system contains "four emergency feedwater enable/defeat selector switches." TMI-1 Operating Procedure 1102-11, "Plant Cooldown," Revision 47, 08/29/84, p. 9.0. Our recollection is that these switches were not discussed during the restart proceeding. Based on the limited information available at this time, these switches appear to violate the requirement of IEEE Std 279 (which is incorporated in 10 CFR 50.55a) which requires that bypasses of protective functions "be removed automatically whenever permissive conditions are not met." IEEE Std 279-1971, Section 4.12, "Operating Bypasses." These switches are not discussed in the Director's Decision or its supporting Safety Evaluation Report, leading UCS to question whether the Staff undertook a complete review of the TMI-1 EFW system to identify those features which do not meet the regulations applicable to safety grade systems or limited itself to responding to those identified in UCS's petition.

In sum, UCS requests the following:

1. Deferral of the November 6 meeting until approximately December 15 to provide UCS time to review the decision and respond in writing;
2. An opportunity to address the Commission orally;
3. That the Commission direct the Staff to provide the documentation which purportedly supports the claim that all pertinent EFW components are now environmentally qualified. Such documentation should include, if applicable, the justification for not requiring a component to be environmentally qualified and the qualification documentation for any backup or substitute equipment.

Respectfully submitted,



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Dated: November 2, 1984

HEARING RELATED LONG TERM ACTION ITEMS

<u>ITEM</u>	<u>STATUS</u>	<u>READY FOR CONSTRUCTION ENGRG.</u>	<u>EQUIPMT.</u>	<u>COMMITMENT</u>
1. FUEL HANDLING BLDG. LEF FILTRATION SYSTEM	BEING DESIGNED	5/84	9/84	PRIOR TO FUEL HANDLING
2. LEW SAFETY GRADE (11.E.1.1)	BEING DESIGNED	8/84	11/84	4TH QTR. '84 (IF PLANT SHUTDOWN)
3. CONTROL ROOM DESIGN REVIEW (1.D.1)	DRAFT REPORT COMPLETE	NO ADD'L MODIFICATIONS		REPORT SUBMITTAL 12/83
4. PLANT SHIELDING - DECAY HEAT SYSTEM REMOTE VALVE OPERATORS (11.B.2)	BEING DESIGNED	4/84	6/84	4TH QTR. '84 (IF PLANT SHUTDOWN)
5. REACTOR COOLANT INVENTORY TRACKING SYSTEM (11.F.2)	BEING DESIGNED	4/84	4/84	4TH QTR. '84 (IF PLANT SHUTDOWN)
6. AUDIT OF TRAINING PROGRAM	WAITING NRC APPROVAL GPUNC CHOSEN AUDITOR			COMPLETE 2 YEARS AFTER RESTART AUTHORIZA- TION
7. PROBABILISTIC RISK ASSESSMENT	CONTRACT AWARDED WORK STARTED			FINAL REPORT FOR LEVEL-1 TO NRC 12/85
8. REPLICA SIMULATOR	GRAPHICS/SIMULATION HARDWARE RECEIVED TECHNICAL DATA ACQUISITION 90% COMPLETE	DELIVERY 12/85		DELIVERY 12/85 (PID)
9. BASIC PRINCIPLE TRAINER	HARDWARE IN TEST SOFTWARE ESSENTIALLY COMPLETE	DELIVERY 2/84		ORDER BPT-COMPLET-

EMERGENCY FEEDWATER UPGRADE

SCOPE: NUREG-0737: Item II.E.1.1

UPGRADE THE EFW SYSTEM TO A SAFETY GRADE SYSTEM

- A) MECHANICAL SYSTEM CONFIGURATION CHANGES
- B) SEISMIC UPGRADE OF PIPING SECTIONS IN THE MAIN
STEAM AND EFW SYSTEMS TO SEISMIC CATEGORY I
(SUPPLEMENTS NRC GENERIC LETTER 81-14).
- C) REDUNDANT CONTROL AND BLOCK VALVES

CURRENT STATUS: ALL MODIFICATIONS ARE IN THE DESIGN AND ENGINEERING
CYCLE.

SCHEDULE:

MECHANICAL/STRUCTURAL MODIFICATION	ORDER LONG LEAD EQUIPMENT (VALVES)	COMPLETE
ITEMS (A), (B), & (C)	RELEASE ENNG. FOR CONST.	DECEMBER 1983
	RECEIVE LONG LEAD EQUIPMT.	JUNE 1984
	COMPLETE CONST. & TESTING (OUTAGE REQUIRED)	AUGUST 1984

EMERGENCY FEEDWATER UPGRADE

SCOPE: NUREG-0737, Item II.E.1.1

- A) MECHANICAL AND ELECTRICAL EQUIPMENT QUALIFICATION
UPGRADE (SEISMIC AND ENVIRONMENTAL)
- B) CHANGES TO THE CONTROL SYSTEM FOR EFW COMPONENTS
- C) OTSG LOW LEVEL AUTO START
- D) MAIN STEAM RUPTURE DETECTION SYSTEM
- E) CONDENSATE STORAGE LOW LOW ALARM

CURRENT STATUS: ITEM (A) COMPLETE FOR RESTART
 ITEM (B - E) IN DESIGN & ENGINEERING CYCLE

SCHEDULE:

ITEM (B - E) ORDER LONG LEAD EQUIPMT.	JANUARY 1984
(ELECTRONIC CABINETS)	
RELEASE ENNG. FOR CONST.	AUGUST 1984
RECEIVE LONG LEAD EQUIPMT.	***
COMPLETE CONSTRUCTION & TESTING	DECEMBER 1984
(OUTAGE REQUIRED)	

***JUST RECEIVED BIDS, BEST DELIVERY IS 46 WEEK ARO.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
GPU NUCLEAR CORPORATION)
(Three Mile Island Nuclear)
Station, Unit No. 1))

Docket No. 50-289

(10 CFR 2.206)

CERTIFICATE OF SERVICE

I hereby certify that copies of "UNION OF CONCERNED SCIENTISTS' PRELIMINARY RESPONSE TO DIRECTOR'S DECISION AND REQUEST FOR DEFERRAL OF NOVEMBER 6 MEETING, FOR OPPORTUNITY TO ADDRESS COMMISSION AND FOR PRODUCTION OF CERTAIN DOCUMENTS" have been served on the following persons by hand delivery or, where indicated by an asterisk, by express mail this 2nd day of November 1984.

Nunzio Palladino, Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

James Asselstine, Commissioner
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Frederick Bernthal, Commissioner
U.S. Nuclear Regulatory Commission
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Thomas Roberts, Commissioner
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

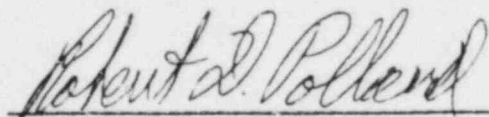
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