



Carolina Power & Light Company
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New Hill NC 27562

James Scarola
Vice President
Harris Nuclear Plant

NOV 19 1999

SERIAL: HNP-99-166
10 CFR 50.90

United States Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400/LICENSE NO. NPF-63
REQUEST FOR LICENSE AMENDMENT
LABORATORY TESTING OF NUCLEAR-GRADE ACTIVATED CHARCOAL

Dear Sir or Madam:

In accordance with the Code of Federal Regulations, Title 10, Part 50.90, Carolina Power & Light Company (CP&L) requests a revision to the Technical Specifications (TS) for the Harris Nuclear Plant (HNP). The proposed amendment revises the TS to incorporate American Society for Testing and Materials (ASTM) D3803-1989, "Standard Test Method for Nuclear-Grade Activated Carbon," as the standard for testing nuclear-grade activated charcoal. Specifically, TS 4.7.6 will be revised for the Control Room Emergency Filtration System, TS 4.7.7 will be revised for the Reactor Auxiliary Building Emergency Exhaust System, and TS 4.9.12 will be revised for the Fuel Handling Building Emergency Exhaust System. These changes are being made in accordance with NRC Generic Letter (GL) 99-02, "Laboratory Testing Of Nuclear-Grade Activated Charcoal," which was issued on June 3, 1999. The response to GL 99-02 for HNP is being mailed separately.

Enclosure 1 provides a description of the proposed changes and the basis for the changes.

Enclosure 2 details, in accordance with 10 CFR 50.91(a), the basis for CP&L's determination that the proposed changes do not involve a significant hazards consideration.

Enclosure 3 provides an environmental evaluation which demonstrates that the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental assessment is required for approval of this amendment request.

Enclosure 4 provides page change instructions for incorporating the proposed revisions.

Enclosure 5 provides the proposed TS pages.

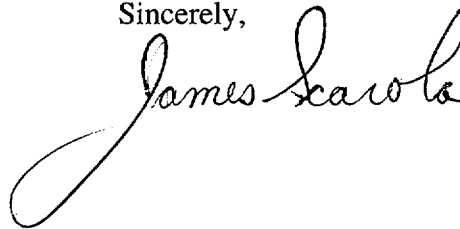
ACB 1

CP&L requests that the proposed amendment be approved by January 31, 2000 to avoid adversely impacting scheduled charcoal testing. CP&L also requests that the proposed amendment be issued such that implementation will occur within 60 days of issuance to allow time for orderly incorporation into copies of the TS.

In accordance with 10 CFR 50.91(b), CP&L is providing the State of North Carolina a copy of this license amendment request.

Please refer any questions regarding this submittal to Mr. J. H. Eads at (919) 362-2646.

Sincerely,

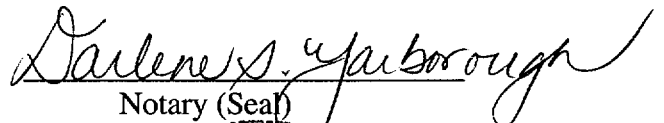


AEC

Enclosures:

1. Basis for Change Request
2. 10 CFR 50.92 Evaluation
3. Environmental Considerations
4. Page Change Instructions
5. Technical Specification Pages

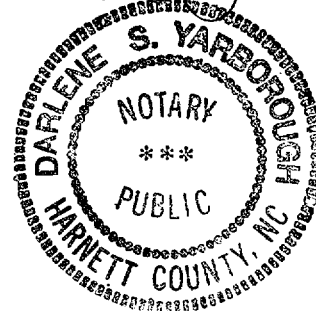
James Scarola, having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge and belief; and the sources of his information are employees, contractors, and agents of Carolina Power & Light Company.



Notary (Seal)

My commission expires: 2-6-2000

cc: Mr. J. B. Brady, NRC Sr. Resident Inspector
Mr. Mel Fry, Director, N.C. DEHNR
Mr. R. J. Laufer, NRC Project Manager
Mr. L. A. Reyes, NRC Regional Administrator



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BASIS FOR CHANGE REQUEST

Background

NRC Generic Letter (GL) 99-02, "Laboratory Testing Of Nuclear-Grade Activated Charcoal," was issued on June 3, 1999. GL 99-02 alerted the nuclear power industry that testing nuclear-grade activated charcoal to standards other than American Society for Testing and Materials (ASTM) D3803-1989, "Standard Test Method for Nuclear-Grade Activated Carbon," is not acceptable to the NRC. A series of laboratory testing has demonstrated that test standards other than ASTM D3803-1989 do not provide accurate and reproducible results. These other test standards may overestimate the capability of the charcoal to adsorb radioiodine.

Analyses of design-basis accidents assume a particular engineered safety feature (ESF) charcoal filter adsorption efficiency when calculating offsite and control room operator doses. Charcoal filter samples are tested to determine whether the filter adsorption efficiency is greater than that assumed in the design-basis accident analysis. Accurate charcoal testing confirms the capability of the charcoal filters in ESF ventilation systems to adsorb radioiodine such that the dose limits of General Design Criterion 19 and Part 100 of the Code of Federal Regulations are not exceeded. The NRC adopted ASTM D3803-1989 as an acceptable testing standard since it is the only available testing standard that provides accurate and reproducible test results.

The Technical Specification (TS) ESF ventilation systems at the Harris Nuclear Plant (HNP) are the Control Room Emergency Filtration System, the Reactor Auxiliary Building Emergency Exhaust System and the Fuel Handling Building Emergency Exhaust System. The TS Surveillance Requirements for these systems currently specify that laboratory analyses of representative carbon samples meet the testing criteria of Regulatory Position C.6.a of Regulatory Guide (RG) 1.52, Revision 2 (March 1978), "Design, Testing, and Maintenance Criteria for Post Accident Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants." A methyl iodide penetration limit is specified for the testing parameters of 30°C and at a relative humidity of 70% in accordance with ASTM D3803 (no year specified). The 1989 version of ASTM D3803 is not currently referenced as the testing standard in HNP TS. The plant procedure governing this testing currently specifies ASTM D3803-1979 as the testing protocol.

Proposed Changes

Technical Specification Surveillance Requirements 4.7.6.b.2 and 4.7.6.c for Control Room Emergency Filtration System (CREFS) operability, 4.7.7.b.2 and 4.7.7.c for Reactor Auxiliary Building Emergency Exhaust System (RABEES) operability, and 4.9.12.b.2 and 4.9.12.c for Fuel Handling Building Emergency Exhaust System (FHBEES) operability will be revised to incorporate the ASTM D3803-1989 standard.

Basis

ASTM D3803-1989 has two additional testing periods that are not required by other standards: the stabilization period and the equilibration period. During the stabilization period, the charcoal bed is brought to thermal equilibrium with the test temperature before the start of pre-equilibration. During the equilibration period, air at the test temperature and relative humidity (RH) is passed through the charcoal beds to ensure the charcoal adsorbs all the available moisture before the feed period. During this period, the system is more closely monitored than in the pre-equilibration period to ensure that all parameters are maintained within their limits. The major elements of the ASTM D3803-1989 test are as follows:

- 95% RH or 70% RH (for ESF systems that control the RH to 70% or less)
- 2-hour minimum thermal stabilization, at 30 °C [86 °F]
- 16-hour pre-equilibration (pre-sweep) time, with air at 30 °C [86 °F] and plant-specific RH
- 2-hour equilibration time, with air at 30 °C [86 °F] and plant-specific RH
- 1-hour challenge, with gas at 30 °C [86 °F] and plant-specific RH
- 1-hour elution (post-sweep) time, with air at 30 °C [86 °F] and plant-specific RH

ASTM D3803-1989 is more stringent than other testing standards because it does not differentiate between new and used charcoal. It has a longer equilibration period performed at a temperature of 30 °C [86 °F] and an RH of 95% (or 70% RH with humidity control), and it has more stringent tolerances that improve repeatability of the test.

The temperature and relative humidity at which the charcoal samples will be tested are 30° C (86° F) and 70%, respectively. These parameters remain unchanged from the present HNP TS requirements. The acceptable methyl iodide penetration specified in the TS will be changed, as calculated using the following formula provided in GL 99-02:

$$\frac{[100\% - \text{Methyl Iodide Efficiency for Charcoal Credited in Accident Analysis}]}{\text{Safety Factor} (\geq 2)}$$

The HNP Final Safety Analysis Report (FSAR) assumes a 99% efficiency for CREFs, a 95% efficiency for RABEES and a 95% efficiency for FHBEES. A safety factor = 2 is utilized.

Revising the HNP TS to incorporate ASTM D3803-1989 as the testing standard for nuclear-grade activated charcoal samples will ensure that accurate charcoal testing confirms the capability of the charcoal filters to adsorb radioiodine. This, in turn, will ensure that the ESF ventilation systems at HNP are capable of performing their safety function of reducing the potential onsite and offsite consequences of a radiological accident.

The next laboratory surveillance tests of TS ESF ventilation system charcoal samples are currently scheduled for the first quarter of 2000. These samples are to be tested within 31 days from the removal date, and will be tested in accordance with ASTM D3803-1989. Charcoal samples in the CREFS, FHBEES and RABEES will continue to be tested in accordance with ASTM D3803-1989, in lieu of current TS-required laboratory testing, until this license amendment is approved by the NRC. As stated in GL 99-02, the NRC will exercise enforcement discretion to eliminate unnecessary testing of charcoal samples to both ASTM D3803-1989 and the current TS testing protocol during the period of time between issuance of GL 99-02 and approval of this TS amendment.

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10 CFR 50.92 EVALUATION

The Commission has provided standards in 10 CFR 50.92(c) for determining whether a significant hazards consideration exists. A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) create the possibility of a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety. Carolina Power & Light Company has reviewed this proposed license amendment request and determined that its adoption would not involve a significant hazards determination. The basis for this determination is provided below.

Proposed Changes

Technical Specification Surveillance Requirements 4.7.6.b.2 and 4.7.6.c for Control Room Emergency Filtration System (CREFS) operability, 4.7.7.b.2 and 4.7.7.c for Reactor Auxiliary Building Emergency Exhaust System (RABEES) operability, and 4.9.12.b.2 and 4.9.12.c for Fuel Handling Building Emergency Exhaust System (FHBEES) operability will be revised to incorporate the ASTM D3803-1989 standard.

Basis

The changes do not involve a significant hazards consideration for the following reasons:

1. The proposed license amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

This proposed change to revise the standard to which activated charcoal samples are tested will ensure that testing is accurate and repeatable. This will help ensure that the Engineered Safety Feature (ESF) ventilation systems are capable of performing their safety function. Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes incorporate ASTM D3803-1989 as the testing standard for nuclear-grade activated charcoal samples. This will ensure that testing is accurate and repeatable. Plant structures, systems, and components will not be operated in a different manner as a result of these proposed changes and no physical modifications to equipment are involved. Using the improved testing protocol does not have the potential for creating the possibility of a new or different type of accident from any previously evaluated.

3. The proposed amendment does not involve a significant reduction in the margin of safety.

The proposed changes do not change the manner in which structures, systems or components are operated. Revising the standard to which activated charcoal samples are tested will ensure that testing is accurate and repeatable. This will help ensure that the ESF ventilation systems are capable of performing their safety function. Therefore, the proposed changes do not involve a reduction in the margin of safety.

Conclusion

Based on the above evaluation, it is concluded that the proposed amendment does not involve a significant hazards consideration.

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ENVIRONMENTAL CONSIDERATIONS

10 CFR 51.22(c)(9) provides criteria for licensing and regulatory actions eligible for categorical exclusion from performing an environmental assessment. A proposed amendment to an operating license for a facility requires no environmental assessment if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant hazards consideration; (2) result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite; (3) result in a significant increase in individual or cumulative occupational radiation exposure. Carolina Power & Light Company has reviewed this request and determined that the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of the amendment. The basis for this determination is provided below.

Proposed Changes

Technical Specification Surveillance Requirements 4.7.6.b.2 and 4.7.6.c for Control Room Emergency Filtration System (CREFS) operability, 4.7.7.b.2 and 4.7.7.c for Reactor Auxiliary Building Emergency Exhaust System (RABEES) operability, and 4.9.12.b.2 and 4.9.12.c for Fuel Handling Building Emergency Exhaust System (FHBEES) operability will be revised to incorporate the ASTM D3803-1989 standard.

Basis

The change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) for the following reasons:

1. As demonstrated in Enclosure 2, the proposed amendment does not involve a significant hazards consideration.
2. The proposed amendment does not result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

The proposed changes do not involve any new equipment or require existing systems to perform a different type of function than they are currently designed to perform. The proposed change to revise the standard to which activated charcoal samples are tested will ensure that testing is accurate and repeatable. This will help ensure that the Engineered Safety Feature (ESF) ventilation systems are capable of performing their safety function. The changes do not introduce any new effluents or increase the quantities of existing effluents. As such, the changes cannot affect the types or amounts of any effluents that may be released offsite.

3. The proposed amendment does not result in an increase in individual or cumulative occupational radiation exposure.

The proposed change does not result in any physical plant changes or new surveillance which would require additional personnel entry into radiation controlled areas.

Therefore, the amendment will not result in an increase in individual or cumulative occupational radiation exposure.

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PAGE CHANGE INSTRUCTIONS

<u>Removed Page</u>	<u>Inserted Page</u>
3/4 7-15	3/4 7-15
3/4 7-17	3/4 7-17
3/4 7-18	3/4 7-18
3/4 9-15	3/4 9-15

Enclosure 5 to SERIAL HNP-99-166

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TECHNICAL SPECIFICATION PAGES

PLANT SYSTEMS

CONTROL ROOM EMERGENCY FILTRATION SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

- Revision ~~2~~¹⁹⁸⁹, March 1978, and the system flow rate is 4000 cfm \pm 10% during system operation when tested in accordance with ANSI N510-1980; and
2. Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, ~~meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 0.175% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803.~~ ^{has add} ~~1989~~ ¹⁹⁸⁹ ~~Delete~~ ^{≤ 0.5% add}
- c. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, ~~meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 0.175% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803.~~ ^{has Add} ~~1989~~ ¹⁹⁸⁹ ~~Delete~~ ^{≤ 0.5% Add}
- d. At least once per 18 months by:
1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 5.1 inches water gauge while operating the system at a flow rate of 4000 cfm \pm 10%;
 2. Verifying that, on either a Safety Injection or a High Radiation test signal, the system automatically switches into an isolation with recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks;
 3. Verifying that the system maintains the control room at a positive pressure of greater than or equal to 1/8 inch Water Gauge at less than or equal to a pressurization flow of 315 cfm relative to adjacent areas during system operation;
 4. Verifying that the heaters dissipate 14 ± 1.4 kW when tested in accordance with ANSI N510-1980; and
 5. Deleted. ~~1~~

PLANT SYSTEMS

3/4.7.7 REACTOR AUXILIARY BUILDING (RAB) EMERGENCY EXHAUST SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.7 Two independent RAB Emergency Exhaust Systems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one RAB Emergency Exhaust System inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.7 Each RAB Emergency Exhaust System shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 continuous hours with the heaters operating;

b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following significant painting, fire, or chemical release in any ventilation zone communicating with the system by:

1. Verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the unit flow rate is 6800 cfm \pm 10% during system operation when tested in accordance with ANSI N510-1980;

2. Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, ^{delete} meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 1.0% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803 ^{has} ^{Add} $\leq 2.5\%$ ^{Add} ~~-1989~~ ^{Add}

c. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978.

PLANT SYSTEMS

REACTOR AUXILIARY BUILDING (RAB) EMERGENCY EXHAUST SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 1.0% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803.

Delete

has Add

-1989 Add

≤ 2.5% Add

- d. At least once per 18 months by:
 - 1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber bank is less than 4.1 inches water gauge while operating the unit at a flow rate of 6800 cfm ± 10%.
 - 2. Verifying that the system starts on a Safety Injection test signal.
 - 3. Verifying that the system maintains the areas served by the exhaust system at a negative pressure of greater than or equal to 1/8 inch water gauge relative to the outside atmosphere.
 - 4. Verifying that the filter cooling bypass valve is locked in the balanced position, and
 - 5. Verifying that the heaters dissipate 40 ± 4 kW when tested in accordance with ANSI N510-1980.
- e. After each complete or partial replacement of a HEPA filter bank, by verifying that the unit satisfies the in-place penetration leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the unit at a flow rate of 6800 cfm ± 10%; and
- f. After each complete or partial replacement of a charcoal adsorber bank, by verifying that the unit satisfies the in-place penetration leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the unit at a flow rate of 6800 cfm ± 10%.

Add
Amendment No.

REFUELING OPERATIONS

FUEL HANDLING BUILDING EMERGENCY EXHAUST SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

4.9.12 (Continued)

2. Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, ~~meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 1.0% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803.~~ ^{Delete}
- ^{has} ^{Add} ^{≤ 2.5%} ⁻¹⁹⁸⁹ ^{Add} ^{has} ^{Add}
- c. After every 720 hours of charcoal adsorber operation by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, ~~meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 1.0% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803.~~ ^{Delete}
- ^{has} ^{Add} ^{≤ 2.5%} ⁻¹⁹⁸⁹ ^{Add}
- d. At least once per 18 months by: ^{Add}
1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber bank is not greater than 4.1 inches water gauge while operating the unit at a flow rate of 6600 cfm ± 10%.
 2. Verifying that, on a High Radiation test signal, the system automatically starts and directs its exhaust flow through the HEPA filters and charcoal adsorber banks.
 3. Verifying that the system maintains the spent fuel storage pool area at a negative pressure of greater than or equal to 1/8 inch water gauge, relative to the outside atmosphere, during system operation at a flow rate of 6600 cfm ± 10%, and ^{Delete}
 4. Deleted
 5. Verifying that the heaters dissipate 40 ± 4 kW when tested in accordance with ANSI N510-1980.
- e. After each complete or partial replacement of a HEPA filter bank, by verifying that the unit satisfies the in-place penetration leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the unit at a flow rate of 6600 cfm ± 10%.

PLANT SYSTEMS

CONTROL ROOM EMERGENCY FILTRATION SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

- Revision 2, March 1978, and the system flow rate is 4000 cfm \pm 10% during system operation when tested in accordance with ANSI N510-1980; and
2. Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, has a methyl iodide penetration of \leq 0.5% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803-1989.
- c. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, has a methyl iodide penetration of \leq 0.5% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803-1989.
- d. At least once per 18 months by:
1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 5.1 inches water gauge while operating the system at a flow rate of 4000 cfm \pm 10%;
 2. Verifying that, on either a Safety Injection or a High Radiation test signal, the system automatically switches into an isolation with recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks;
 3. Verifying that the system maintains the control room at a positive pressure of greater than or equal to 1/8 inch Water Gauge at less than or equal to a pressurization flow of 315 cfm relative to adjacent areas during system operation;
 4. Verifying that the heaters dissipate 14 \pm 1.4 kW when tested in accordance with ANSI N510-1980; and
 5. Deleted.

PLANT SYSTEMS

3/4.7.7 REACTOR AUXILIARY BUILDING (RAB) EMERGENCY EXHAUST SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.7 Two independent RAB Emergency Exhaust Systems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one RAB Emergency Exhaust System inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.7 Each RAB Emergency Exhaust System shall be demonstrated OPERABLE:

- a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 continuous hours with the heaters operating;
- b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following significant painting, fire, or chemical release in any ventilation zone communicating with the system by:
 1. Verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the unit flow rate is 6800 cfm \pm 10% during system operation when tested in accordance with ANSI N510-1980;
 2. Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, has a methyl iodide penetration of \leq 2.5% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803-1989.
- c. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978,

PLANT SYSTEMS

REACTOR AUXILIARY BUILDING (RAB) EMERGENCY EXHAUST SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

has a methyl iodide penetration of $\leq 2.5\%$ when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803-1989.

- d. At least once per 18 months by:
 - 1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber bank is less than 4.1 inches water gauge while operating the unit at a flow rate of $6800 \text{ cfm} \pm 10\%$,
 - 2. Verifying that the system starts on a Safety Injection test signal,
 - 3. Verifying that the system maintains the areas served by the exhaust system at a negative pressure of greater than or equal to $1/8$ inch water gauge relative to the outside atmosphere,
 - 4. Verifying that the filter cooling bypass valve is locked in the balanced position, and
 - 5. Verifying that the heaters dissipate $40 \pm 4 \text{ kW}$ when tested in accordance with ANSI N510-1980.
- e. After each complete or partial replacement of a HEPA filter bank, by verifying that the unit satisfies the in-place penetration leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the unit at a flow rate of $6800 \text{ cfm} \pm 10\%$; and
- f. After each complete or partial replacement of a charcoal adsorber bank, by verifying that the unit satisfies the in-place penetration leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the unit at a flow rate of $6800 \text{ cfm} \pm 10\%$.

REFUELING OPERATIONS

FUEL HANDLING BUILDING EMERGENCY EXHAUST SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

4.9.12 (Continued)

2. Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, has a methyl iodide penetration of $\leq 2.5\%$ when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803-1989.
- c. After every 720 hours of charcoal adsorber operation by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, has a methyl iodide penetration of $\leq 2.5\%$ when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803-1989.
- d. At least once per 18 months by:
 1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber bank is not greater than 4.1 inches water gauge while operating the unit at a flow rate of $6600\text{ cfm} \pm 10\%$,
 2. Verifying that, on a High Radiation test signal, the system automatically starts and directs its exhaust flow through the HEPA filters and charcoal adsorber banks,
 3. Verifying that the system maintains the spent fuel storage pool area at a negative pressure of greater than or equal to $1/8$ inch water gauge, relative to the outside atmosphere, during system operation at a flow rate of $6600\text{ cfm} \pm 10\%$, and
 4. Deleted
 5. Verifying that the heaters dissipate $40 \pm 4\text{ kW}$ when tested in accordance with ANSI N510-1980.
- e. After each complete or partial replacement of a HEPA filter bank, by verifying that the unit satisfies the in-place penetration leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the unit at a flow rate of $6600\text{ cfm} \pm 10\%$.