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

JUL 2 1979

MEMORANDUM FOR: Commissioner Ahearne
FROM: Harold R. Dinton, Director
Office of Nuclear Reactor Regulation
THRU: Lee V. Gossick (Signed) T. A. Rehm
Executive Director for Operations
SUBJECT: EVOLUTION OF THE TMI-2 OPERATING LICENSE

In response to your memorandum of June 6, 1979, the following is a description of the evolution of the TMI-2 operating license from its initial issuance to March 28, 1979. A list of documents submitted to the President's Commission is enclosed in accordance with your request.

Operating License DPR-73 for Three Mile Island Nuclear Station, Unit 2 (TMI-2), was issued on February 8, 1978, pursuant to the Initial Decision of the Atomic Safety and Licensing Board dated December 19, 1977. Review by the staff of the application for such license is summarized in the Safety Evaluation Report dated September 1976, and Supplements 1 and 2 thereto. As noted in Supplement 1, the Advisory Committee on Reactor Safeguards reviewed the application and submitted its report dated October 22, 1976.

The license contained a number of conditions identified in the licensing process (see paragraph 2.C.(3) of the license) as requiring completion by a specified event or by a specified time. Attachment 2 to Operating License DPR-73, entitled "Preoperational Tests, Startup Tests, and Other Items Which Must Be Completed," formed an integral part of the license, as stated in paragraph 2.C. In addition to construction and test items identified by OIE, Attachment 2 also included items identified in the licensing process as requiring completion by a specified event or by a specified time, for which only OIE verification of completion was required.

Amendments to the license after its issuance were promulgated to close out or redefine license conditions, to incorporate revisions to the Technical Specifications, and to revise Attachment 2 to add or modify requirements.

The evolution of the TMI-2 license from its issuance to the date of the accident, March 28, 1979, is described below.

1. Amendment No. 1, dated March 3, 1978, added paragraph H to Attachment 2, permitting certain hydrostatic testing prior to initial criticality.

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2. Amendment No. 2, dated March 10, 1978, revised certain Technical Specifications, deleted and revised license paragraphs, and added a paragraph to Attachment 2, as follows:
 - a. License paragraph 2.C.(3).b was deleted. The licensee provided voltage and frequency variations resulting from a 500 Kw load rejection from the diesel generators.
 - b. License paragraph 2.C.(3).1.1 was deleted. The licensee provided design details of an automatic water suppression system in each diesel generator room basement as required by this paragraph. (See e. below.)
 - c. License paragraph 2.C.(3).1.2 was deleted. The licensee provided a firewater pipe rupture analysis and noted that design of appropriate water spray protection could not be done until further analysis was completed. (See d. below.)
 - d. License paragraph 2.C.(3).1.3 was revised to assure that design of water spray protection features would be accomplished at a suitable later time.
 - e. Paragraph G.12 was added to Attachment 2 to require installation of the automatic water suppression system discussed in b. above.
 - f. Various Technical Specifications were revised to correct typographical and editorial errors.
3. Letter dated March 10, 1978, NRC (Boyd) to Metropolitan Edison (Herbein) noted completion of the construction and test items of paragraphs B.1 and B.2 of Attachment 2, and also noted submittal of information to satisfy the fire rating requirements of paragraph G.1 of Attachment 2. Authorization was given to proceed to Mode 4 (hot shutdown).
4. Amendment No. 3, dated March 24, 1978, deleted certain license paragraphs, and added and revised certain paragraphs of Attachment 2, as follows:
 - a. License paragraph 2.C.(3).c was deleted. The licensee provided documentation of their proposal to permit utilization of smaller impellers in the reactor building emergency cooling booster pumps.
 - b. License paragraph 2.C.(3).d was deleted. The licensee provided documentation demonstrating the adequacy of the NPSH for the reactor building spray pumps.

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- c. License paragraph 2.C.(3).e was deleted. The licensee provided analyses defining the containment temperature response to a steam line break, and justifying the adequacy of environmental qualification temperatures of components inside containment.
 - d. Paragraph C.1 of Attachment 2 was revised to delete as requirements for entry into Mode 2 three fuel handling system tests and a test of the reactor coolant waste evaporator. Technical Specifications already required equivalent tests of the fuel handling equipment, and newly added paragraph I will provide for the required waste evaporator test.
 - e. Paragraph C.5 of Attachment 2 was revised to clarify equipment alignment to assure that the HPI pumps will not empty the makeup tank in the event of a LOCA, prior to implementation of paragraph F.1.
 - f. Paragraph F.2 of Attachment 2 was revised to correct a typographical error.
 - g. Paragraph I was added to Attachment 2 to require the waste evaporator test discussed in d. above.
5. Letter dated March 25, 1978, NRC (Boyd) to Metropolitan Edison (Herbein), noted completion of all items in Attachment 2 required to be completed prior to entry into Mode 2 (startup), and authorized entry into Mode 2. Items include completion of test procedures, environmental/administrative procedures, various work list items, and makeup tank hydrogen isolation valves, procedure revision, and equipment alignment in accordance with 4.e. above.
 6. Letter dated April 7, 1978, NRC (Boyd) to Metropolitan Edison (Herbein), noted completion of all items in Attachment 2 required to be completed prior to entry into Mode 1 (power operation), and authorized entry into Mode 1. Items required to be completed were:
 - a. optimization of voltage levels at the safety-related bases and verification of such optimization (paragraph D.1);
 - b. modification of the diesel generator air starting system to provide 10 starts (paragraph D.2); and
 - c. making the intermediate closed cooling water heat exchangers seismic Category I.
 7. Letter dated May 1, 1978, Metropolitan Edison (Herbein) to NRC (Varga), supplemented by letter of June 30, 1978, Herbein to Varga, submitting fire protection information required by license paragraphs 2.C.(3).1.3

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- and 2.C.(3).1.4. Review by the staff and implementation of corrective action was scheduled prior to the end of the first regularly scheduled refueling outage.
8. Amendment No. 4 dated May 19, 1978, revised the Technical Specifications to avoid injection of NaOH into the reactor coolant system during inadvertent actuations of the ECCS, and to reduce the maximum allowable value of neutron flux tilt in each quadrant.
 9. Amendment No. 5 dated June 5, 1978, revised the Technical Specifications to require appropriate testing of the fuel handling bridge and associated mast assemblies.
 10. Letter dated August 7, 1978, Metropolitan Edison (Herbein) to NRC (Varga), submitting information as required by license paragraph 2.C.(3).f regarding reactor protection system and engineered safety features trip setpoint values. This information was originally requested in our generic letter of March 24, 1977, and is being evaluated on a generic basis.
 11. Amendment No. 6 dated August 17, 1978, revised the Technical Specifications to:
 - a. permit a more effective method of containment air lock seal leakage verification;
 - b. permit operation with higher ultimate heat sink temperatures;
 - c. permit removal of all but two orifice rod assemblies and to permit installation of retainers on the remaining orifice rod assemblies and the burnable poison rod assemblies;
 - d. permit replacement of the 12 dual port main steam safety valves with 20 single discharge port valves; and
 - e. allow other miscellaneous changes.
 12. Letter dated August 25, 1978, NRC (Varga) to Metropolitan Edison (Herbein), correcting typographical errors in Amendment No. 6.
 13. Amendment No. 7 dated September 5, 1978, revising the Environmental Technical Specifications to satisfy the requirements of license paragraphs 2.E.(2).a, b, c, and d, and deleting those paragraphs.
 14. Amendment No. 8 dated December 15, 1978, revised the Technical Specifications to permit specified reduced RCS flow at certain reduced power levels.

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15. Letter dated January 12, 1979, Metropolitan Edison (Herbein) to NRC (Varga), noted implementation of fire fighting plans as required by license condition 2.C.(3).1.5.
16. OIE Inspection Report 50-320/78-38 dated January 17, 1979, found the additional emergency lighting required by paragraph G.9 of Attachment 2 to be inadequate. Letter dated February 8, 1979, Metropolitan Edison (Herbein) to NRC IE Region I (Carlson) notes resolution of this item.
17. OIE Inspection Report 50-320/79-02 dated February 7, 1979, verified completion of the following items in Attachment 2:
 - a. paragraph E.1, requiring installation and test of new impellers in the reactor building emergency cooling booster pumps; and
 - b. paragraphs G.5, G.6, and G.7, requiring provision of fire fighting procedures and equipment.
18. Amendment No. 9 dated February 23, 1979, documented implementation of an updated physical security plan.

In addition to the above items directly affecting the operating license for TMI-2, the following Orders have been issued which affected authorized power level:

- a. Order dated May 26, 1978, restricting power level to 2,568 MWt; and
- b. Order dated October 13, 1978, restoring authorized power level to 2,772 MWt.

Original Signed By
E. G. Case

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc w/enclosure:
Chairman Hendrie
Commissioner Gilinsky
Commissioner Kennedy
Commissioner Bradford
SECY
EDO

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LIST OF DOCUMENTS FURNISHED TO
PRESIDENT'S COMMISSION ON THREE MILE ISLAND NUCLEAR STATION
WITH LETTER DATED JUNE 1, 1979

1. Composite of Operating License DPR-73 at time of accident (March 28, 1979).
2. Updated Appendix A Technical Specifications.
3. Updated Appendix B Technical Specifications.
4. Operating License DPR-73 dated February 8, 1978.
5. Amendment No. 1 to DPR-73 dated March 3, 1978.
6. Amendment No. 2 to DPR-73 dated March 10, 1978.
7. Letter dated March 10, 1978, NRC (Boyd) to Met. Ed. (Herbein), Authorization to Proceed to Operational Mode 4.
8. Amendment No. 3 to DPR-73 dated March 24, 1978.
9. Letter dated March 25, 1978, NRC (Boyd) to Met. Ed. (Herbein), Authorization to Proceed to Operational Mode 2.
10. Letter dated April 7, 1978, NRC (Boyd) to Met. Ed. (Herbein), Authorization to Proceed to Operational Mode 1.
11. Letter dated May 1, 1978, Met. Ed. (Herbein) to NRC (Varga), Additional Information Concerning Fire Protection.
12. Amendment No. 4 to DPR-73 dated May 19, 1978.
13. Order for Modification of License dated May 26, 1978.
14. Amendment No. 5 to DPR-73 dated June 5, 1978.
15. Letter dated June 30, 1978, Met. Ed. (Herbein) to NRC (Varga), Additional Information Concerning Fire Protection.
16. Letter dated August 7, 1978, Met. Ed. (Herbein) to NRC (Varga), Instrument Trip Setpoint Values.
17. Amendment No. 6 to DPR-73 dated August 17, 1978.
- *18. Letter dated August 25, 1978, NRC (Varga) to Met. Ed. (Herbein), Amendment No. 6 correcting typographical errors in Amendment No. 6.

* Pertinent documents not available for letter of June 1, 1979.

549357

19. Amendment No. 7 to DPR-73 dated September 5, 1978.
20. Order for Modification of License dated October 13, 1978.
21. Amendment No. 8 to DPR-73 dated December 15, 1978.
22. Letter dated January 12, 1979, Met. Ed. (Herbein) to NRC (Varga), Fire Fighting Plans.
23. Letter dated January 17, 1979, NRC (Carlson) to Met. Ed. (Herbein), Inspection Report 50-289/78-25 and 50-320/78-38.
24. Letter dated February 7, 1979, NRC (Brunner) to Met. Ed. (Herbein), Inspection Report 50-320/79-02.
- *25. Letter dated February 8, 1979, Met. Ed. (Herbein) to NRC (Carlson), Inspection Reports Nos. 78-25 and 78-38.
26. Amendment No. 9 to DPR-73 dated February 23, 1979.

* Pertinent documents not available for letter of June 1, 1979.

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

June 6, 1979

OFFICE OF THE
COMMISSIONER

MEMORANDUM FOR: Harold Denton, NRR
FROM: John Ahearne *JJA*
SUBJECT: EVOLUTION OF THE TMI-2 OPERATING LICENSE

According to a June 1 letter from R. C. DeYoung to V. Johnson of the staff of the President's Commission on Three Mile Island, appropriate personnel within NRR have assembled and transmitted to the President's Commission the documents which trace the evolution of the TMI-2 operating license from the initial license issued in February 1978 to that in effect at the time of the accident on March 28, 1979. I would appreciate receiving a written, narrative summary of that evolution, including a list of the documents submitted to the President's Commission and others, if any, which are appropriate. It will not be necessary to include the documents themselves.

cc: Chairman Hendrie
Commissioner Gilinsky
Commissioner Kennedy
Commissioner Bradford
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Rec'd
Date: 6/7/79
Time: 9:20

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

June 1, 1979

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Mr. Vince Johnson
President's Commission
on Three Mile Island
2100 M Street, N.W., Suite 714
Washington, D. C. 20037

Dear Mr. Johnson:

Following our telephone conversation on May 22, 1979, I requested the appropriate project management groups in the Office of Nuclear Reactor Regulation to assemble a copy of the operating license for TMI-2 that was in effect at the facility on March 28, 1979, and supplemental documents to trace the evolution of that license from the initial license issued on February 8, 1978.

The initial license was modified by means of nine amendments, two orders, and several letters. We have enclosed a copy of the initial license and of each amendment, order, and letter. We have, for your convenience, also enclosed a copy of the license, as modified by the amendments, orders, and letters, that was in effect on March 28, 1979.

The enclosure stated is being sent to you today by special messenger. If we can be of further assistance, please let me know.

Sincerely,

Richard C. DeYoung
NRC/TMI Special Investigation

Enclosure:
Three Mile Island
Nuclear Station Unit 2,
License No. DPR-73, 2/8/78

cc: E. K. Cornell
J. Fitzgerald

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