

October 2, 1985

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Docket No. 50-289

Mr. Henry D. Hukill, Vice President  
and Director - TMI-1  
GPU Nuclear Corporation  
P. O. Box 480  
Middletown, Pennsylvania 17057

Dear Mr. Hukill:

SUBJECT: RESTART OF TMI-1 (FACILITY OPERATING LICENSE NO. DPR-50)

Commission Order CLI-85-9, dated May 29, 1985, which lifted the immediate effectiveness of the 1979 shutdown order and thus authorized restart of TMI-1 subject to certain conditions and requirements, has been upheld on appeal by the U.S. Court of Appeals for the Third Circuit. For purposes of lifting the immediate effectiveness of the shutdown order, the Commission affirmed the various conditions which had been imposed during the restart proceeding and imposed two additional conditions to be satisfied prior to restart as follows:

- (1) To ensure a safe return to operation, licensee was to submit a power ascension schedule, with hold points as necessary at appropriate power levels, to the NRC staff for staff's approval. The plant cannot be restarted prior to staff approval of such a schedule; and
- (2) The NRC staff prior to restart was to provide to the Commission for its information a general description of a program to provide increased NRC oversight at TMI-1 during the period of start-up and power ascension, beginning with initial criticality, and any time period thereafter staff feels to be appropriate.

By letter dated June 3, 1985, the staff approved your power ascension schedule which satisfies the first condition. The second condition regarding the increased NRC oversight program at TMI-1 during startup and power ascension was satisfied by memorandum dated June 5, 1985 from Mr. Dircks, Executive Director for Operations, to the Commission. 1/

The Commission Order CLI-85-9 permits TMI-1 to resume operation subject to the conditions imposed in the restart proceeding. These conditions were

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1/ Staff on May 29, 1985 certified that all other conditions required to be met prior to restart had been met.

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Mr. Henry D. Hukill

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imposed pursuant to the Decisions of the Atomic Safety and Licensing Board, as modified by the Atomic Safety and Licensing Appeal Board and the Commission. To be sure there is no misunderstanding over the terms of the conditions imposed by the NRC in the restart proceeding for the lifting of the 1979 suspension, a listing of those conditions is attached.

As a separate matter, in the Steam Generator repair proceeding, the Atomic Safety and Licensing Board's Initial Decision dated October 31, 1984 authorized issuance of the requested license amendment recognizing the acceptability of the kinetic expansion repair techniques subject to conditions specified in the staff's Safety Evaluation Report, NUREG-1019, Supplement 1 thereto, and two additional conditions derived from the hearing proceeding. All conditions were subsequently incorporated in the license in an amendment issued on December 21, 1984. Two of the license conditions were required to be satisfied prior to restart; paragraph 2.c.(8).1. requiring that GPU Nuclear submit to the NRC the results of the steam generator hot test program and a summary of its management review; and paragraph 2.c.(8).2. regarding the establishment of the steam generator baseline leakage. These conditions have been met, respectively, by your letters dated May 21, 1985 and May 28, 1985.

By Order of the Supreme Court dated October 2, 1985, the previously-imposed judicial stay was vacated. Accordingly, the Commission's Order lifting the suspension is in full force and effect and TMI-1 is now authorized to operate.

Sincerely,

ORIGINAL SIGNED BY

Harold R. Denton, Director  
Office of Nuclear Reactor Regulation

Attachment:  
TMI-1 Conditions of Operation

cc w/ attachment:  
See next page

OFC	:OELD	:OELD	:OELD	:ELB	:NRR	:	:
NAME	:JGoldberg:pl	:JGray	:EChristenbury	:GCunningham	:HDenton	:	:
DATE	:10/ 2 /85	:10/02 /85	:10/ /85	:10/02 /85	:10/ 2 /85	:	:

Mr. Henry D. Hukill  
GPU Nuclear Corporation

Three Mile Island, Unit 1

-1-

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GPU Nuclear Corporation

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Atomic Safety & Licensing Board Panel  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Atomic Safety & Licensing Appeal  
Board Panel (8)  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Docketing and Service Section  
Office of the Secretary  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

## TMI-1 CONDITIONS OF OPERATION

### (1) Continuing Requirements

- (a) During any Unit 2 fuel movements in the fuel handling building, GPU Nuclear Corporation shall suspend work in the Unit 1 area of that building, unless GPU Nuclear Corporation has submitted to the NRC for its review specific written procedures for the planned movements of Unit 2 fuel and an evaluation of the potential impacts of those fuel movements on personnel working in the Unit 1 area of the building and the NRC has agreed that the potential impacts of the planned Unit 2 fuel movements on personnel working in the Unit 1 area of the building do not require that work in the Unit 1 area of the building be suspended. LBP-82-27, 15 NRC 747, 755 (1982).
- (b) Unit 1 solid waste handling capabilities shall not be relied upon for decontamination or restoration of Unit 2. LBP-81-59, 14 NRC 1211, 1454 (1981); LBP-82-27, 15 NRC at 757.
- (c) After the restart of Unit 1 and prior to the movement within the Unit 1 fuel handling building of any irradiated Unit 1 fuel, GPU Nuclear Corporation shall install, and have operable, an engineered safety features (ESF) filtration system for the Unit 1 fuel handling building. The ESF filtration system for Unit 1 shall be operable whenever irradiated Unit 1 fuel is moved within the Unit 1 fuel handling building. LBP-82-27, 15 NRC at 756.
- (d) Isolation of liquid transfer line interconnections between Units 1 and 2 shall be maintained. LBP-81-59, 14 NRC at 1432-33; LBP-82-27, 15 NRC 747.
- (e) At all times when the plant temperature is above 200°F (cold shutdown), GPU Nuclear Corporation will man all shifts at TMI-1 with a minimum of one NRC-licensed SRO, who will act as Shift Supervisor; a second individual, either NRC-licensed as an SRO or NRC-licensed as an RO and trained as an SRO, who will act as Shift Foreman; and a minimum of two NRC-licensed ROs who will act as Control Room Operators.\* LBP-81-32, 14 NRC 381, 580 (1981).
- (f) GPU Nuclear Corporation shall employ all reasonable efforts to ensure personnel will be scheduled on a six-shift rotation, so long as there is a sufficient number of qualified individuals who normally stand shift watches to man six shifts, each of which meets condition (1)(e), above (6 SROs and 18 ROs, recognizing that SROs may act as either SROs or ROs).\* LBP-81-32, 14 NRC at 580.

\* Conditions (1)(e) through (j) are minimum conditions imposed by the Licensing Board based on the evidentiary record. The requirements of NRC regulations on shift manning, which in some respects are more restrictive than these conditions, are also applicable.

- (g) In the event there is an insufficient number of qualified personnel who normally stand shift watches available to meet condition (1)(f), above, GPU Nuclear Corporation shall schedule its normally on-shift plant operating personnel on a five-shift schedule, each of which meets condition (1)(e), above, unless additional relief is granted pursuant to condition (1)(j), below.\* LBP-81-32, 14 NRC at 580.
- (h) In the event there is an insufficient number of qualified operators who normally stand shift watches available to meet condition (1)(g), above, GPU Nuclear Corporation may employ on shift qualified and licensed individuals from its organizations who do not normally stand shift watches, in addition to those operators who do normally stand shift watches, to meet condition (1)(g), above.\* LBP-81-32, 14 NRC at 580.
- (i) In the event there is an insufficient number of qualified operators in GPU Nuclear Corporation's organization to meet condition (1)(h), above, for any period longer than ten consecutive days, GPU Nuclear Corporation shall inform the Commonwealth of Pennsylvania and the NRC staff and seek from the NRC staff their concurrence to man TMI-1 shifts and operate TMI-1 for a limited period of time with available qualified and licensed personnel, specifically bearing in mind the then current and applicable NRC criteria or guidance on overtime policies.\* LBP-81-32, 14 NRC at 580-81.
- (j) At all times when TMI-1 is operating at power levels above 20% rated power and there is only one licensed SRO on shift, the SRO-licensed individual on shift shall remain within the control room (including the shift supervisor's office) or within the plant at a location from which the control room is accessible in less than five minutes. Further, at all times when TMI-1 is operating at power levels above 20% rated power and the SRO-licensed individual on shift is not in the control room (including the shift supervisor's office), GPU Nuclear Corporation shall ensure that the control room (including the shift supervisor's office) is manned by a minimum of two ROs, acting as Control Room Operators, a third individual with an RO license and SRO-trained, and by the on-shift Shift Technical Advisor (STA).\* LBP-81-32, 14 NRC at 581.
- (k) GPU Nuclear Corporation shall employ all reasonable efforts to maintain at all times sufficient numbers of individuals in training

\* Conditions (1)(e) through (j) are minimum conditions imposed by the Licensing Board based on the evidentiary record. The requirements of NRC regulations on shift manning, which in some respects are more restrictive than these conditions, are also applicable.

to become licensed operators in order to account for possible future attrition of licensed operators. To this end, GPU Nuclear Corporation shall employ all reasonable efforts to maintain in training at all times that number of trainees which, when combined with the actual number of NRC-licensed SROs and ROs in GPU Nuclear Corporation's organization, will total at least 30. GPU Nuclear Corporation shall report to the Commonwealth of Pennsylvania and the NRC staff at least annually whenever this condition is not met, and shall describe to the NRC staff the corrective actions being employed by GPU Nuclear Corporation to achieve compliance. LBP-81-32, 14 NRC at 581.

- (1) At the time of restart, GPU Nuclear Corporation shall provide and shall thereafter maintain a management system to perform the following functions:
  - (i) Review operating experience information originating both within and outside the facility;
  - (ii) Promptly supply information pertinent to plant safety, including proposed procedural changes and plant modifications, to operators and other appropriate plant personnel; and
  - (iii) Assure that such information is incorporated into training and requalification programs.

LBP-81-32, 14 NRC at 581-82.
- (m) Any participation of Gary P. Miller in the start-up, testing or operation of TMI-1 shall be under the direct supervision of an appropriately qualified official of GPU Nuclear Corporation. LBP-82-56, 16 NRC 281, 384 (1982).
- (n) GPU Nuclear Corporation shall preserve all records pertaining to the investigation recommended at Partial Initial Decision ¶¶ 2312-14 pertaining to the false certification of an employee. LBP-82-56, 16 NRC at 384.
- (o) Until the backup display system for the incore thermocouples is made fully safety-grade (including environmental qualification), the TMI-1 emergency procedures shall direct that operators rely on the redundant indication closest to saturation in determining if the criteria to permit throttling of High Pressure Injection (HPI) have been met. ALAB-729, 17 NRC 814, 894 (1983).

- (p) Until the emergency feedwater (EFW) system is made fully safety-grade, an auxiliary operator shall be dispatched to the EFW flow control valve area, upon any EFW auto-start condition, in order to take normal control of the valves, if needed; that person shall not be required to perform any other duties until the control room operators verify that EFW flow is being delivered to the steam generators and the EFW system is controlled by the Integrated Control System (ICS) or through the manual station in the control room. ALAB-729, 17 NRC at 894.
- (q) Before the pressurizer heaters are connected to the emergency power supply at TMI-1, the reactor shall be subcritical or in a hot standby condition. ALAB-729, 17 NRC at 894.
- (r) GPU Nuclear Corporation shall modify its emergency plan to address changing capabilities of plant instrumentation. CLI-79-8, 10 NRC 141, 145 (1979); LBP-81-59, 14 NRC at 1702.
- (s) No pre-accident TMI-2 operator, shift supervisor, shift foreman, or any other individual both in the operating crew and on shift for training as a licensed operator at TMI-2 prior to the accident shall be employed at TMI-1 in a responsible management or operational position without specific NRC approval.

"Operational position" as used here includes any position involving actual operation of the plant, the direction or supervision of operators, or independent oversight of operations.

This condition shall also apply to the pre-accident Vice-President, Generation; TMI-2 Station Manager; TMI-2 Supervisor of Technical Support (from January 1977 to November 1978); TMI-2 Superintendent of Technical Support (from December 1978 to the accident); and TMI-2 Supervisor of Operations.

CLI-85-02, 21 NRC 282, 341-342 (1985).

- (t) GPU Nuclear Corporation, in the absence of NRC authorization to the contrary, is to retain its expanded Board of Directors and its Nuclear Safety and Compliance Committee. CLI-85-02, 21 NRC at 342.
- (u) GPU Nuclear Corporation is to notify the NRC before returning either Mr. Robert Arnold or Mr. Edward Wallace to responsible positions at TMI-1. CLI-85-02, 21 NRC at 323.

(2) Power Escalation Test Requirements For Initial Restart After Lifting Immediately Effective Shutdown Order of July 2, 1979

- (a) Prior to operation above 5% power, GPU Nuclear Corporation shall complete the Special Low Power Test Program in accordance with GPU Nuclear Corporation's Restart Test Specification (letter of April 5, 1983 or NRC-approved later submittal) and Item I.G.1 of NUREG-0694. LBP-82-27, 15 NRC at 757.
- (b) Prior to operation above 48% power, GPU Nuclear Corporation shall demonstrate automatic initiation of EFW pumps upon loss of both feedwater pumps. CLI-85-09, 21 NRC 1118, 1157 (1985).
- (c) Prior to operation above 5% power, GPU Nuclear Corporation shall demonstrate that EFW system initiation and operation is assured independent of any AC source for at least two hours. CLI-85-09, 21 NRC at 1157.
- (d) Prior to completion of the Power Escalation Test program, GPU Nuclear Corporation shall demonstrate safety-grade automatic anticipatory reactor scram on loss of feedwater and upon turbine trip. CLI-85-09, 21 NRC at 1157.
- (e) Prior to completion of the Power Escalation Test program, GPU Nuclear Corporation shall demonstrate performance of the saturation meter, the incore thermocouples, and the wide range hot leg temperature instrumentation systems installed to recognize inadequate core cooling. CLI-85-09, 21 NRC at 1157.
- (f) Prior to completion of the Power Escalation Test program, GPU Nuclear Corporation shall demonstrate EFW initiation on loss of all four reactor coolant pumps. CLI-85-09, 21 NRC at 1157.

(3) Cycle 6 Requirements

- (a) Prior to startup following Cycle 6 refueling, GPU Nuclear Corporation shall upgrade the EFW system to provide safety grade automatic control and to provide other system improvements to include redundant control and block valves, automatic start on once through steam generator (OTSG) low level, and upgrades of the main steam rupture detection system and the condensate storage tank low-low level alarm to safety grade. LBP-82-27, 15 NRC at 747.
- (b) GPU Nuclear Corporation shall correct the human factors deficiency in TMI-1 control room design that is identified in Item 4c of NUREG-0752 and its Supplement 1 prior to startup following Cycle 6 refueling, and GPU Nuclear Corporation shall address final resolution of the human factors design deficiencies that are identified in Items 3b, 3e, 3g and 10b of NUREG-0752 and/or its Supplement 1 in its detailed control room design review (DCRDR) report for TMI-1. LBP-81-59, 14 NRC at 1320-24; LBP-82-27, 15 NRC at 751-52.

(4) Dated Requirements

- (a) Within the first two years after any restart authorization, GPU Nuclear Corporation's qualification and requalification testing and training program shall be subjected to an in-depth audit by independent auditors, approved by the NRC Director of Nuclear Reactor Regulation, such auditors to have had no role in the TMI-1 restart proceedings. LBP-82-56, 16 NRC at 384.

(5) Periodic Requirements

- (a) Annually, in October of each year, GPU Nuclear Corporation shall provide to the NRC reports on progress toward installation of a TMI-1 exact replica simulator. GPU Nuclear Corporation shall make reasonable and diligent efforts to have such simulator installed by the end of 1985. LBP-81-32, 14 NRC at 578-79.
- (b) Following availability of a basic principles trainer, GPU Nuclear Corporation shall provide for each operator as a part of annual requalification training at least one week training per year on this trainer in addition to the week each year at Babcock and Wilcox's simulator, at least until GPU Nuclear Corporation's exact replica simulator is available. LBP-81-32, 14 NRC at 578-79.
- (c) A program to reduce leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident shall be implemented and maintained. LBP-82-27, 15 NRC 747.