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L-99-240



**FPL**

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D. C. 20555

RE: Turkey Point Units 3 and 4  
Docket Nos. 50-250 and 50-251  
Response to Generic Letter 99-02

On June 3, 1999, the NRC issued Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear- Grade Activated Charcoal," to request that all licensees determine whether their Technical Specifications (TS) reference ASTM D3803-1989 for charcoal filter laboratory testing. Licensees, whose TS do not reference ASTM D3803-1989, were requested to either amend their TS to reference the ASTM D3803-1989 or propose an alternative test protocol.

Florida Power & Light Company (FPL) intends to follow the recommendations of GL 99-02 and to adopt the ASTM D3803-1989 test protocol for both Turkey Point Units 3 & 4. FPL has submitted a Proposed License Amendment to reference in the TS the ASTM D3803-1989 test protocol in accordance with the GL 99-02 requested action 2 (FPL letter L-99-239). The purpose of this letter is to summarize in the attachment FPL's response to GL 99-02 requested actions.

The last laboratory tests of nuclear-grade activated charcoal filters for Turkey Point Units 3 & 4 were completed prior to August 2, 1999. These tests were completed in compliance with the current TS test protocol, ANSI N510-1975.

The next Turkey Point Units 3 & 4 charcoal tests are scheduled in the Spring and Fall of 2000, respectively.

Please contact us if there are any questions about this submittal.

Very truly yours,

R. J. Hovey  
Vice President  
Turkey Point Plant

SM

Attachment

cc: Regional Administrator, Region II, USNRC  
Senior Resident Inspector, USNRC, Turkey Point Plant

A081

**Turkey Point Unit 3 & 4 Response  
To Generic Letter 99-02 Requested Actions**

**Requested Action # 1:**

Within 180 days of the date of GL 99-02, submit a written response to the NRC describing your current Technical Specification (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. If your current TS specifically require laboratory testing of charcoal samples in accordance with the ASTM D3803-1989 protocol at 30 °C [86 °F], and you have been testing in accordance with this standard, then you only need to address this requested action (i.e., no TS amendment or additional testing is required).

**Response to Action # 1:**

Turkey Point TS requirements require laboratory analysis of representative carbon samples from the filtering units of the Emergency Containment Filtering, Post Accident Containment Vent, and Control Room Emergency Ventilation systems. The following information describes the current Turkey Point TS surveillance requirements for the laboratory testing of charcoal samples for each of the ventilation systems impacted:

**Emergency Containment Filtering System**

Charcoal testing requirements for the emergency containment filters are provided in Turkey Point TS 4.6.3b. Testing is required at least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following operational exposure of filters to effluents from painting, fire, or chemical release, or (3) after every 720 hours of system operation. The test requires:

“Verifying within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with applicable portions of Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, and performed in accordance with ANSI N-510-1975, meets the acceptance criteria of greater than 99.9% removal of elemental iodine; and that any charcoal failing to meet this criteria be replaced with charcoal that meets or exceeds the criteria of position C.6.a of Regulatory Guide 1.52, Rev. 2.”

ANSI N510-1975 provides instructions for laboratory testing of nuclear-grade charcoal adsorbent and specifies that adsorbent samples be tested in accordance with Table 4 of RDT M 16-1, Gas-Phase Adsorbents for Trapping Radioactive Iodine and Iodine Components. Table 4 specifies the requisite decontamination efficiency test that must be performed on the charcoal samples. Section 4.5 of RDT M16-1 specifies the test conditions that must be met. Turkey Point charcoal samples are currently tested with elemental iodine (I<sub>2</sub>) at 130 °C and a relative humidity of 95%. Typical laboratory test conditions are provided below:

	<u>Temperature</u>	<u>Relative Humidity</u>	<u>Test Times</u>
Loading	130.0 °C	95%	90.0 minutes
Elution	130.0 °C	95%	90.0 minutes

Face Velocity:	12.20 m/min (40.0 ft/min)
I <sub>2</sub> Challenge Concentration:	17.5 mg/m <sup>3</sup>
Pressure:	394.5 kPa (3.91 atm)

Bed Depth: 2 inches  
Residence Time: 0.25 seconds

The TS acceptance criteria of greater than 99.9% removal of elemental iodine yields a penetration acceptance criteria for elemental iodine of less than 0.1%.

Post Accident Containment Vent System

Charcoal testing requirements for the post accident containment vent (PACV) filter is provided in Turkey Point TS 4.6.6b. Testing is required at least once per 18 months or (1) after any structural maintenance of the HEPA filter or charcoal adsorber housings, or (2) following operational exposure of filters to effluents from painting, fire, or chemical release in any ventilation zone communicating with the system, or (3) after every 720 hours of system operation, or (4) after replacement of a filter. The test requires:

“Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample performed in accordance with ANSIN 510-1975, meets the methyl iodide removal criteria of greater than or equal to 90% and that any charcoal failing to meet the criteria be replaced with charcoal that meets or exceeds the criteria of Position C.6.a of Regulatory Guide 1.52, Revision 2.”

The PACV charcoal is tested at a temperature of 25 °C and a relative humidity of 70%. Typical laboratory test conditions are provided below:

	<u>Temperature</u>	<u>Relative Humidity</u>	<u>Test Times</u>
Loading	25.0 °C	70%	120.0 minutes
Elution	25.0 °C	70%	120.0 minutes

Face Velocity: 12.20 m/min (40.0 ft/min)  
CH<sub>3</sub>I Challenge Concentration: 1.75 mg/m<sup>3</sup>  
Pressure: 101.3 kPa (1.00 atm)  
Bed Depth: 2 inches  
Residence Time: 0.25 seconds

The TS acceptance criteria of greater than or equal to 90% removal of methyl iodide yields a penetration acceptance criteria for methyl iodide of less than or equal to 10%.

Turkey Point performs a complete changeout of the PACV carbon filter media in addition to the requisite laboratory tests. The replacement frequency coincides with the test frequency stipulated in TS 4.6.6b. The replacement charcoal meets the criteria of Regulatory Guide 1.52, Revision 2, Position C.6.a. Specifically, Position C.6.a.(2) requires new charcoal to meet the physical property specifications of ANSIN509-1976, Table 5.1. Table 5.1 describes the specific test protocol and acceptance criteria that must be satisfied by the replacement charcoal.

Control Room Emergency Ventilation System

Charcoal testing requirements for the Control Room Emergency Ventilation System filters are provided in Turkey Point TS 4.7.5c. Testing is required at least once per 18 months or (1) after 720 hours of system operation, or (2) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (3) following operational exposure of the filters to effluents from painting, fire, or chemical release in any ventilation zone communicating with the system, or (4) after complete or partial replacement of a filter bank. The test requires:

“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, and analyzed per ANSI N510-1975, meets the criteria for methyl iodine removal efficiency of greater than or equal to 99% or the charcoal be replaced with charcoal that meets or exceeds the criteria of position C.6.a. of Regulatory Guide 1.52 (Revision 2).”

The charcoal in the control room emergency ventilation system is tested at a temperature of 25 °C and a relative humidity of 70%. Typical laboratory test conditions are provided below:

	<u>Temperature</u>	<u>Relative Humidity</u>	<u>Test Times</u>
Loading	25.0 °C	70%	120.0 minutes
Elution	25.0 °C	70%	120.0 minutes

  

Face Velocity:	12.20 m/min (40.0 ft/min)
CH <sub>3</sub> I Challenge Concentration:	1.75 mg/m <sup>3</sup>
Pressure:	101.3 kPa (1.00 atm)
Bed Depth:	2 inches
Residence Time:	0.25 seconds

The TS acceptance criteria of greater than or equal to 99% removal of methyl iodide yields a penetration acceptance criteria for methyl iodide of less than or equal to 1%.

Turkey Point performs a complete changeout of the control room charcoal filter media in addition to the requisite laboratory tests. The replacement frequency coincides with the test frequency stipulated in TS 4.7.5c. The replacement charcoal meets the criteria of Regulatory Guide 1.52, Revision 2, Position C.6.a.

### **Requested Action # 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] (August 23, 1999 errata) 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 to Action # 2**

FPL submitted TS amendment requests to adopt charcoal testing using the ASTM D3803-1989 as the test protocol for conducting laboratory tests on both new and used charcoal in the emergency containment, post accident containment vent, and control room emergency ventilation system filtering units. The request contains the test temperature, RH, and penetration at which the proposed TS will require the test to be performed, and the basis for these values.

The proposed revision to the TS references the new test standard, and the appropriate acceptance criteria for maximum allowable methyl iodide penetration that must be met to satisfy the surveillance requirement. The penetration acceptance criteria proposed for the emergency containment filters and the control room emergency ventilation filter are based on the methyl iodide removal efficiencies assumed in the plant safety analysis plus a safety factor of 2. Methyl iodide penetration acceptance criteria is not currently included in the ECF TS so the test requirement represents a new license commitment. Methyl

iodide testing, however, is included as part of the control room charcoal filter surveillance test. The proposed revision reduces the safety factor from its current value of 5 down to a value of 2 to coincide with a reduction in the inherent inaccuracies associated with laboratory test standards. The post accident containment vent (PACV) filter acceptance criteria for maximum allowable methyl iodide penetration included in the PLA is derived directly from the removal efficiency for methyl iodide that is published in the current plant TS, without a change in specification safety factor.

The next laboratory surveillance test for engineered safety feature charcoal filters at Turkey Point is scheduled in March of 2000 during the upcoming Turkey Point Unit 3 refueling outage.

### **Requested Action # 3**

If you are proposing an alternate test protocol, address the attributes discussed below and submit a TS amendment request to require testing to this alternate 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 Action # 3**

FPL is not proposing an alternate test protocol for use at Turkey Point Units 3 & 4.

### **Requested Action # 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 (see the note in Enclosure 2 of the GL) 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 the current TS-required laboratory testing, until the TS amendment is approved by the NRC.

### **Response to Action # 4**

The next laboratory surveillance test for Engineered Safety Feature (ESF) charcoal filters for Turkey Point Unit 3 is scheduled in March of 2000. Assuming the proposed amendments are approved or specific enforcement discretion is granted prior to that time, FPL will conduct the charcoal surveillance tests in accordance with ASTM D3803-1989. Any replacement charcoal will also meet the 1989 ASTM standard. FPL requested the approval of these amendments by February 14, 2000, to support this schedule. The charcoal test results will meet acceptance criterion that is derived from applying at least a safety factor of 2 to the charcoal filter efficiency assumed in the design basis dose analysis.

**Requested Action # 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 no later than 60 days from the date of this generic letter. The 60 day written response should also discuss (1) addressee plans to pursue a proposed alternative course of action (including the basis for establishing its acceptability), (2) the schedule for submitting that proposal for NRC staff review (that proposal should be submitted to the NRC no later than 180 days from the date of this generic letter), and (3) the basis for continued operability of affected systems and components until such time that the proposed alternative course of action is approved by the NRC.

**Response to Action # 5**

FPL plans to implement the recommendations of the GL 99-02, therefore no 60 day response was required.