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. 55
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 January 30, 1975, as supplemented and revised October 28, 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;

   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.

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. 55 , 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: June 3, 1980

ATTACHMENT TO LICENSE AMENDMENT NO. 55

FACILITY OPERATING LICENSE NO. DPR-50

DOCKET NO. 50-289

Revise Appendix A as follows:

Remove Pages	Insert Pages
ii	ii
iii	iii
	3-61
3-62	3-62 3-62a 3-62b 3-62c 3-62d
4-8	4-8
4-55	4-55 4-55a 4-55b 4-55c 4-55d 4-55e
4-56	4-56*

The changes to the Table of Contents, 4-8 and 4-55 are noted by marginal lines.

Other changes in the Technical Specifications are the addition of pages 3-62, -62a, -62b, -62c, -62d, 4-55a, -55b, -55c, -55d and -55e.

* Overleaf page provided for your convenience.

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3.15 AIR TREATMENT SYSTEMS

3.15.1 EMERGENCY CONTROL ROOM AIR TREATMENT SYSTEM

Applicability

Applies to the emergency control room air treatment system and its associated filters.

Objective

To specify minimum availability and efficiency for the emergency control room air treatment system and its associated filters.

Specifications

3.15.1.1 Except as specified in Specification 3.15.1.3 below, both emergency treatment systems, AH-E18A fan and associated filter AH-F3A and AH-E18B fan and associated filter AH-F3B shall be operable at all times, per the requirements of Specification 3.15.1.2 below, when containment integrity is required and when irradiated fuel handling operations are in progress.

3.15.1.2 a. The results of the in-place DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal adsorber banks shall show <0.05% DOP penetration and <0.05% halogenated hydrocarbon penetration, except that the DOP test will be conducted with prefilters installed.

b. The results of laboratory carbon sample analyses shall show ≥90% radioactive methyl iodide decontamination efficiency when tested at 125°F, 95% R.H.

c. The fans AH-E18A and B shall each be shown to operate within ± 4000 CFM of design flow (40,000 CFM).

3.15.1.3 From and after the date that one control room air treatment system is made or found to be inoperable for any reason, reactor operation or irradiated fuel handling operations are permissible only during the succeeding 7 days provided the redundant system is demonstrated to be operable per 4.12.1.1 and 4.12.1.3 within 24 hours and daily thereafter.

3.15.1.4 From the date that both control room air treatment systems are made or found to be inoperable or if the inoperable system of 3.15.1.3 cannot be made operable in 7 days, irradiated fuel handling operations shall be terminated in 2 hours and reactor shutdown shall be initiated and the reactor shall be in cold shutdown within 48 hours.

Bases

The emergency control room air treatment systems AH-E18A and 18B and their associated filters are two independent systems designed to filter the control room atmosphere for intake air and/or for recirculation during control room isolation conditions. The control building is designed to be automatically placed in the recirculation mode upon an RM-A1 high radiation alarm, air tunnel device actuation, ESAS actuation or station blackout condition. The emergency control room air treatment fan and filter AH-E18A or B and AH-F3A or B is designed to be manually started by the operator if a high radiation alarm from RM-A1 is indicated.

Prefilters and high efficiency particulate absolute (HEPA) filters are installed before the charcoal absorbers to prevent clogging of the iodine adsorbers and remove particulate activity. The charcoal adsorbers are installed to reduce the potential intake of radioiodine to the control room. If the efficiencies of the HEPA filters and charcoal adsorbers are as specified, the resulting doses will be less than the allowable levels stated in Criterion 19 of the General Design Criteria for Nuclear Power Plants, Appendix A to 10 CFR Part 50. Operation of the fans significantly different from the design flow will change the removal efficiency of the HEPA filters and charcoal adsorbers.

If one system is found to be inoperable, there is no immediate threat to the control room and reactor operation or refueling may continue for a limited period of time while repairs are being made. If the system cannot be repaired within 7 days, the reactor is shut down and brought to cold shutdown within 48 hours and irradiated fuel handling operations are terminated within 2 hours.

If both systems are found to be inoperable, reactor shutdown shall be initiated and the reactor will be brought to cold shutdown in 48 hours and irradiated fuel handling operations will be stopped within 2 hours.

The in-place DOP and halogenated hydrocarbon tests of the filter banks and the laboratory tests of the carbon samples will be done in a manner which meets the guidelines of Regulatory Guide 1.52 (Rev. 2).

References

(1) FSAR Section 9.8
(2) FSAR Figure 9-21

3.15.2 REACTOR BUILDING PURGE AIR TREATMENT SYSTEM

Applicability

Applies to the reactor building purge air treatment system and its associated filters.

Objective

To specify minimum availability and efficiency for the reactor building purge air treatment system and its associated filters.

Specification

3.15.2.1 Except as specified in Specification 3.15.2.3 below, the Reactor Building Purge Air Treatment System filter AH-F1 and fans AH-E7A and B shall be operable as defined by the Specification below at all times when containment integrity is required.

3.15.2.2 a. The results of the in-place DOP and halogenated hydrocarbon tests at maximum available flows on HEPA filters and charcoal absorber banks for AH-F1 shall show <0.05% DOP penetration and <0.05% halogenated hydrocarbon penetration, except that the DOP test will be conducted with prefilters installed.

b. The results of laboratory carbon sample analysis from the reactor building purge system filter carbon shall show ≥90% radioactive methyl iodide decontamination efficiency when tested at 250°F, 95% R.H.

c. Fans AH-E7A and B shall each be shown to operate within ± 2,500 CFM of design flow (25,000 CFM).

3.15.2.3 a. From and after the date that the filter AH-F1 in the reactor building purge system is made or found to be inoperable as defined by Specification 3.15.2.2 above, or both fans AH-E7A and B are found to be inoperable, reactor operation is permissible only during the succeeding 30 days, unless such filter and at least one fan is sooner made operable.

b. If the required conditions for the reactor building purge filter and fan cannot be met after 30 days, operations shall be terminated immediately and the reactor placed in cold shutdown within 48 hours.

Bases

The Reactor Building Purge Exhaust system filter AH-F1 while normally used to filter all reactor building exhaust air, serves also as the post-accident purge filter when used in conjunction with the Hydrogen Purge System to reduce hydrogen gas concentrations in the reactor building following a LOCA. It is necessary to demonstrate operability of these filters to assure readiness for service if required, approximately thirty (30) days following a hypothetical LOCA.

High efficiency particulate absolute (HEPA) filters are installed before the charcoal absorbers to prevent clogging of the iodine absorbers for all emergency air treatment systems. The charcoal absorbers are installed to reduce the potential release of radioiodine to the environment. If the efficiencies of the HEPA filters and charcoal adsorbers are as specified, the resulting doses will be less than the 10 CFR 100 guidelines for the accident analyzed in FSAR Supplement I Part III, which assumes 90% efficiency.

The flow through AH-F1 by design can vary from 0 CFM to 50,000 CFM, the maximum purge flow rate, with makeup air being provided between the filter AH-F1 and the fans AH-E7A and B to maintain a constant reactor building purge exhaust stack flow rate of 50,000 CFM regardless of the actual purge flow.

The in-place DOP and halogenated hydrocarbon tests of the filter banks and the laboratory tests of the carbon samples will be done in a manner which meets the guidelines of Regulatory Guide 1.52 (Rev. 2), except that DOP and Freon tests will be performed at maximum available flow considering physical restrictions, i.e., purge valve position, and gaseous radioactive release criteria.

References

(1) FSAR Section 5.3.3
(2) FSAR Section 5.6
(3) FSAR Section 9.8

3.15.3 AUXILIARY AND FUEL HANDLING EXHAUST AIR TREATMENT SYSTEM

Applicability

Applies to the auxiliary and fuel handling exhaust air treatment system.

Objective

To specify the minimum availability and efficiency for the auxiliary and fuel handling exhaust air treatment system.

Specification

3.15.3.1 The auxiliary and fuel handling buildings exhaust air treatment system shall be operable at all times when fuel handling operations are in progress in the Fuel Handling Building and whenever irradiated fuel is in the storage pool. This applies to the exhaust filters AH-F2A, 2B, 2C, and 2D as well as the exhaust fans AH-E14A, 14B, 14C, and 14D.

From and after the date that the auxiliary and fuel handling exhaust air treatment system is made or found to be inoperable, that is the filters AH-F 2A, 2B, 2C, and 2D and/or both sets of fans AH-E 14A and 14C and AH-E 14B and 14D, are inoperable, fuel handling operations shall be terminated immediately until the components are returned to service. Any fuel assembly movement in progress may be completed.

3.15.3.2 a. The results of the in-place DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal adsorber banks shall show <0.05% DOP penetration and <0.05% halogenated hydrocarbon penetration, except that the DOP test will be conducted with prefilters installed.

b. The results of laboratory carbon sample analysis shall show ≥90% radioactive methyl iodide decontamination efficiency when tested at 125°F, 95% R.H.

c. Each set of fans AH-E14 A & C and AH-E14 B & D shall each be shown to have the capacity of operating within ± 11,881 CFM of design flow (118,810 CFM).

3.15.3.3 With one auxiliary and fuel handling exhaust air treatment system inoperable, fuel movement within the storage pool may proceed provided the OPERABLE auxiliary and fuel handling exhaust air treatment system is in operation and discharging through at least one train of HEPA filters and charcoal adsorbers.

Bases

The Auxiliary and Fuel Handling Building Exhaust System consists primarily of the exhaust filters AH-F2A, B, C, and D and two sets of redundant exhaust fans AH-E14A and C or AH-E14B and D which take the exhaust air from both the Auxiliary Building and the Fuel Handling Building and discharge it to the Auxiliary and Fuel Handling building exhaust stack. All the air passes through the exhaust filters AH-F2A, B, C, and D 100% of the time prior to being discharged to the stack.

High efficiency particulate absolute (HEPA) filters are installed before the charcoal adsorbers to prevent clogging of the iodine adsorbers for all emergency air treatment systems. The charcoal adsorbers are installed to reduce the potential release of radioiodine to the environment.

If the efficiencies of the HEPA filters and charcoal adsorbers are as specified, the resulting doses will be less than the 10 CFR 100 guidelines for the accidents analyzed in Chapter 14 of the FSAR, which assumes 90% efficiency.

If the auxiliary and fuel handling exhaust air system is found to be inoperable, all fuel handling and fuel movement operations will be terminated until the system is made operable.

The inplace DOP and halogenated hydrocarbon tests of the filter banks and the laboratory tests of the carbon samples will meet the guidelines of Regulatory Guide 1.52 (Rev. 2).

References

(1) FSAR Section 9.8
(2) FSAR Figure 9-20

TABLE 4.1-2

MINIMUM EQUIPMENT TEST FREQUENCY

	Item	Test	Frequency
1.	Control Rods	Rod drop time of all full length rods	Each refueling shutdown
2.	Control Rod Movement	Movement of each rod	Every two weeks, when reactor is critical
3.	Pressurizer Safety Valves	Setpoint	50% each refueling period
4.	Main Steam Safety Valves	Setpoint	25% each refueling period
5.	Refueling System Interlocks	Functional	Start of each refueling period
6.	Main Steam Isolation Valves	(See Section 4.8)	
7.	Reactor Coolant System Leakage	Evaluate	Daily, when reactor coolant system temperature is greater than 525°F
8.	Air Treatment Systems	See Section 3.15	See Section 4.12
9.	Spent Fuel Cooling System	Functional	Each refueling period prior to fuel handling
10.	Intake Pump House Floor (Elevation 262 ft. 6 in.)	(a) Silt Accumulation-Visual inspection of Intake Pump House Floor	Each refueling period
		(b) Silt Accumulation Measurement of Pump House Flow	Quarterly

4.12 AIR TREATMENT SYSTEMS

4.12.1 EMERGENCY CONTROL ROOM AIR TREATMENT SYSTEM

Applicability

Applies to the emergency control room air treatment system and associated components.

Objective

To verify that this system and associated components will be able to perform its design functions.

Specification

4.12.1.1 At least every refueling interval or once every 18 months whichever comes first, the pressure drop across the combined HEPA filters and charcoal adsorber banks of AH-F3A and 3B shall be demonstrated to be less than 6 inches of water at system design flow rate (±10%).

4.12.1.2 a. The tests and sample analysis required by Specification 3.15.1.2 shall be performed initially and at least once per year for standby service or after every 720 hours of system operation **and following significant painting, steam, fire or chemical release in any ventilation zone communicating with the system that could contaminate the HEPA filters or charcoal absorbers.**

b. DOP testing shall be performed after each complete or partial replacement of the HEPA filter bank or after any structural maintenance on the system housing which could affect the HEPA filter bank bypass leakage.

c. Halogenated hydrocarbon testing shall be performed after each complete or partial replacement of the charcoal adsorber bank or after any structural maintenance on the system housing which could affect the charcoal adsorber bank bypass leakage.

d. Each AH-E18A and B (AH-F3A and B) fan/filter circuit shall be operated at least 10 hours every month.

4.12.1.3 At least once per refueling interval or once every 18 months whichever comes first, automatic initiation of the Control Building isolation and recirculation Dampers AH-D28, 37, 39, and 36 shall be demonstrated as operable.

4.12.1.4 An air distribution test shall be performed on the HEPA filter bank initially, and after any maintenance or testing that could affect the air distribution within the system. The air distribution across the HEPA filter bank shall be uniform within ±20%. The test shall be performed at 40,000 cfm (±10%) flow rate.

Bases

Pressure drop across the combined HEPA filters and charcoal adsorbers of less than 6 inches of water at the system design flow rate will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter. Pressure drop should be determined at least once per refueling cycle to show system performance capability.

The frequency of tests and sample analysis are necessary to show that the HEPA filters and charcoal adsorbers can perform as evaluated. Tests of the charcoal adsorbers with halogenated hydrocarbon shall be performed in accordance with approved test procedures. Replacement adsorbent should be qualified according to Regulatory Guide 1.52 March 1978. The charcoal adsorber efficiency test procedures should allow for the removal of one adsorber tray, emptying of one bed from the tray, mixing the adsorbent thoroughly and obtaining at least two samples. Each sample should be at least two inches in diameter and a length equal to the thickness of the bed. If test results are unacceptable all adsorbent in the system shall be replaced. Tests of the HEPA filters with DOP aerosol shall also be performed in accordance with approved test procedures. Any HEPA filters found defective should be replaced with filters qualified according to Regulatory Guide 1.52 March 1978.

Operation of the system for 10 hours every month will demonstrate operability of the filters and adsorber system and remove excessive moisture built up on the absorber.

If significant painting, steam, fire or chemical release occurs such that the HEPA filter or charcoal absorber could become contaminated from the fumes, chemicals or foreign materials, the same tests and sample analysis shall be performed as required for operational use. The determination of significance shall be made by the Unit Superintendent.

Demonstration of the automatic initiation of the recirculation mode of operation is necessary to assure system performance capability.

4.12.2 REACTOR BUILDING PURGE AIR TREATMENT SYSTEM

Applicability

Applies to the reactor building purge air treatment system and associated components.

Objective

To verify that this system and associated components will be able to perform its design functions.

Specification

4.12.2.1 At least once per refueling interval or once per 18 months, whichever comes first, it shall be demonstrated that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6 inches of water at system design flow rate (±10%).

4.12.2.2 a. The tests and sample analysis required by Specification 3.15.2.2, shall be performed initially, once per refueling interval or 18 months, whichever comes first, or after each 720 hours of operation and following significant painting, steam, fire, or chemical release in any ventilation zone communicating with the system that could contaminate the HEPA filters or charcoal adsorbers.

b. DOP testing shall be performed after each complete or partial replacement of a HEPA filter bank or after any structural maintenance on the system housing which could affect HEPA frame bypass leakage.

c. Halogenated hydrocarbon testing shall be performed after each complete or partial replacement of a charcoal adsorber bank or after any structural maintenance on the system housing which could affect the charcoal adsorber bank bypass leakage.

d. The DOP and halogenated hydrocarbon testing shall be performed at the maximum available flow considering physical restrictions, i.e., purge valve position, and gaseous radioactive release criteria.

e. The Reactor Building purge exhaust fans AH-E7A and B shall be operated at least 10 hours every month, either during actual purging or using makeup air.

4.12.2.3 An air distribution test shall be performed on the HEPA filter bank initially and after any maintenance or testing that could affect the air distribution within the system. The air distribution across the HEPA filter bank shall be uniform within ±20%. The test shall be performed at 25,000 cfm (±10%) flow rate.

Bases

Pressure drop across the combined HEPA filters and charcoal adsorbers of less than 6 inches of water at the system design flow rate will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter. Pressure drop should be determined at least once every refueling interval to show system performance capability.

The frequency of tests and sample analysis are necessary to show that the HEPA filters and charcoal adsorbers can perform as evaluated. Tests of the charcoal adsorbers with halogenated hydrocarbon refrigerant shall be performed in accordance with approved test procedures. The charcoal adsorber efficiency test procedures should allow for the removal of one adsorber tray, emptying of one bed from the tray, mixing the adsorbent thoroughly and obtaining at least two samples. Each sample should be at least two inches in diameter and a length equal to the thickness of the bed. If test results are unacceptable, all adsorbent in the system should be replaced with an adsorbent qualified according to Regulatory Guide 1.52, March 1978. Tests of the HEPA filters with DOP aerosol shall also be performed in accordance with approved test procedures. Any HEPA filters found defective should be replaced with filters qualified according to Regulatory Guide 1.52, March 1978.

Operation of the emergency air treatment system each month for at least ten (10) hours will demonstrate operability of the fans and when operated in the purge mode will tend to cause the filter and adsorber system to remove excessive moisture built up on the adsorber.

If significant painting, steam, fire, or chemical release occurs such that the HEPA filter or charcoal adsorber could become contaminated from the fumes, chemicals or foreign material, the same tests and sample analysis shall be performed as required for operational use. The determination of significant shall be made by the Unit Superintendent.

4.12.3 AUXILIARY AND FUEL HANDLING EXHAUST AIR TREATMENT SYSTEM

Applicability

Applies to the auxiliary and fuel handling building exhaust air treatment system and associated components.

Objective

To verify that this system and associated components will be able to perform its design functions.

Specification

4.12.3.1 At least once per refueling interval or once per 18 months, whichever comes first, it shall be demonstrated that the pressure drop across the combined HEPA filter and adsorber banks is less than 6 inches of water at system design flow rate (±10%).

4.12.3.2 a. The tests and sample analysis required by Specification 3.15.3.2 shall be performed initially, once per refueling interval or 18 months, whichever comes first, or within 30 days prior to the movement of irradiated fuel and following significant painting, steam, fire, or chemical release in any ventilation zone communicating with the system that could contaminate the HEPA filters or charcoal adsorbers.

b. DOP testing shall be performed after each complete or partial replacement of a HEPA filter bank or after any structural maintenance on the system housing that could affect the HEPA filter bank bypass leakage.

c. Halogenated hydrocarbon testing shall be performed after each complete or partial replacement of a charcoal adsorber bank or after any structural maintenance on the AH-F 2A, B, C, or D housing that could affect charcoal adsorber bank bypass leakage.

d. The fan combination AH-E 14A and C and AH-E 14B and D shall be operated at least 10 hours every month.

4.12.3.3 An air distribution test shall be performed on the HEPA filter bank initially and after any maintenance or testing that could affect the air distribution within the system. The air distribution across the HEPA filter bank shall be uniform within ±20%. The test shall be performed at 118,810 cfm (±10% flow rate).

Bases

Pressure drop across the combined HEPA filters and charcoal adsorbers of less than 6 inches of water at the system design flow rate will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter. Pressure drop should be determined at least once every refueling interval to show system performance capability.

The frequency of tests and sample analysis are necessary to show that the HEPA filters and charcoal adsorbers can perform as evaluated. Tests of the charcoal adsorbers with halogenated hydrocarbon refrigerant shall be performed in accordance with approved test procedures. The charcoal adsorber efficiency test procedures should allow for the removal of one adsorber tray, emptying of one bed from the tray, mixing the adsorbent thoroughly and obtaining at least two samples. Each sample should be at least two inches in diameter and a length equal to the thickness of the bed. If test results are unacceptable, all adsorbent in the system should be replaced with an adsorbent qualified according to Regulatory Guide 1.52, March 1978. Tests of the HEPA filters with DOP aerosol shall be performed in accordance with approved procedures. Any HEPA filters found defective should be replaced with filters qualified according to Regulatory Guide 1.52, March 1978.

Operation of the Auxiliary and Fuel Handling Building Exhaust Fans each month for at least ten (10) hours will demonstrate operability of the fans.

If significant painting, steam, fire, or chemical release occurs such that the HEPA filter or charcoal adsorber could become contaminated from the fumes, chemicals or foreign material, the same tests and sample analysis shall be performed as required for operational use. The determination of significant shall be made by the Unit Superintendent.

4.13 RADIOACTIVE MATERIALS SOURCES SURVEILLANCE

Applicability

Applies to leakage testing of byproduct, source, and special nuclear radioactive material sources.

Objective

To assure that leakage from byproduct, source, and special nuclear radioactive material sources does not exceed allowable limits.

Specification

Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically authorized by the Commission or an agreement State, as follows:

1. Each sealed source, except startup sources subject to core flux, containing radioactive material, other than Hydrogen 3, with a half-life greater than 30 days and in any form other than gas shall be tested for leakage and/or contamination at intervals not to exceed six months.

2. The periodic leak test required does not apply to sealed sources that are stored and not being used. The sources excepted from this test shall be tested for leakage prior to any use or transfer to another user unless they have been leak tested within six months prior to the date of use or transfer. In the absence of a certificate from a transferor indicating that a test has been made within six months prior to the transfer, sealed sources shall not be put into use until tested.

3. Startup sources shall be leak tested prior to and following any repair or maintenance and before being subjected to core flux.