



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

Docket No: 50-320

MEMORANDUM FOR: V. Stello, Director, Division of Operating Reactors
FROM: R. Boyd, Director, Division of Project Management
SUBJECT: TRANSFER OF THREE MILE ISLAND NUCLEAR STATION, UNIT 2
(TMI-2) TO OPERATING REACTORS BRANCH NO. 4

Effective on the date of this memorandum, the project management responsibility for TMI-2 is transferred from Light Water Branch No. 4, DPM, to Operating Reactors Branch No. 4, DOR.

The licensees, Metropolitan Edison Company (the operating licensee), Jersey Central Power and Light Company, and Pennsylvania Electric Company received Facility Operating License DPR-73 (the license) on February 8, 1978 which authorized full power operation, with certain conditions and restrictions required to be satisfied before proceeding to various operating modes and by stated points in time.

A chronology of the amendments to DPR-73 to date is tabulated below, followed by a brief description of each amendment

Chronology

<u>Amend. No.</u>	<u>Date</u>
1	March 3, 1978
2	March 10, 1978
3	March 24, 1978
4	May 19, 1978
5	June 5, 1978
6	August 17, 1978
7	September 5, 1978

Amendment No. 1 adds to Attachment 2 of the license a waiver of Technical Specification 3.4.9.1 permitting hydrostatic testing of the Reactor Coolant System at certain pressures and temperatures prior to initial criticality only.

Amendment No. 2 revises Technical Specifications, deletes and modifies license conditions, and adds a requirement to Attachment 2, as follows:

- License condition 2.C.(3).b was deleted and Technical Specifications 4.8.1.1.2.1.3 modified to include load rejection information as required by the license condition.

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- Various Technical Specifications were revised to correct typographical and editorial errors.
- License conditions 2.C.(3).1.1 and 2.C.(3).1.2 were deleted and 2.C.(3).1.3 modified to cover aspects of the fire protection design.

Amendment No. 3 deleted license conditions 2.C.(3).^c, 2.C.(3).d, and 2.C.(3).e related to the reactor building emergency cooling booster pump capacity, the reactor building spray pump NPSH, and the containment response to a main steam line break, respectively. It also deleted the requirement from Attachment 2 that certain test procedures be performed prior to initial entry into Mode 2, added a requirement to perform a test procedure prior to use of the RC Waste Evaporator, revised Attachment 2 to clarify the details of operation involved in isolating the makeup tank after a LOCA, and corrected a typographical error.

Amendment No. 4 revised the Technical Specifications to avoid injection of NaOH into the RCS during inadvertent actuation of the ECCS and to accommodate a revised error analysis for quadrant tilt and axial imbalance.

Amendment No. 5 revised the Technical Specifications to require appropriate testing of the operability of the fuel handling bridge and its associated mast assemblies.

Amendment No. 6 revised the Technical Specifications to permit: (1) alternate method of containment air lock seal leak rate testing, (2) operation with increased ultimate heat sink temperature, (3) removal of orifice rod assemblies and installation of burnable poison rod retainers, and (4) replacement of the main steam safety valves.

Amendment No. 7 revises the environmental technical specifications to delete an unnecessary paragraph in the liquid effluents section, and deletes environmental conditions in the license requiring various detailed program descriptions which have been received and approved.

An order for Modification of License amending Facility Operating License DPR-73 was issued effective May 26, 1978. This order, dealing with the small break LOCA, requires submittal of a reevaluation of ECCS performance wholly in conformance with 10 CFR 50.46, restricts power level to 2568 Mwt, and requires plant operation in accordance with procedures in licensee letters. Further discussion of this order may be found in Enclosure 1.

The current status of items requiring further staff action and the organizations responsible for completing these items are identified in Enclosure 1. Lists of generic problems and Regulatory Guides used during the licensing review with references to relevant information and/or evaluations are included in Enclosures 2 and 3 respectively.

Enclosure 4 is a DSE memorandum summarizing the environmental status of this project and transferring environmental project responsibility from DSE to DOR. Enclosure 5 is the service list for this plant,

By copy of this memorandum, DSS, IE, ELD, ADM, Regulatory Files, Public Information and Public Proceedings are being notified of the following changes in safety personnel effective as the date of transfer. Enclosure 4 identifies the environmental personnel changes.

	<u>FROM</u>	<u>TO</u>
Project Manager	H. Silver	J. Zwetzig
Branch Chief	S. Varga	R. Reid
Assistant Director	D. Vassallo	B. Grimes
Licensing Assistant	M. Service	

Roger S. Boyd, Director
Division of Project Management
Office of Nuclear Reactor Regulation

Enclosures:
As stated

Enclosure 1

ITEMS REQUIRING FURTHER STAFF ACTION

Three Mile Island Nuclear Station, Unit 2

Docket No. 50-320

Facility Operating License DPR-73

1. Three Pump Operation

Paragraph 2.C.(3).a of the Facility Operating License permits operation in Modes 1 and 2 with three reactor coolant pumps. In our letter to the licensee of May 3, 1978 we requested additional documentation of margins available for longer term operation with three pumps. Metropolitan Edison responded in their letter of May 12, 1978 that since it did not anticipate any situation in which extended operation with three pumps would be required, it did not feel it necessary to respond to our request.

Further discussions with T. Novak of RSB confirmed that such information should be provided, that it has been provided for all other B&W plants authorized to operate with three pumps, and that if this information is not provided, three pump operation should be restricted as to duration and power level more severely than presently required by the Technical Specifications.

This position was transmitted verbally to Roy Harding of Met Ed on August 3, 1978, who indicated Met Ed would reconsider its position. No additional information has yet been received.

The Reactor Systems Branch (DSS) will retain primary review responsibility for this matter; the assigned reviewer is Scott Newberry. Management responsibility will be carried out by Operating Reactors Branch No. 4.

2. RPS and ESF Instrumentation Information

Paragraph 2.C.(3)f of the Facility Operating License requires/ submittal of RPS and ESF trip setpoint values by August 8, 1978. This information had been requested in our letter of March 24, 1977, and was furnished by Met Ed with their letter of August 7, 1978.

The Division of Operating Reactors will assume primary review responsibility for this matter. The Power Systems Branch (assigned reviewer Frank Ashe) and the Instrumentation and Control Systems Branch will be available for consultation. Management responsibility will be assumed by Operating Reactors Branch No. 4.

3. Degraded Grid Voltage

Section 8.2. of SSER No. 2 and Paragraph 2.C.(3).g of the Operating License require the licensee to implement various features designed to

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permit the plant to withstand degraded offsite voltage conditions. Implementation is required prior to startup following the first refueling outage. Pages S3-222-45 and 45a of Amendment 61 to the FSAR, dated 12-16-77, briefly describe the design of the planned changes.

The Power Systems Branch (DSS) will retain primary review responsibility of this matter. The assigned reviewer is Frank Ashe. Management responsibility will be assumed by Operating Reactors Branch No. 4.

4. Environmental Temperature Monitoring System

Section 7.8.2 of SSER No. 2, and Paragraph 2.C.(3).h of the Operating License require that, prior to startup following the first refueling outage, Met Ed install an acceptable temperature monitoring system to assure that the environment at the location of Class IE equipment in buildings outside containment is maintained within the temperature range for which the equipment is designed to operate. The planned system is briefly described on pages S3-222-47 and 47a of Amendment 61 to the FSAR, dated 12-16-77.

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The Power Systems Branch (DSS) will retain primary review responsibility for this matter. The assigned reviewer is Frank Ashe. Management responsibility will be assumed by Operating Reactors Branch No. 4.

5. Secondary Systems Line Breaks

Section 15.2.2 of SSER No. 2 and Paragraph 2.C.(3).i of the operating license require submittal of analyses and modification of the main steam and feedwater systems to conform with the staff position regarding equipment to be used to mitigate the consequences of a secondary system line break.

The conceptual design is described in Met Ed's letter of November 23, 1977, which also includes their action plan and schedule for completion of this effort. Implementation is scheduled during the first refueling outage. Some items of the schedule may be subject to change due to delays incurred in starting up the plant.

The Reactor Systems Branch will retain primary review responsibility for this matter. The assigned reviewer is James Watt. Management responsibility will be assumed by Operating Reactors Branch No. 4.

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How long for review?
Amend.?

6. Response Time Testing Program

Section 7.6.4 of the SER and Paragraph 2.C.(3).j of the operating license require submittal of a response time test program for the RPS and ESF systems, including sensors, prior to implementation during the first refueling outage.

The Power Systems Branch (DSS) will retain primary review responsibility for this matter. The assigned reviewer is Frank Ashe. Management responsibility will be assumed by Operating Reactors Branch No. 4.

7. RCS Overpressure Protection System

Section 5.2.2 of SSER No. 2 and Paragraph 2.C.(3).k of the Operating License require submittal of analyses and implementation of modifications to the RCS Overpressure Protection System meeting the criteria defined in the SSER. Implementation is required prior to startup following the first refueling outage.

The Reactor Systems Branch (DSS) will retain primary review responsibility for this matter. The assigned reviewer is James Watt. Management responsibility will be assumed by Operating Reactors Branch No. 4.

8. Fire Protection

Section 9.5 of SSER No. 2 and Paragraph 2.C.(3).l of the operating license require submittal of information and completion of modifications to improve the capability of the plant fire protection systems. Information required in the License by May 1, 1978 has been received but not yet reviewed. Information required after that date has not yet been received. Implementation of items in Paragraph 2.C.(3).l is required by startup following the first refueling shutdown.

The Division of Operating Reactors will retain primary review responsibility for these matters. Management responsibility will be assumed by Operating Reactors Branch No. 4.

9. ISI For Commercial Operation

Our letter of April 21, 1978 granted the licensee relief from the requirements of Section XI of the ASME Code for pump and valve testing for the period up to the start of commercial operation, and required performance of pump and valve testing for that period to be in accordance with the licensee's letter of January 3, 1978 and attachments thereto, with minor changes.

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Our April 21, 1978 letter further required submittal by the licensee of its proposed inservice inspection and pump and valve test programs for the period of commercial operation, including any request for relief pursuant to 10 CFR 50.55a(g)(b),(i). Met Ed's letter of July 18, 1978 transmitted its Inservice Inspection submittal in accordance with these requirements.

The Mechanical Engineering and Materials Engineering Branches (DSS) will retain review responsibility for this matter. The assigned reviewers are Dick Kiessel and Dave Sellars. (Mechanical Branch has recently noted that their planned effort for the next six months does not include review of this material.) Management responsibility will be carried out by Operating Reactors Branch No. 4.

Met Ed

10. Additional Environmental Qualification Information

Our letter of May 8, 1978 required certain additional information to more completely document the analysis assuring that components inside containment will retain their functional capability in the steam line break environment. The licensee has indicated they will transmit the requested information prior to October 31, 1978.

The Containment Systems Branch (DSS) will retain primary review responsibility for this matter. The assigned reviewer is Farouk Eltawila. Management responsibility will be assumed by Operating Reactors Branch No. 4.

11. Small Break LOCA

On April 12, 1978, B&W informed NRC that in the event of a small break LOCA on the discharge side of a reactor coolant pump, HPI flow to the core could be reduced and in such a case the calculated peak clad temperature could exceed 2200°F. B&W prepared a summary entitled "Analysis of Small Breaks in the Reactor Coolant Pump Discharge Piping for the B&W Lowered Loop 177 FA Plants," dated May 1, 1978 (the B&W Summary) which includes operator action to mitigate the postulated accident. By letter of May 5, 1978 (supplemented by letter of May 11), Met Ed submitted the B&W Summary for TMI-2 as justification for operation up to 2568 MW, and promised future analysis up to 2772 MW by June 1, 1978. Met Ed further committed to submit a proposal for a permanent solution to the question of operator action by August 5, 1978. By agreement, DOR evaluated the Met Ed submittal and concluded that although full compliance with 10 CFR Part 50.46 could not be determined, a very substantial margin exists on peak clad temperature below the limits of 10 CFR Part 50.46. It was further concluded that operating up to 2568 MW in accordance with appropriate

operating procedures will ensure that the ECCS will conform to the performance criteria of 10 CFR Part 50.46, and that the peak clad temperature margins provides reasonable assurance that such operation will not endanger life or property of the common defense and security.

Accordingly, DPM issued an order for Modification of License on May 26, 1978 requiring operation in accordance with defined procedures at power levels not exceeding 2568 MW, and required a reevaluation wholly in conformance with 10 CFR Part 50.46.

On July 24, 1978, Met Ed submitted with separate cover letters both their proposed permanent solution (applicable to both Units 1 and 2) and their analysis for operation in accordance with procedures covered by the Order up to 2772 MW full power.

DOR retains the responsibility for review of the July 24 material and any subsequent information on the small break LOCA. For operational reasons, review of the full-power analysis is required as soon as possible to permit issuance of any required additional Order by the end of September. Management responsibility for issuance of such order will be retained by DPM, unless transfer of overall project management responsibility occurs before issuance of that order, in which case management responsibility for the order will revert to DOR. Subsequent management responsibility for this entire matter will be carried out by Operating Reactors Branch No. 4, as will all responsibility for the "permanent solution."

12. Containment Purge Valves

Our letter of August 4, 1978 required additional information to more completely document the operability of the containment purge valves in the event they are open at the time of a postulated LOCA. Met Ed's letter of August 14, 1978 committed to providing responses by October 14, 1978.

The Mechanical Engineering Branch (DSS) will retain primary review responsibility for this matter. The assigned reviewer is Dick Kiessel. Management responsibility will be assumed by Operating Reactors Branch No. 4.

13. Remanded Hearings

The issues of radon from mill tailings and aircraft crash into the plant are still before the ASLB and ASLAB respectively.

DSS, DSE, and DPM will retain responsibility for all required testimony on these matters. Management responsibility will be carried out by DPM.

14. Auxiliary Transformer

In LER 78-35/IT dated May 9, 1978, Met Ed identified a potential problem involving the auxiliary transformers at TMI-2.

If one of the auxiliary transformers were to fail, all station loads would be automatically transferred to the remaining transformer. With the offsite grid voltage at the lower end of its normal operating range, if the full unit load was carried by a single Auxiliary Transformer, losses in the system would produce voltage levels low enough to blow control fuses on ES components if these components were called on to start (as, for example, in the event that a LOCA would occur).

At that time, Met Ed proposed several possible solutions to the problem, including a long term solution (i.e. selective Balance of Plant (BOP) load shedding).

Met Ed provided additional information with their letter of May 30, 1978 regarding both short term and long term fixes.

— On August 29, 1978, we met with the licensee to discuss this situation. The staff expressed concern over conformance of the long term fix with GDC-17. ~~The~~ Met Ed submitted with their letter of August 31, 1978 their Auxiliary Transformer Report further discussing the problem. Review of this report and preparation of a staff position is expected during the week of 9-18-78 (DOR Concurrence was requested during the previous week) so that any required order could be issued prior to exceeding 40% power by the end of September.

The Power Systems Branch (DSS) will retain primary review responsibility for this matter. The assigned reviewer is Frank Ashe. Management responsibility up to and including issuance of any required order will be retained by DPM, unless transfer of the overall project management responsibility occurs before issuance of the order, in which case management responsibility for the order will revert to DOR. Subsequent management responsibility will be carried out by Operating Reactors Branch No. 4.

*Problem will be reviewed
prior to transfer.*

Red Bow

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