



Carolina Power & Light Company  
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James Scarola  
Vice President  
Harris Nuclear Plant

NOV 19 1999

SERIAL: HNP-99-165  
10 CFR 50.54(f)

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  
180-DAY RESPONSE TO NRC GENERIC LETTER 99-02  
"LABORATORY TESTING OF NUCLEAR-GRADE ACTIVATED CHARCOAL"

Dear Sir or Madam:

The NRC issued Generic Letter (GL) 99-02, "Laboratory Testing Of Nuclear-Grade Activated Charcoal," on June 3, 1999. GL 99-02 was issued to alert licensees 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," does not provide assurance for complying with the current licensing basis as it relates to dose limits. This GL requests that each licensee determine whether their Technical Specifications (TS) reference ASTM D3803-1989 for charcoal filter laboratory testing. Licensees whose TS do not reference ASTM D3803-1989 should, within 180 days of the date of GL 99-02, either amend their TS to reference ASTM D3803-1989 or propose an alternative test protocol. GL 99-02 also alerts licensees of the NRC staff's intent to exercise enforcement discretion under certain conditions. Finally, GL 99-02 requests that each licensee send the NRC a written response, within 180 days of the date of this GL, relating to implementation of the requested actions.

A written report providing the requested information for the Harris Nuclear Plant (HNP) is enclosed. In addition, a License Amendment Request is being submitted separately to request revision of the HNP TS. Please refer any questions regarding this submittal to Mr. J. H. Eads at (919) 362-2646.

Sincerely,

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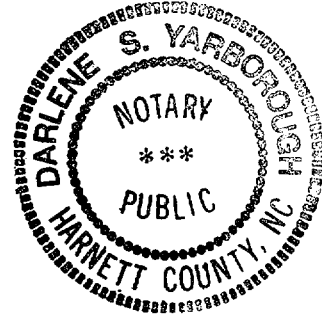
AEC

Enclosure

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.

*Darlene S. Yarbrough*  
Notary (Seal)

My commission expires: 2-6-2000



- c: Mr. J. B. Brady (NRC Senior Resident Inspector)
- Mr. R. J. Laufer (NRR Project Manager, HNP)
- Mr. L. A. Reyes (NRC Regional Administrator, Region II)

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 "LABORATORY TESTING OF NUCLEAR-GRADE ACTIVATED CHARCOAL"

**Requested Item 1**

Within 180 days of the date of this generic letter, submit a written response to the NRC describing your current TS requirements for the laboratory testing of charcoal samples for each ESF ventilation system including the specific test protocol, temperature, RH, charcoal bed thickness, total residence time per bed depth, and penetration at which the TS require the test to be performed.

**Response 1**

The Technical Specification (TS) Engineered Safety Feature (ESF) ventilation systems at the Harris Nuclear Plant (HNP) are the Control Room Emergency Filtration System (CREFS), the Reactor Auxiliary Building Emergency Exhaust System (RABEES) and the Fuel Handling Building Emergency Exhaust System (FHBEES). The current TS testing protocol for charcoal samples in these systems is the American Society for Testing and Materials (ASTM) D3803 standard (no date specified). The plant procedure governing this testing currently specifies ASTM D3803-1979 as the testing protocol. The temperature and relative humidity at which the charcoal samples are tested are 30° C (86° F) and 70%, respectively. The table below shows the current HNP requirements for the charcoal bed thickness, total residence time per bed depth, acceptable methyl iodide penetration, and face velocity.

ESF Ventilation System	Charcoal Bed Thickness (inches)	Total Residence Time per 2" Bed Depth (seconds)	Acceptable Methyl Iodide Penetration (%)	Face Velocity (feet/minute)
CREFS	4	0.25	< 0.175	40
RABEES	2	0.25	< 1.0	40
FHBEES	2	0.25	< 1.0	40

**Requested Item 2**

If you choose to adopt the ASTM D3803-1989 protocol, submit a TS amendment request to require testing to this protocol within 180 days of the date of this generic letter. The request should contain the test temperature, RH, and penetration at which the proposed TS will require the test to be performed and the basis for these values. If the system has a face velocity greater than 110 percent of 0.203 m/s [40 ft/min], then the revised TS should specify the face velocity. Also, indicate when the next laboratory test is scheduled to be performed.

**Response 2**

A License Amendment Request to revise the HNP TS is being submitted by separate letter.

The temperature and relative humidity at which the charcoal samples will be tested, following the TS change, are 30° C (86° F) and 70%, respectively. The table below shows the revised HNP requirements for the methyl iodide penetration. The charcoal bed thickness, total residence time per bed depth and face velocity are not changed by the revised TS.

ESF Ventilation System	Charcoal Bed Thickness (inches)	Total Residence Time per 2" Bed Depth (seconds)	Acceptable Methyl Iodide Penetration (%)	Face Velocity (feet/minute)
CREFS	4	0.25	≤ 0.5	40
RABEES	2	0.25	≤ 2.5	40
FHBEES	2	0.25	≤ 2.5	40

The acceptable methyl iodide penetration was calculated using the formula provided in this generic letter:

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

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 was utilized.

**Requested Item 3**

If you are proposing an alternate test protocol, address the attributes and submit a TS amendment request to require testing to this alternate protocol within 180 days of the date of this generic letter.

**Response 3**

Not applicable to HNP.

**Requested Item 4**

At the next required laboratory surveillance test of a charcoal sample that is 60 or more days after the date of this generic letter, test your charcoal samples in accordance with ASTM D3803-1989 or replace all of the charcoal with new charcoal that has been tested in accordance with ASTM D3803-1989. In all cases, the results should meet the acceptance criterion that is derived from applying a safety factor as low as 2 to the charcoal filter efficiency assumed in your design-basis dose analysis and the charcoal samples should continue to be tested in accordance with ASTM D3803-1989, in lieu of current TS-required laboratory testing, until the TS amendment is approved by the NRC.

**Response 4**

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 the TS amendment is approved by the NRC.

**Requested Item 5**

Addressees who choose not to do the above actions are requested to notify the NRC in writing of their decision, as soon as a decision is reached but not later than 60 days from the date of this generic letter.

**Response 5**

Not applicable to HNP.