

METROPOLITAN EDISON COMPANY
JERSEY CENTRAL POWER & LIGHT COMPANY

AND

PENNSYLVANIA ELECTRIC COMPANY
THREE MILE ISLAND NUCLEAR STATION UNIT 1

Operating License No. DPR-50
Docket No. 50-289
Technical Specification Change Request No. 7 Amendment No. 1

This Technical Specification Change Request is submitted in support of
Licensee's request to change Appendix A to Operating License No. DPR-50
for Three Mile Island Nuclear Station Unit 1.

METROPOLITAN EDISON COMPANY

By RC Arnold
Vice President-Generation

Sworn and subscribed to me this 28th day of October, 1975

Richard L. Ruth
Notary Public
RICHARD L. RUTH
Notary Public, Middlesex County, Berks Co.
My Commission Expires September 23, 1978

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF

DOCKET NO. 50-289
LICENSE NO. DPR-50

METROPOLITAN EDISON COMPANY

This is to certify that a copy of Technical Specification Change Request No. 7 Amendment No. 1 to Appendix A of the Operating License for Three Mile Island Nuclear Station Unit 1, dated October 28, 1975, and filed with the U. S. Nuclear Regulatory Commission on October 28, 1975, has this 28th day of October been served on the chief executives of Londonderry Township, Dauphin County, Pennsylvania and Dauphin County, Pennsylvania by deposit in the United States mail, addressed as follows:

Mr. Weldon B. Arehart, Chairman
Board of Supervisors of
Londonderry Township
R. D. #1, Geyers Church Road
Middletown, Pennsylvania 17057

Mr. Charles P. Hoy, Chairman
Board of County Commissioners
of Dauphin County
Dauphin County Court House
Harrisburg, Pennsylvania 17120

METROPOLITAN EDISON COMPANY

By /s/ R. C. Arnold
Vice President-Generation

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METROPOLITAN EDISON COMPANY SUBSIDIARY OF GENERAL PUBLIC UTILITIES CORPORATION

POST OFFICE BOX 542 READING, PENNSYLVANIA 19603

TELEPHONE 215 - 929-3601

October 28, 1975
GQL 1633

Mr. Charles P. Hoy, Chairman
Board of County Commissioners
of Dauphin County
P.O. Box 1295
Harrisburg, Pennsylvania 17120

Dear Mr. Hoy:

Enclosed please find one copy of Technical Specification Change Request No. 7, Amendment No. 1 to Appendix A of the Operating License for Three Mile Island Nuclear Station Unit 1.

This request was filed with the U.S. Nuclear Regulatory Commission on October 28, 1975.

Very truly yours,

/s/ R. C. Arnold

R. C. Arnold
Vice President

RCA:CWS:pa

File 20.1.1/7.7.4.3.3.1

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METROPOLITAN EDISON COMPANY SUBSIDIARY OF GENERAL PUBLIC UTILITIES CORPORATION

POST OFFICE BOX 542 READING, PENNSYLVANIA 19603

TELEPHONE 215 - 929-3601

October 28, 1975
GQL 1633

Mr. Weldon B. Arehart, Chairman
Board of Supervisors of Longcadderry Township
R.D. #1 Geyers Church Road
Middletown, Pa. 17057

Dear Mr. Arehart:

Enclosed please find one copy of Technical Specification Change Request
No. 7 Amendment No. 1 to Appendix A of the Operating License for Three
Mile Island Nuclear Station Unit 1.

This request was filed with the U.S. Nuclear Regulatory Commission
on October 28, 1975.

Very truly yours,

/s/ R. C. Arnold

R. C. Arnold
Vice President

RCA:CWS:pa

File 20.1.1/7.7.4.3.3.1

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Three Mile Island Nuclear Station Unit 1
Operating License No. DPR-50
Docket No. 50-289

Technical Specification Change Request No. 7 Amendment No. 1

Licensee requests that the following changes be made to Appendix A of the Technical Specifications, as indicated by the attached changed pages. This Change Request supersedes our previous Change Request No. 7.

Page ii. Add "3.15 AIR TREATMENT SYSTEMS", "3.15.1 EMERGENCY CONTROL ROOM AIR TREATMENT SYSTEM", "3.15.2 REACTOR BUILDING PURGE AIR TREATMENT SYSTEM", and "3.15.3 AUXILIARY AND FUEL HANDLING EXHAUST AIR TREATMENT SYSTEM" to the index.

Page iii. Delete "4.12 CONTROL ROOM FILTERING SYSTEM", "4.12.1 OPERATING TESTS", "4.12.2 FILTER TESTS" and "4.14 REACTOR BUILDING PURGE EXHAUST SYSTEM", and add "4.12 AIR TREATMENT SYSTEMS", "4.12.1 EMERGENCY CONTROL ROOM AIR TREATMENT SYSTEM", "4.12.2 REACTOR BUILDING PURGE AIR TREATMENT SYSTEM", and "4.12.3 AUXILIARY AND FUEL HANDLING EXHAUST AIR TREATMENT SYSTEM".

Page 3-61 through 3-66. Add new Specification Section 3.15.

Page 4-55. Delete existing specification 4.12 and add revised Specification Section 4.12 (pages 4-55 through 4-55e).

Page 4-8 Change No. 8 on Table 4.1-2 as indicated on attached changed page.

Note that No. 11 of Table 4.1-2 has been requested to be deleted by our Change Request No. 19 (August 23, 1975).

Reasons for Proposed Change

The change is proposed to provide additional specifications to ensure high confidence that these systems will function reliably, when needed, at a high degree of efficiency.

It should be noted that this proposed change was requested by the Commission's, Mr. George Lear, in his letter to the licensee dated December 6, 1974.

This Amendment incorporates the changes agreed upon at the July 28, 1975, meeting between the NRC and Met-Ed representatives.

Test temperatures for the Control Room and Auxiliary and Fuel Handling Building air treatment systems have been designated to be 125 F in that

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- a) testing at 130^o C could result in meeting the laboratory decontamination efficiency by removal of contaminants volatile at this high temperature thus providing an unrealistic carbon efficiency
- b) testing at 125^o F provides for testing at a temperature which is realistic under accident conditions for these air treatment systems and therefore constitutes a worst case efficiency.

A test temperature of 250^o F for the Reactor Building Purge Air Treatment System has been designated to provide a test temperature in degrees Fahrenheit.

Safety Analysis Justifying Change

The change reflects additional and more stringent requirements than those currently existing. The change does not involve a significant hazards consideration nor an unreviewed safety question and will not cause undue risk to the health and safety of the public.

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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.

Specification

- 3.15.1.1 Except as specified in Specification 3.15.1.3 below, at least one emergency treatment system, AH-E18A fan and associated filter AH-F3A or 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.
- 3.15.1.2
- a. The results of the in-place DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal absorber banks shall show <1% DOP penetration and <1% halogenated hydrocarbon penetration when tested in accordance with ANSI N510-1975, except that the DOP test will be conducted with pre-filters installed.
 - b. The results of laboratory carbon sample analyses shall show >90% radioactive methyl iodide decontamination efficiency when tested in accordance with ANSI N510-1975 (125°F, 95% R.H.).
 - c. The fans AH-18A and 18B shall each be shown to operate within ± 4000 CFM of design flow (40,000 CFM) when tested in accordance with ANSI N510-1975.
- 3.15.1.3
- a. From and after the date that one control room air treatment system is made or found to be inoperable for any reason, reactor operation is permissible only during the succeeding thirty days unless both circuits are sooner made operable.
 - b. From and after the date that both control room air treatment systems are made or found to be inoperable for any reason, reactor operation is permissible only during the succeeding seven days unless one or both circuits are sooner made operable.
- 3.15.1.4 If these conditions cannot be met, 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-E3A or B is designed to be manually started by the operator if a high radiation alarm from RM-A1 is indicated.

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Prefilters and high efficiency particulate absolute (HEPA) filters are installed before the charcoal absorbers to prevent clogging of the iodine absorbers and remove particulate activity. The charcoal absorbers are installed to reduce the potential intake of radioiodine to the control room. If the efficiencies of the HEPA filters and charcoal absorbers 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 absorbers.

If one system is found to be inoperable, there is no immediate threat to the control room and reactor operation may continue for a limited period of time while repairs are being made. If the system cannot be repaired within thirty days, the reactor is shutdown and brought to cold shutdown within 48 hours.

If both systems are found to be inoperable, there is no immediate threat to the control room and reactor operation may continue for a limited period of time while repairs are being made. If at least one of the systems cannot be repaired within seven days, the reactor is shutdown and brought to cold shutdown within 48 hours.

References

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

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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.
- 3.15.2.2
- The results of the in-place DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal absorber banks for AH-F1 shall show <1% DOP penetration and <1% halogenated hydrocarbon penetration when tested in accordance with ANSI N510-1975, except that the DOP test will be conducted with pre-filters installed.
 - 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 in accordance with ANSI N510-1975 (250°F, 95% R.H.).
 - Fans AH-E7A and E shall each be shown to operate within $\pm 2,500$ CFM of design flow (25,000 CFM) when tested in accordance with ANSI N510-1975.
- 3.15.2.3
- 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 thirty days, unless such filter and at least one fan is sooner made operable.
 - 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 absorbers 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 make-up 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.

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. 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 fuel handling air treatment system is made or found to be inoperable, that is the filters AH-F 2A, B, C, and D and/or both sets of fans AH-E 14A and C and AH-E 14B and D, are inoperable, fuel handling operations shall be terminated immediately until the components are returned to service.

- 3.15.3.2 a. The results of the in-place DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal absorber banks shall show <1% DOP penetration and <1% halogenated hydrocarbon penetration when tested in accordance with ANSI N510-1975, 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 in accordance with ANSI N510-1975 (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 $\pm 11,881$ CFM of design flow (118,810 CFM) when tested in accordance with ANSI N510-1975.

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 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 absorbers 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.

References

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

TABLE 4.1-2
MINIMUM EQUIPMENT TEST FREQUENCY

<u>Item</u>	<u>Test</u>	<u>Frequency</u>
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 Valve	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 (b) Silt Accumulation Measurement of Pump House Flow	Each refueling period Quarterly

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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, the pressure drop across the combined HEPA filters and charcoal absorber banks of AH-F3A and 3B shall be demonstrated to be less than 6 inches of water at system design flow rate.
- 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, fire or chemical release in any ventilation zone communicating with the system.
 - b. DOP testing shall be performed on the affected portions of the filter after each complete or partial replacement of the HEPA filter bank or after any structural maintenance on the system housing.
 - c. Halogenated hydrocarbon testing shall be performed on the affected portion of the filter after each complete or partial replacement of the charcoal absorber bank or after any structural maintenance on the system housing.
 - 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, automatic initiation of the Control Building isolation and recirculation Dampers AH-D28, 37, 39, and 36 shall be demonstrated as operable.

Bases

Pressure drop across the combined HEPA filters and charcoal absorbers of less than 6 inches of water at the system design flow rate will indicate that the filters and absorbers 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.

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The frequency of tests and sample analysis are necessary to show that the HEPA filters and charcoal absorbers can perform as evaluated. Tests of the charcoal absorbers with halogenated hydrocarbon shall be performed in accordance with approved test procedures. Replacement absorbent should be qualified according to Regulatory Guide 1.52 June 1973. The charcoal absorber efficiency test procedures should allow for the removal of one absorber tray, emptying of one bed from the tray, mixing the absorbent 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 absorbent 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 June 1973.

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

If significant painting, 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.

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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, it shall be demonstrated that the pressure drop across the combined HEPA filters and charcoal absorber banks is less than 6 inches of water at system design flow rate.
- 14.2.2.2 a. The tests and sample analysis required by Specification 3.15.2.2, filter AH-F1 shall be performed initially and each 18 months or after each 720 hours of operation and following significant painting, fire, or chemical release in any ventilation zone communicating with the system.
- b. DOP testing shall be performed on the affected portion of the filter after each complete or partial replacement of a HEPA filter bank or after any structural maintenance on the system housing.
- c. Halogenated hydrocarbon testing shall be performed on the affected portions of the filter after each complete or partial replacement of a charcoal absorber bank or after any structural maintenance on the system housing.
- d. 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.

Bases

Pressure drop across the combined HEPA filters and charcoal absorbers of less than 6 inches of water at the system design flow rate will indicate that the filters and absorbers 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 absorbers can perform as evaluated. Tests of the charcoal absorbers with halogenated hydrocarbon refrigerant shall be performed in accordance with approved test procedures. The charcoal absorber efficiency test procedures should allow for the removal of one absorber tray, emptying of one bed from the tray, mixing the absorbent 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 absorbent in the

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system should be replaced with an absorbent qualified according to Regulatory Guide 1.52 June 1973. 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 June 1973.

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 absorber system to remove excessive moisture built up on the absorber.

If significant painting, fire, or chemical release occurs such that the HEPA filter or charcoal absorber 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

- 14.2.3.1 At least once per refueling interval, it shall be demonstrated that the pressure drop across the combined absorber banks is less than 6 inches of water at system design flow rate.
- 14.2.3.2 a. The tests and sample analysis required by Specifications 3.15.3.2 shall be performed within 30 days prior to the initiation of each refueling outage and following significant painting, fire or chemical release in any ventilation zone communicating with the system.
- b. DOP testing shall be performed on the affected portions of the filter after each complete or partial replacement of a HEPA filter bank or after any structural maintenance on the system housing.
- c. Halogenated hydrocarbon testing shall be performed on the affected portions of the filter after each complete or partial replacement of a charcoal absorber bank or after any structural maintenance on the AH-F 2A, B, C, or D housing.
- d. The fan combination AH-E 14A and C and AH-E 14B and D shall be operated at least 10 hours every month.

Bases

Pressure drop across the combined HEPA filters and charcoal absorbers of less than 6 inches of water at the system design flow rate will indicate that the filters and absorbers 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 absorber can perform as evaluated. Tests of the charcoal absorbers with halogenated hydrocarbon refrigerant shall be performed in accordance with approved test procedures. The charcoal absorber efficiency test procedures should allow for the removal of one absorber tray, emptying of one bed from the tray, mixing the absorbent 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 absorbent in the system

should be replaced with an absorbent qualified according to Regulatory Guide 1.52 June 1973. 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 June 1973.

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, fire, or chemical release occurs such that the HEPA filter or charcoal absorber 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.

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