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 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 6
License No. DPR-50

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Metropolitan Edison Company, Jersey Central Power and Light Company, and Pennsylvania Electric Company (the licensees) dated May 14, 1975, 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; and

   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.

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

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

"(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No. 6."

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

FOR THE NUCLEAR REGULATORY COMMISSION

George Lear

George Lear, Chief
Operating Reactors Branch #3
Division of Reactor Licensing

Attachment:
Change No. 6
Technical Specifications

Date of Issuance: JUL 1 1975

JUL 1 1975

ATTACHMENT TO LICENSE AMENDMENT NO. 6

CHANGE NO. 6 TO THE TECHNICAL SPECIFICATIONS

FACILITY OPERATING LICENSE NO. DPR-50

DOCKET NO. 50-289

Replace pages 4-35, 4-35a - 4-35b, 4-35c - 4-36, 4-36a - 4-36b, 4-36c - 4-36d, and 6-13 with the attached revised pages. (No change has been made on page 4-36c).

4.4.2 Structural Integrity

Applicability

Applies to the structural integrity of the reactor building.

Objective

To define the inservice tendon surveillance and the ring girder inspection programs for the reactor building prestressing system. 6

Specification

4.4.2.1 Inservice Tendon Surveillance Program

The surveillance program for structural integrity and corrosion protection conforms to the recommendations of the U.S. Atomic Energy Commission Regulatory Guide 1.35, Revision 1, "Inservice Surveillance of Ungrouted Tendons in Prestressed Concrete Containment Structures." The detailed surveillance program for the prestressing system tendons shall be based on periodic inspection and mechanical tests to be performed on selected tendons, as specified hereafter. 6 6

4.4.2.1.1 Frequency

The frequency of the inspection and testing shall be as follows:

1st Inspection Period - one year after "The Structural Integrity Test "

2nd Inspection Period - three years after "The Structural Integrity Test " 6

3rd Inspection Period - five years after "The Structural Integrity Test "

4th-10th Inspection Periods - Every five years thereafter throughout the life of the unit. 6

4.4.2.1.2 Selected Tendons

Representative samples from homogeneous subgroups of tendons have been selected for periodic inspection. Table 4.4-1 shows the selected tendons and their corresponding inspection periods.

4.4.2.1.3 Tests 6

The tests to be performed at each periodic inspection on the selected tendons shall consist of the following: 6

a. Tendon Prestress Force Confirmation Test

1. Lift-off test shall be performed on all selected tendons, with the maximum force greater than the maximum inservice prestress force. The lift-off force and the corresponding elongation shall be recorded. After the lift-off the tendon shall be subjected to an unloading cycle going down to complete detensioning, and inspected for broken wires. After inspection, the tendon shall be retensioned to the lift-off force level observed during detensioning. Any changes in the shim thickness shall be recorded.

2. The acceptance criteria for the allowable jacking load and allowable tolerances during the lift-off test shall be established prior to performing the test. The measured prestress force shall be checked against the predicted lower bound and upper bound at the time of test. The criteria taken into account shall include the following items: 6

   a. The time that has elapsed since the tendon was stressed

   b. The location of the tendon in the structure

   c. The tendon configuration straight or curved

   d. The approximate age of concrete at the time the tendon was stressed

   e. The initial lift-off force of the tendon 6

f. The lift-off force from the previous lift-off test (if used for more than one lift-off test) 6

g. Stress relaxation in the wire

h. Temperature variation in the wire

i. Shrinkage, creep, and temperature stresses in the concrete

j. Tolerances for possible errors in jack pressure, gage readings, and elongation measurements.

3. The allowable limit shall be one defective tendon out of the total sample population. If one sample tendon is defective, an adjacent tendon on each side of the defective tendon shall also be checked. If both of these tendons meet the acceptance criteria, then the single deficiency is considered unique and acceptable. 6

b. Tendon Physical Condition Test

1. Table 4.4-2 shows the tendons and their corresponding inspection periods, selected from Table 4.4-1, for the Tendon Physical Condition Test. 6

2. After detensioning, one random wire shall be removed from selected tendons shown in Table 4.4-2. The wires shall be visually inspected for corrosion, pitting, and other signs of deleterious changes. 6

3. After visual inspection, three samples shall be taken from the pulled wire (one at each end and one from the middle) and subjected to tensile test. The acceptance criteria shall stipulate no failure below the guaranteed ultimate strength of all samples.

4. After inspection, the tendons shall be retensioned to the lift-off stress level observed before detensioning. Any changes in the shim thickness shall be recorded. 6

c. Tendon Anchorage Assembly Inspection

The tendon anchorage assemblies and the associated hardware (bearing plates, stressing washers, stressing shims, button heads, etc.) of all selected tendons shall be visually inspected for signs of corrosion, off-size or cracked button heads, cracks, missing wires, and broken wires. The concrete around the tendon anchorage area shall be inspected for crack width and the general cracking pattern. The acceptance criteria shall be that all crack widths greater than 0.010 inch shall be recorded and reported for evaluation and resolution, and any crack width greater than 0.050 inch shall be cause for investigation to determine the amount of structural impairment upon the reactor building and its continued structural integrity.

d. Inspection of Corrosion Protection System.

The inspection of Corrosion Protection System shall be based on visual observations and tests. The procedure for removing the grease in order to make visual inspection shall insure that no damage to the steel (by scratching) and no increase of corrosion effects shall occur during grease removal even under most unfavorable conditions.

Thermal degradation of the filler grease is not anticipated. The system is designed to remain stable in the range of temperature likely to be encountered during the life of the unit.

Representative grease sample shall be taken from each end anchorage of the selected tendons specified in Table 4.4-2 and tested for chloride, sulphide, nitrate, and moisture content. The acceptance criteria shall limit the amount of any one of the contaminants to 10 ppm and the ratio of water/dry weight shall not exceed 5%.

To uncover possible voids in the trumpet, the grease pump hose shall be inserted into the trumpet through a hole in the split bearing washer and heated grease

pumped until it starts flowing from the hole on the opposite side of the washer. A similar procedure shall be used in refilling the tendon cap. 6

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4.4.2.1.4 Reporting Procedure

The failure of the tendon or parts of tendon and its anchorage to meet the criteria of this Inservice Tendon Surveillance Program shall be treated as an indication of abnormal degradation of the containment structure, and it shall be reported to the U.S. Nuclear Regulatory Commission in accordance with Regulatory Guide 1.35. The initial report shall be made within 10 days after the completion of the tests and the detailed report may follow within 90 days after the completion of the tests. 6 6

TABLE 4.4-1

SELECTED TENDONS AND CORRESPONDING INSPECTION PERIODS

1. Dome Tendons

Inspection Period	Tendons
1	D-101, D-116, D-201, D-220, D-301, D-316
2	D-102, D-117, D-202, D-219, D-302, D-317
3	D-103, D-118, D-203, D-218, D-303, D-318
4, 7, 10	D-116, D-220, D-316
5, 8	D-102, D-202, D-302
6, 9	D-118, D-218, D-318

2. Vertical Wall Tendons

Inspection Period	Tendons
1	V-16, V-27, V-61, V-86, V-158
2	V-24, V-48, V-72, V-97, V-119
3	V-18, V-31, V-55, V-105, V-138
4, 7, 10	V-16, V-86, V-158
5, 8	V-24, V-48, V-119
6, 9	V-18, V-105, V-138

3. Hoop Tendons

Inspection Period	Tendons
1	H-13-028, H-13-034, H-13-046, H-24-021, H-24-047, H-35-010, H-35-028, H-51-012, H-62-010 H-62-016
2	H-13-029, H-24-010, H-24-019, H-35-011, H-35-029, H-46-020, H-46-024, H-51-010, H-51-034, H-62-011
3	H-24-011, H-24-028, H-35-009, H-46-018, H-46-022, H-24-020, H-51-011, H-51-035, H-62-012, H-62-028
4, 7, 10	H-13-046, H-24-018, H-35-028
5, 8	H-46-024, H-51-034, H-62-011
6, 9	H-24-020, H-51-011, H-51-035

TABLE 4.4-2

TENDONS SELECTED FOR TENDON PHYSICAL CONDITION TEST

TENDON LOCATION

Inspection Period	Dome	Wall	Hoop
1	D-301	V-27	H-35-010
2	D-117	V-119	H-13-029
3	D-103	V-18	H-46-018
4	D-220	V-86	H-35-028
5	D-302	V-48	H-46-024
6	D-218	V-105	H-51-011
7	D-116	V-158	H-13-046
8	D-202	V-24	H-62-011
9	D-318	V-138	H-24-020
10	D-316	V-16	H-24-018

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4.4.2.2 Ring Girder Inspection Program

The inservice inspection of the ring girder conforms with the commitments of the document "Report on Containment Ring Girder Construction and Repair," and its subsequent addenda, originally filed December 3, 1971 with the Directorate of Licensing of the United States Atomic Energy Commission.

A. Periodic Inspection Schedule

The frequency of the following inspection requirement shall be in accordance with the commitments documented in the letter of May 31, 1972 addressed to the Directorate of Licensing of the United States Atomic Commission. The letter was sent in response to the requests of Docket No. 50-289. After the fourth inspection, the remaining schedule of inspections, if deemed necessary, shall be determined based upon previous results of the ring girder inspection. The inspection periods are as follows:

1st Inspection - Six months after the "Structural Integrity Test."

2nd Inspection - One year after the "Structural Integrity Test."

3rd Inspection - Two years after the "Structural Integrity Test."

4th Inspection - Three years after the "Structural Integrity Test."

B. Strain Gage Readings

1. Readings of strain gages attached to vertical and hoop reinforcing bars of the ring girder shall be taken and recorded during each ring girder Inspection period. The strain gages that will be used and their location are as listed below and as shown on Figure 4.4-1. The data shall be recorded in the form shown on Table 4.4-3.

Strain Gages

No. & Rebar Orientation	Azimuth	Elevation
52 Hoop	108°	435'-0"
52 Vertical	108°	435'-0"
53 Hoop	245°	435'-0"
53 Vertical	245°	435'-0"
54 Hoop	352°	435'-0"
54 Vertical	352°	435'-0"
55 Hoop	108°	440'-0"
55 Vertical	108°	440'-0"
56 Hoop	245°	440'-0"
56 Vertical	245°	440'-0"
57 Hoop	352°	440'-0"
57 Vertical	352°	440'-0"

No. & Rebar Orientation	Azimuth	Elevation
58 Hoop	108°	446'-0"
58 Vertical	108°	446'-0"
59 Hoop	245°	446'-0"
59 Vertical	245°	446'-0"
60 Hoop	352°	446'-0"
60 Vertical	352°	446'-0"
129 Hoop	80°	446'-0"
129 Vertical	80°	446'-0"
130 Hoop	320°	446'-0"
130 Vertical	320°	446'-0"
61 Hoop	108°	452'-0"
61 Vertical	108°	452'-0"
62 Hoop	245°	452'-0"
62 Vertical	245°	452'-0"
63 Hoop	352°	452'-0"
63 Vertical	352°	452'-0"

2. The strain gage readings from each inspection shall be checked against the previous inspection readings and the duration recorded. Any deviation of strain readings, for the same strain gages, greater than ± 0.0004 in/in or ± ∿ 11,500 psi. shall be reported to the Station/Unit Superintendent for evaluation and resolution. | 6

C. Visual Inspection

1. Crack pattern charts shall be made during each ring girder inspection period. The areas of the concrete which shall be inspected and charts recorded are as listed below and as shown in Figure 4.4-1. The data shall be recorded on the appropriate Figure; refer to Figures 4.4-2, 4.4-3, 4.4-4 and 4.4-5.

Whitewash Areas

No.	Area Centerline Elevation	Area Centerline Azimuth
131	445'-0"	20°
120	445'-0"	175°
132	445'-0"	320°
133	445'-0"	350°

The Whitewash Areas are 6 ft - 0 in. wide by 12 ft - 0 in. high.

2. The charts from each inspection shall be checked against the previous inspection charts. Any crack widths greater than 0.010 inch shall be reported to the Station/Unit Superintendent for evaluation and resolution. | 6

4. a progress and status report on any items identified as requiring additional information during the operating license review or during the startup of the plant, including items discussed in the AEC's safety evaluation, items on which additional information was required as conditions of the license and items identified in the licensee's startup report.

c. Special Test Reports

Special test reports shall be prepared and submitted to the Director, Directorate of Licensing, USAEC, as follows:

Tests	Submittal Dates
1. Containment Structural Integrity Test	Within 6 months after completion of test
2. Containment Integrated Leak Rate Test	Within 6 months after completion of test
3. Inservice Inspection Program	Within 6 months after five years of operation
4. Tendon Surveillance Program	Within 3 months after performance of surveillance program.

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