

JANUARY 22 1981

DISTRIBUTION:

~~Docket File~~

NRC PDR

L PDR

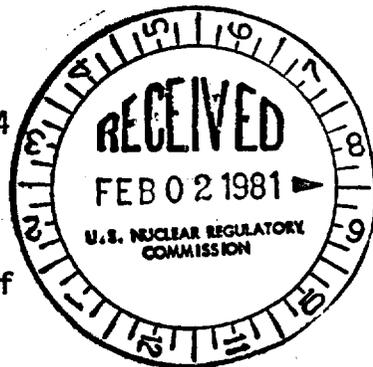
Docket No. 50-289

TERA
NISC
ORB#4 Rdg

HDenton
DEisenhut
RPurple

RTedesco
GLainas
TNovak
RReid
JRoe
DDianni
EHylton
BJones-4
BScharf-10
JWetmore
RDiggs
CMiles
AEOD
OELD
IE-5

ACRS-16
Gray File +4
HOrnstein
EBlackwood
RCapra
BSnyder
TMI Site r/f
TMI SEP r/f
TMI PS r/f



Mr. Henry D. Hukill, Vice
President and Director - TMI-1
Metropolitan Edison Company
P. O. Box 480
Middletown, Pennsylvania 17057

Dear Mr. Hukill:

By letter dated July 9, 1980 (TLL 301), you requested an exemption from the provisions of Appendix H to 10 CFR 50 which would permit future operation of the Three Mile Island Nuclear Station, Unit No. 1 (TMI-1), while irradiating a remaining reactor vessel surveillance capsule at Crystal River Unit No. 3. This exemption was requested because TMI-2 which is the host reactor for one TMI-1 capsule will be non-operational for an indefinite period. By letter dated April 11, 1980 (TLL 165) you requested approval of proposed changes to the Technical Specifications consistent with the requested exemption.

Irradiating the remaining TMI-1 surveillance capsule at Crystal River, Unit No. 3, or in test reactors, will cause the TMI-1 program to be out of conformance with the provision of Appendix H, which requires the irradiation program to be performed within the TMI-1 vessel or at the same site for multi-reactor sites. However, as noted in the enclosed Safety Evaluation, the nominal dimensions of the TMI-1 reactor vessel and internals are similar to those at Crystal River, Unit No. 3, and the operating conditions at these two reactors are very similar, so that with the exception of actual operating history and minor differences in power distribution, for which adjustments can be provided, the technical aspects of the material surveillance program will be achieved to our satisfaction.

Based on these considerations, we have concluded that an exemption for TMI-1 from this requirement for a continuing in-vessel material surveillance program as set forth in Appendix H to 10 CFR Part 50 is authorized by law, will not be detrimental to life or property or the common defense and security and is in the public interest. Therefore, the exemption requested in your letter of July 9, 1980 (TLL 301), is approved.

In addition to granting this exemption, the Commission has issued the enclosed Amendment No. 60 to Facility Operating License No. DPR-50 for the TMI-1. The amendment provides for performance of the TMI reactor vessel material surveillance program at Crystal River, Unit No. 3, and for the submission of specified reports. Certain changes were required in the proposed Technical Specifications submitted by your staff relative to this program. These changes have been made to the Technical Specifications.

8102120346

Mr. Hukill

-2-

A copy of the Notice of Issuance is also enclosed.

Sincerely,

Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No.
- 2. Safety Evaluation
- 3. Notice

cc w/enclosures:
See next 3 pages

ORB#4:DL
EHylton*
8/13/80

ORB#4:DL
DDianni/cb
10/14/80

DCW

*See previous yellow for concurrence.

OFFICE	ORB#4:DL RIngram	C-ORB#4:DL RWReid*	AD-OR:DL TNovak*	DL JGray	D:DL DEisenhut	
SURNAME						
DATE	10/14/80	8/18/80	9/12/80	10/24/80	10/ /80	

Mr. R. C. Arnold

-2-

Copies of our related Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

Darrell G. Eisenhower, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No.
- 2. Safety Evaluation
- 3. Notice

cc w/enclosures:
See next page

OFFICE ▶	ORB#4:DL	ORB#4:DL	C-ORB#4:DL	AD-OR:DL	OELD	D:DL
SURNAME ▶	EHO/son	DCDiIanni/cb	RReid	Thovak		DEisenhut
DATE ▶	8/13/80	8/14/80	8/19/80	9/1/80	8/ /80	9/ /80

MTEB
9-15-80
9/18/80
CS

10-27



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

DISTRIBUTION:
Docket File
ORB#4 Rdg
EHylton

January 23, 1981

Docket No. 50-289

Docketing and Service Section
Office of the Secretary of the Commission

SUBJECT: THREE MILE ISLAND UNIT 1

Two signed originals of the Federal Register Notice identified below are enclosed for your transmittal to the Office of the Federal Register for publication. Additional conformed copies (12) of the Notice are enclosed for your use.

- Notice of Receipt of Application for Construction Permit(s) and Operating License(s).
- Notice of Receipt of Partial Application for Construction Permit(s) and Facility License(s): Time for Submission of Views on Antitrust Matters.
- Notice of Availability of Applicant's Environmental Report.
- Notice of Proposed Issuance of Amendment to Facility Operating License.
- Notice of Receipt of Application for Facility License(s); Notice of Availability of Applicant's Environmental Report; and Notice of Consideration of Issuance of Facility License(s) and Notice of Opportunity for Hearing.
- Notice of Availability of NRC Draft/Final Environmental Statement.
- Notice of Limited Work Authorization.
- Notice of Availability of Safety Evaluation Report.
- Notice of Issuance of Construction Permit(s).
- Notice of Issuance of Facility Operating License(s) or Amendment(s).
- Other: Amendment No. 60
Referenced documents have been provided PDR

Division of Licensing, ORB#4
Office of Nuclear Reactor Regulation

Enclosure:
As Stated

OFFICE →	ORB#4:DL					
SURNAME →	EHylton/cb					
DATE →	1/23/80					



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

January 22, 1981

Docket No. 50-289

Mr. Henry D. Hukill, Vice President
and Director - TMI-1
Metropolitan Edison Company
P. O. Box 480
Middletown, Pennsylvania 17057

Dear Mr. Hukill:

By letter dated July 9, 1980 (TLL 301), you requested an exemption from the provisions of Appendix H to 10 CFR 50 which would permit future operation of the Three Mile Island Nuclear Station, Unit No. 1 (TMI-1), while irradiating a remaining reactor vessel surveillance capsule at Crystal River Unit No. 3. This exemption was requested because TMI-2 which is the host reactor for one TMI-1 capsule will be non-operational for an indefinite period. By letter dated April 11, 1980 (TLL 165) you requested approval of proposed changes to the Technical Specifications consistent with the requested exemption.

Irradiating the remaining TMI-1 surveillance capsule at Crystal River, Unit No. 3, or in test reactors, will cause the TMI-1 program to be out of conformance with the provision of Appendix H, which requires the irradiation program to be performed within the TMI-1 vessel or at the same site for multi-reactor sites. However, as noted in the enclosed Safety Evaluation, the nominal dimensions of the TMI-1 reactor vessel and internals are similar to those at Crystal River, Unit No. 3, and the operating conditions at these two reactors are very similar, so that with the exception of actual operating history and minor differences in power distribution, for which adjustments can be provided, the technical aspects of the material surveillance program will be achieved to our satisfaction.

Based on these considerations, we have concluded that an exemption for TMI-1 from this requirement for a continuing in-vessel material surveillance program as set forth in Appendix H to 10 CFR Part 50 is authorized by law, will not be detrimental to life or property or the common defense and security and is in the public interest. Therefore, the exemption requested in your letter of July 9, 1980 (TLL 301), is approved.

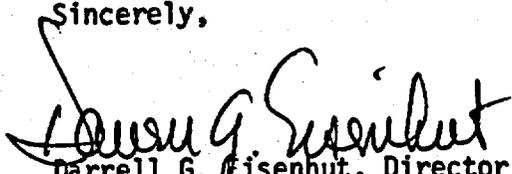
In addition to granting this exemption, the Commission has issued the enclosed Amendment No. 60 to Facility Operating License No. DPR-50 for the TMI-1. The amendment provides for performance of the TMI reactor vessel material surveillance program at Crystal River, Unit No. 3, and for the submission of specified reports. Certain changes were required in the proposed Technical Specifications submitted by your staff relative to this program. These changes have been made to the Technical Specifications.

Mr. Henry D. Hukill

-2-

A copy of the Notice of Issuance is also enclosed.

Sincerely,



Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 60
2. Safety Evaluation
3. Notice

cc w/enclosures:
See next 3 pages

Metropolitan Edison Company

- 1 -

cc w/enclosure(s):

Mr. Marvin I. Lewis
6504 Bradford Terrace
Philadelphia, Pennsylvania 19149

Walter W. Cohen, Consumer Advocate
Department of Justice
Strawberry Square, 14th Floor
Harrisburg, Pennsylvania 17127

Robert L. Knupp, Esq.
Assistant Solicitor
Knupp and Andrews
P. O. Box P
407 N. Front Street
Harrisburg, Pennsylvania 17108

John E. Minnich, Chairman
Dauphin Co. Board of Commissioners
Dauphin County Courthouse
Front and Market Streets
Harrisburg, Pennsylvania 17101

* Atomic Safety and Licensing Appeal Board
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

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

* Docketing and Service Section
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Robert Q. Pollard
609 Montpelier Street
Baltimore, Maryland 21218

Chauncey Kepford
Judith H. Johnsrud
Environmental Coalition on Nuclear Power
433 Orlando Avenue
State College, Pennsylvania 16801

Ms. Frieda Berryhill, Chairman
Coalition for Nuclear Power Plant
Postponement
2610 Grendon Drive
Wilmington, Delaware 19808

Mrs. Rhoda D. Carr
1402 Marene Drive
Harrisburg, Pennsylvania 17109

Dr. Walter H. Jordan
881 W. Outer Drive
Oak Ridge, Tennessee 37830

Dr. Linda W. Little
5000 Hermitage Drive
Raleigh, North Carolina 27612

Holly S. Keck
Anti-Nuclear Group Representing
York
245 W. Philadelphia Street
York, Pennsylvania 17404

John Levin, Esq.
Pennsylvania Public Utilities Comm.
Box 3265
Harrisburg, Pennsylvania 17120

Jordan D. Cunningham, Esq.
Fox, Farr and Cunningham
2320 North 2nd Street
Harrisburg, Pennsylvania 17110

Theodore A. Adler, Esq.
WIDOFF REAGER SELKOWITZ & ADLER
P. O. Box 1547
Harrisburg, Pennsylvania 17105

Ms. Marjorie M. Aamodt
R.D. #5
Coatesville, Pennsylvania 19320

Ms. Karen Sheldon
Sheldon, Harmon & Weiss
1725 I Street, N.W. - Suite 506
Washington, D. C. 20006

Earl B. Hoffman
Dauphin County Commissioner
Dauphin County Courthouse
Front and Market Streets
Harrisburg, Pennsylvania 17101

Ms. Ellen R. Weiss, Esq.
Sheldon, Harmon & Weiss
1725 I Street, N.W.
Suite 506
Washington, D. C. 20006

Mr. Steven C. Sholly
304 South Market Street
Mechanicsburg, Pennsylvania 17055

Mr. Thomas Gerusky
Bureau of Radiation Protection
Department of Environmental Resources
P. O. Box 2063
Harrisburg, Pennsylvania 17120

Mr. G. P. Miller
Mr. R. R. Wilson
Metropolitan Edison Company
P. O. Box 480
Middletown, Pennsylvania 17057

G. F. Trowbridge, Esq.
Shaw, Pittman, Potts & Trowbridge
1800 M Street, N.W.
Washington, D. C. 20036

Mr. E. G. Wallace
Licensing Manager
GPU Service Corporation
100 Interpace Parkway
Parsippany, New Jersey 07054

Mr. R. W. Conrad
Vice President, Generation
Pennsylvania Electric Company
1007 Broad Street
Johnstown, Pennsylvania 15907

Miss Mary V. Southard, Chairperson
Citizens for a Safe Environment
P. O. Box 405
Harrisburg, Pennsylvania 17108

Government Publications Section
State Library of Pennsylvania
Box 1601 (Education Building)
Harrisburg, Pennsylvania 17126

Mr. David D. Maxwell, Chairman
Board of Supervisors
Londonderry Township
RFD#1 - Geyers Church Road
Middletown, Pennsylvania 17057

U. S. Environmental Protection Agency
Region III Office
ATTN: EIS COORDINATOR
Curtis Building (Sixth Floor)
6th and Walnut Streets
Philadelphia, Pennsylvania 19106

Mr. J. G. Herbein
Director, Nuclear Assurance
Metropolitan Edison Company
P. O. Box 480
Middletown, PA 17057

Ms. Jane Lee
R.D. 3, Box 3521
Etters, Pennsylvania 17319

Karin W. Carter, Esq.
505 Executive House
P. O. Box 2357
Harrisburg, Pennsylvania 17120

Honorable Mark Cohen
512 D-3 Main Capital Building
Harrisburg, Pennsylvania 17120

Dauphin County Office Emergency
Preparedness
Court House, Room 7
Front & Market Streets
Harrisburg, Pennsylvania 17101

Department of Environmental Resources
ATTN: Director, Office of Radiological
Health
P. O. Box 2063
Harrisburg, Pennsylvania 17105

Director, Criteria and Standards
Division
Office of Radiation Programs (ANR-460)
U. S. Environmental Protection Agency
Washington, D. C. 20460

Mr. Robert B. Borsum
Babcock & Wilcox
Nuclear Power Generation Division
Suite 420, 7735 Old Georgetown Road
Bethesda, Maryland 20014

* Ivan W. Smith, Esq.
Atomic Safety & Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Ms. Kathy McCaughin
Three Mile Island Alert, Inc.
23 South 21st street
Harrisburg, Pennsylvania 17104

Mr. L. W. Harding
Supervisor of Licensing
Metropolitan Edison Company
P. O. Box 480
Middletown, Pennsylvania 17057

Metropolitan Edison Company

- 3 -

Mr. R. J. Toole
Manager, TMI-1
Metropolitan Edison Company
P. O. Box 480
Middletown, Pennsylvania 17057

Mr. W. E. Potts
Radiological Controls Manager, TMI-1
Metropolitan Edison Company
P. O. Box 480
Middletown, Pennsylvania 17057

Mr. I. R. Finfrock, Jr.
Jersey Central Power & Light Company
Madison Avenue at Punch Bowl Road
Morristown, New Jersey 07950

J. B. Lieberman, Esq.
Berlock, Israel & Liberman
26 Broadway
New York, NY 10004

Mr. J. J. Colitz
Plant Engineering Manager, TMI-1
Metropolitan Edison Company
P. O. Box 480
Middletown, Pennsylvania 17057

York College of Pennsylvania
Country Club Road
York, Pennsylvania 17405

Mr. G. K. Hovey
Director, TMI-2
Metropolitan Edison Company
P. O. Box 480
Middletown, Pennsylvania 17057

Mr. B. Elam
Manager, Plant Engineering, Unit 2
Metropolitan Edison Company
P. O. Box 480
Middletown, Pennsylvania 17057

Mr. Richard Roberts
The Patriot
812 Market Street
Harrisburg, Pennsylvania 17105

Mr. R. W. Heward
Manager, Radiological Control, Unit 2
Metropolitan Edison Company
P. O. Box 480
Middletown, Pennsylvania 17057

Allen R. Carter, Chairman
Joint Legislative Committee on Energy
P. O. Box 142
Suite 513
Senate Gressette Building
Columbia, South Carolina 29202

Daniel M. Pell, Esq.
ANGRY
32 South Beaver Street
York, Pennsylvania 17401

William S. Jordan, III, Esq.
Harmon & Weiss
1725 I Street, NW, Suite 506
Washington, DC 20006

General Counsel
Federal Emergency Management Agency
ATTN: Docket Clerk
1725 I Street, NW
Washington, DC 20472

Mr. J. J. Barton
Manager, Site Operations TMI-2
Metropolitan Edison Company
P. O. Box 480
Middletown, Pennsylvania 17057

Mr. E. D. Fuller
TMI-2 Licensing Supervisor
Metropolitan Edison Company
P. O. Box 480
Middletown, Pennsylvania 17057

Mr. Donald R. Haverkamp
Senior Resident Inspector (TMI-1)
U. S. N. R. C.
P. O. Box 311
Middletown, Pennsylvania 17057

cc w/enclosure(s) & incoming dtd.:

4/11 & 7/9/80

Governor's Office of State Planning
and Development
ATTN: Coordinator, Pennsylvania
State Clearinghouse
P. O. Box 1323
Harrisburg, Pennsylvania 17120



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

METROPOLITAN EDISON COMPANY

JERSEY CENTRAL POWER AND LIGHT COMPANY

PENNSYLVANIA ELECTRIC COMPANY

DOCKET NO. 50-289

THREE MILE ISLAND NUCLEAR STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 60
License No. DPR-50

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Metropolitan Edison Company, et al. (the licensee) dated April 11, 1980, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

8102120 355

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-50 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 60, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 22, 1981

ATTACHMENT TO LICENSE AMENDMENT NO. 60

FACILITY OPERATING LICENSE NO. DPR-50

DOCKET NO. 50-289

Revise Appendix A as follows:

Remove Pages

4-11

4-12

4-13

4-27a

Insert Pages

4-11

4-12

4-13

4-27a

Applicability

This technical specification applies to the inservice inspection of the reactor coolant system pressure boundary and portions of other safety oriented system pressure boundaries as shown on Figure 4.2-1.

Objective

The objective of this inservice inspection program is to provide assurance of the continuing integrity of the reactor coolant system while at the same time minimizing radiation exposure to personnel in the performance of inservice inspections.

Specification

- 4.2.1 The inservice inspection program to be followed is outlined in Table 4.2-1. Except as provided for in this table and as discussed herein, the inservice inspection program is in accordance with the ASME Code, Section XI, Rules for Inservice Inspection of Nuclear Reactor Coolant Systems, dated January 1, 1970, as modified by the Winter 1970 Addenda. Prior to initial plant operation a preoperational inspection of the plant will be performed of at least the areas listed in the ASME Code; provided accessibility and the necessary inspection techniques are available for each of these areas. The only exception to this will be areas where the necessary base line data is already available and has been obtained by the same techniques as will be used during inservice inspection.
- 4.2.2 The reactor vessel material surveillance capsules removed from TMI-1 during 1976 shall be inserted, irradiated in and withdrawn from Crystal River Unit No. 3 (CR-3) in accordance with the schedule shown in Table 4.2-2. (The insertion/withdrawal schedule shown in Table 4.2-2 may be revised at a later date pending the restart of TMI-2.) The licensee shall be responsible for the examination of these specimens and for submission of reports of test results in accordance with 10 CFR 50, Appendix H.
- 4.2.3 The accessible portions of one reactor coolant pump motor flywheel assembly will be ultrasonically inspected within 3-1/3 years, two within 6-2/3 years, and all four by the end of the 10 year inspection interval. However, the U.T. procedure is developmental and will be used only to the extent that it is shown to be meaningful. The extent of coverage will be limited to those areas of the flywheel which are accessible without motor disassembly, i.e., can be reached through the access ports. Also, if radiation levels at the lower access ports are prohibitive, only the upper access ports will be used.
- 4.2.4 The inspection schedule may be modified to coincide with those refueling or maintenance outages most closely approaching the inspection schedule.
- 4.2.5 Sufficient records of each inspection shall be kept to allow comparison and evaluation of future inspections.
- 4.2.6 The inservice inspection shall be reviewed at the end of five years to consider incorporation of new inspection techniques and equipment which have been proven practical, and a possible extension of the program to additional examination areas. The conclusions of this review shall be submitted to the NRC for evaluation.

- 4.2.7 The licensee shall submit a report or application for license amendment to the NRC within 90 days after any time that Crystal River Unit Three fails to maintain a cumulative reactor utilization factor of at least 65%.

The report shall provide justification for continued operation of TMI-1 with the reactor vessel surveillance program conducted at Crystal River Unit No. 3, or the application for license amendment shall propose an alternate program for conduct of the TMI-1 reactor vessel surveillance program.

For the purpose of this technical specification, the definition of commercial operation is that given in Regulatory Guide 1.16, Revision 4. The definition of cumulative reactor utilization factor is: Cumulative reactor utilization factor = (Cumulative megawatt hours (thermal) since attainment of commercial operation at 100% power x (100)) divided by (licensed power (MWt) x (Cumulative hours since attainment of commercial operation at 100% power)).

- 4.2.8 In addition to the reports required by Specification 4.2.7, a report shall be submitted to the NRC prior to September 1, 1982, which summarizes the first five years of operating experience with the TMI-1 integrated surveillance program performed at a host reactor. If, at the time of submission of this report, it is desired to continue the surveillance program at a host reactor, such continuation shall be justified on the basis of the attained operating experience.

Inspection Bases

- a. The nuclear plant was designed prior to the issuance of Section XI of the ASME Code, Rules for Inservice Inspection of Nuclear Reactor Coolant Systems dated January 1, 1970. However, sufficient accessibility was included in the design to perform most inspections discussed in the code. The proposed inspection program follows the code except that inspections are focused on areas which engineering analysis has indicated are subject to the more critical stress, radiation, or transient conditions. The areas selected for inspection on this basis are listed in Table 4.2-1. These areas are exposed to the more severe conditions (which are still well within code limits) in the reactor coolant system. Therefore, they are expected to indicate potential problems before significant flaws develop in the selected areas or in other areas. It is considered that the focused approach specified herein will result in a meaningful inspection program in that it will provide assurance of continuing plant integrity.

In those areas where inspection methods are developmental, such as for remote inspection of the reactor vessel welds, reactor vessel nozzle inside radii and welds, and ultrasonic inspection of pressurizer support bracket welds, the inspection methods will be developed and tested to the extent practicable during preoperational inspections. (Development of inspection techniques will not be attempted on radioactive equipment unless necessary to explore a specified problem.) A preoperational inspection is planned of areas listed in the ASME Code which are within the inservice inspection boundaries and which are accessible for inspection. However, as discussed above, in areas where inspection methods are developmental, the inspections will only be performed to the extent practicable. Once an inspection method is selected for a particular inspection (e.g., U.T. for most volumetric inspections), it is intended that all subsequent inservice inspections be performed using the identical method and on the same component parts wherever practicable.

In addition to the above inspection, if any of the components within the inservice inspection boundary are disassembled for maintenance, the accessible parts will be given a normal visual examination as part of the routine plant maintenance operations.

- b. Because of damage to the surveillance capsule holder tubes originally installed in TMI-1, irradiation of the TMI-1 capsules was to be conducted in TMI-2 pursuant to 10 CFR 50, Appendix H, Section II.C.4. One of the five remaining TMI-1 capsules (Capsule E had been withdrawn and tested earlier) was installed in a holder tube in the TMI-2 reactor at the initial startup of TMI-2. The other four capsules were scheduled for later insertions. However, due to the TMI-2 Incident, Unit 2 may be out of operation for a considerably longer period of time than will be TMI-1. So that TMI-1 will have an ongoing surveillance program, a TMI-1 capsule will be inserted into a holder tube in the Crystal River Unit 3 (CR-3) reactor. Because similarities exist between TMI-1 and CR-3, appropriate adjustments and margins can be imposed to the surveillance capsule irradiation in CR-3 to account for such differences that may exist in the irradiation exposure of the TMI-1 reactor vessel and the surveillance capsule.

The withdrawal schedule has been formulated to optimize the availability of irradiation data from all the capsules being irradiated in the CR-3 reactor.

Because the irradiation program is dependent upon the successful operation and a reasonable utilization of CR-3, reporting requirements are included to permit re-evaluation of the program if CR-3 suffers extended outages.

- c. The reactor coolant pump motor flywheel ultrasonic test procedure is being developed to detect flaws of a small enough size to provide assurance of continued integrity based upon a conservative fracture mechanic's evaluation.

TABLE 4.2-2

A. SURVEILLANCE CAPSULE INSERTION & WITHDRAWAL SCHEDULE AT TMI-2

(Note: This schedule will be revised at a later date pending the restart schedules of TMI-1 and TMI-2)

<u>Capsule Designation</u>	<u>Schedule</u>	
	<u>Insertion</u>	<u>Withdrawal</u>
TMI-1A	TMI-2 Start-up	End of 3rd Cycle
TMI-1B	End of 1st Cycle	End of 6th Cycle
TMI-1D	End of 6th Cycle	End of 15th Cycle
TMI-1E	Removed end of 1st Cycle of TMI-1	
TMI-1F	End of 10th Cycle	End of 24th Cycle

B. SURVEILLANCE CAPSULE INSERTION & WITHDRAWAL SCHEDULE AT CR-3

<u>Capsule Designation</u>	<u>Insertion</u>	<u>Withdrawal</u>
TMI-1C	End of 2nd Cycle	End of 5th Cycle



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 60 TO FACILITY OPERATING LICENSE NO. DPR-50

AND EXEMPTION TO APPENDIX H OF 10 CFR PART 50

METROPOLITAN EDISON COMPANY

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1

DOCKET NO. 50-289

Introduction

By letter dated July 9, 1980 (TLL 301), Metropolitan Edison Company (Met Ed) requested that an exemption to Appendix H of 10 CFR 50 Paragraph II.C. 4 be granted allowing the indefinite operation of the Three Mile Island Nuclear Station, Unit No. 1 (TMI-1) with one of the remaining reactor vessel surveillance capsules being irradiated in Crystal River, Unit No. 3 (CR-3) rather than in TMI-2. Met Ed, by letter dated April 11, 1980 (TLL 165), also requested approval of a proposed change to the Technical Specifications (TSs) consistent with the requested exemption.

The basis for this request is to provide an alternative to the capsule that is in TMI-2 reactor, which is inoperable and is not expected to restart in time to conduct an adequately integrated surveillance program. In lieu of putting a backup surveillance capsule currently in storage in the TMI-1 pressure vessel, it will be placed in a host reactor, CR-3, for irradiation. In addition, data from capsules from other irradiation programs will provide input to the TMI irradiation program. This overall program is an integrated surveillance program, in which all presently operating facilities with B&W 177 fuel reactor assemblies are participating. TMI-1 contains the B&W 177 fuel reactor assemblies and is considered a participating member.

Background

Neutron irradiation causes the vessel material reference nil ductility temperature, RT_{NDT} , to increase with time and the material fracture toughness properties to decrease with time. These irradiated properties are used to establish pressure-temperature operating limits in accordance with Appendix G, 10 CFR Part 50.

10 CFR Part 50, Appendix H, "Reactor Vessel Material Surveillance Program Requirements", requires a material surveillance program for reactor vessels to monitor changes in the fracture toughness properties of ferritic materials in the vessel beltline region resulting from their exposure to neutron irradiation and thermal environment. Under this program, fracture toughness test data are obtained from material specimens periodically withdrawn from the reactor vessel. Paragraph II.C.4 of Appendix H provides guidance for integrated surveillance programs for multiple reactors located at a single site. However, Paragraph II.C.4 of Appendix H does not permit

8102120 359

the sample of one reactor vessel material to be irradiated at another site. The intent of this provision is to assure that reactor vessel sample material will be exposed to neutron energy spectra and the environmental conditions similar to that to which the reactor vessel is exposed during its service life.

Discussion & Evaluation

The original TMI-1 design included three reactor vessel surveillance specimen holder tubes (SSHTS) located near the reactor inside vessel wall. The integrated program for TMI-1 was approved as part of Amendment 29 issued April 22, 1977. Furthermore, similar integrated programs for other facilities with B&W 177 fuel assemblies were approved by the Commission, and exemptions were granted for those facilities with the host reactors at other sites.

To date, the status of the TMI-1 surveillance program is that one surveillance capsule has been removed from the TMI-1 reactor vessel and tested (removed prior to the initiation of the integrated program). This capsule received a fluence of 1.1×10^{18} n/cm². Test results showed that weld metal (designated WF-25) is the limiting vessel material. One TMI-1 capsule was installed and still exists in the TMI-2 reactor vessel. The remaining four TMI-1 capsules are in storage.

Due to the TMI-2 incident, it is anticipated that TMI-2 will not be operational for at least several years. Therefore, the licensee, by letter dated April 11, 1980, requested an amendment to the TSs of TMI-1 that would permit one of the TMI-1 capsules currently in storage to be irradiated in the CR-3 reactor vessel. Because this request resulted in having the host reactor offsite for the TMI-1 integrated surveillance program, Met Ed, by letter dated July 9, 1980, requested an exemption from 10 CFR Appendix H.

The licensee proposed that a capsule now in storage be placed in the CR-3 vessel at the end of the second cycle and withdrawn at the end of the fifth cycle. During this period, the capsule is expected to receive a fluence of 8.2×10^{18} n/cm². This fluence is approximately equal to the fluence at the 1/4T location in the TMI-1 reactor vessel wall at 22 effective full power years (EFPY). The TMI-1 surveillance weld metal, WF-25, is also contained in a B&W research capsule being irradiated in CR-3. This capsule contains not only tensile and Charpy specimens but also several sizes of compact fracture toughness specimens. The test results on this capsule should be available by the end of 1982. Finally, irradiated data on WF-25 will be obtained from a Naval Research Laboratory (NRL) program sponsored by NRC. This data should be available in the early 1980s.

In regard to installing the capsule in TMI-1, part of Amendment 29 included studies of methods to install the redesigned SSHTS in TMI-1. These studies indicated that substantial difficulties would be experienced primarily because precision machinery alignment and inspection must be performed remotely and under water. Although such problems do not in themselves justify relief from a requirement to reinstall the SSHTS in TMI-1, they would cause significant radiation to personnel. Based on experience in removing the SSHTS at TMI-1 and other reactors, B&W estimated that installing SSHTS in irradiated reactors would result in personnel exposure of about 100 man rem/reactor. The licensee reviewed this matter based on the existing conditions of TMI-1 (i.e., shutdown for an extended period) and concluded an exposure of about 100 man rem would be applicable to the present conditions at TMI-1. This is due to the increased fluence that the reactor internals have been exposed to since the initial study has been

made, which on the other hand would be offset by the decay of the short half life isotopes due to the long shutdown period. This matter was discussed with the licensee and the staff agrees with this assessment.

The B&W integrated surveillance program was initiated in 1977. Since then one capsule originally belonging to Oconee 1, 2 and 3, Arkansas 1 and CR-3 reactor vessels has been removed from the host vessel and tested. A second capsule for Oconee 1, 2 and 3 and Arkansas 1 is currently being evaluated. Data generated from these capsules are satisfactory. The integrated surveillance program is considered to be working as planned in monitoring radiation effects of the pressure vessel materials. Therefore, there is no need at this time to consider a limiting period to the exemption.

From our review, we conclude that the TMI-1 surveillance program supplemented by data from NRL and B&W research programs, will provide sufficient data to monitor radiation damage on the TMI-1 reactor vessel weld metal throughout service life. Data on the TMI-1 vessel base metal will be generated only from the TMI-1 surveillance capsules. Since base metal is not the limiting material, we conclude that the data from the surveillance program will be sufficient to monitor radiation damage on base metal. Furthermore, we have determined that the dimensional design, the thermal environment and the neutron flux distribution and the energy spectrum of the CR-3 and TMI-1 reactor vessels are so similar that changes in mechanical properties due to irradiation effects will not be affected whether capsules are irradiated in CR-3 or in TMI-1. We find that irradiating a TMI-1 surveillance capsule in CR-3 does not reduce the effectiveness of the surveillance program and the intent of the provisions of Paragraph II.C.4 of Appendix H are being met.

Based on the above, we conclude that the proposed program to irradiate a TMI-1 surveillance capsule in the CR-3 reactor vessel is acceptable. We find that an exemption to the provisions of Paragraph II.C.4 of Appendix H of 10 CFR Part 50 is authorized by law and will not endanger life or property or the common defense and security. Moreover, since the exemption allowing irradiation of the TMI-1 surveillance capsule in CR-3 will avoid approximately 100 man-rem of occupational exposure that would result if the exemption were not granted and the surveillance capsule had to be inserted into the TMI-1 vessel and since the exemption will allow the completion of the pressure vessel material surveillance program for TMI-1 without such an occupational dose, we find that the exemption is in the public interest. Accordingly, we find that the exemption should be granted.

The existing TSs permit the reactor surveillance program for TMI-1 to be irradiated only in TMI-2. We agree with Met Ed that the surveillance program cannot be continued in TMI-2 due to its present inoperable condition which is expected to exist for several years. The proposed TS change will permit a backup surveillance capsule currently in storage to be irradiated in the CR-3 reactor vessel. We find this change acceptable because this capsule containing reactor vessel sample material of TMI-1, when irradiated in CR-3, will be exposed to the neutron energy spectra and environmental conditions similar to that to which the TMI-1 reactor vessel is exposed during its service life.

Environmental Consideration

We have determined that these amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that these amendments involve an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR §51.5(d)(4) that an environmental impact statement, negative declaration or environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendments do not involve a significant increase in the probability or consequences of accidents previously considered and do not involve a significant decrease in a safety margin, the amendments do not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Moreover, based on the considerations discussed above, we conclude that an exemption from Paragraph II.C.4 of Appendix H of 10 CFR Part 50, permitting irradiation of a TMI-1 surveillance capsule in CR-3, is in accordance with law, will not endanger life or property or the common defense and security and is otherwise in the public interest.

Dated: January 22, 1981

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NO. 50-289METROPOLITAN EDISON COMPANY, ET AL.NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE
AND GRANT OF EXEMPTION

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 60 to Facility Operating License No. DPR-50, issued to Metropolitan Edison Company, Jersey Central Power and Light Company, and Pennsylvania Electric Company (the licensee) for operation of the Three Mile Island Nuclear Station, Unit No. 1 (the facility) located in Londonderry Township, Dauphin County, Pennsylvania. The amendment is effective as of its date of issuance.

The amendment revises the Technical Specifications to permit irradiation of the facility's reactor vessel surveillance specimens at Crystal River Unit No. 3. In connection with this action, the Commission has granted an exemption to the provisions of Appendix H to Title 10 of the Code of Federal Regulations Part 50. Appendix H requires the irradiation program to be performed within the facility's vessel or at the same site for multi-reactor sites.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

As set forth in the Commission's letter to the licensee dated January 22, 1981, the exemption is authorized by law, will not endanger life or property or the common defense and security and is otherwise in the public interest.

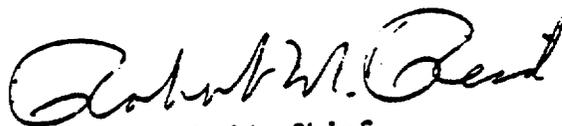
B102120 366

The Commission has determined that the issuance of the amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of the amendment.

For further details with respect to this action, see (1) the licensee's application for amendment dated April 11, 1980 and the licensee's request for exemption dated July 9, 1980, (2) the Commission's letter to the licensee dated January 22, 1981, (3) Amendment No. 60 to License No. DPR-50, and (4) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Government Publications Section, State Library of Pennsylvania, Box 1601 (Education Building), Harrisburg, Pennsylvania. A copy of items (2), (3) and (4) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Licensing.

Dated at Bethesda, Maryland, this 22nd day of January 1981.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Licensing

JAN 30 1981