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

Perry Nuclear Power Plant
Docket No. 50-440
License Amendment Request Pursuant to Generic Letter 99-02: Adoption of
ASTM D3803 - 1989 for The Laboratory Testing of Activated Carbon Samples

Ladies and Gentlemen:

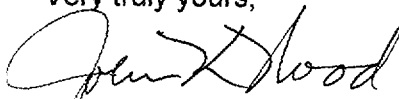
Nuclear Regulatory Commission review and approval of a license amendment for the Perry Nuclear Power Plant (PNPP) is requested pursuant to 10 CFR 50.90. This license amendment is prescribed by Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear Grade Activated Charcoal". This GL requests that all addressees whose Technical Specifications (TS) do not reference ASTM D3803 - 1989, "Standard Test Method for Nuclear - Grade Activated Carbon", either amend their TS to reference this later standard or propose an alternative test protocol.

Pursuant to GL 99-02, the proposed license amendment revises PNPP TS 5.5.7.c, to reference ASTM D3803 - 1989 for all Engineered Safety Features (ESF) ventilation systems. In addition, the proposed amendment incorporates the GL 99-02 suggested safety factor for activated carbon filter efficiency with respect to methyl iodide penetration.

Attachment 1 provides a Summary, a Description of the Proposed Technical Specification Change, a Safety Analysis, and an Environmental Consideration. Attachment 2 provides the Significant Hazards Consideration. Attachment 3 provides the annotated TS pages reflecting the proposed change.

If you have questions or require additional information, please contact Mr. Gregory A. Dunn, Manager - Regulatory Affairs, at (440) 280-6305.

Very truly yours,

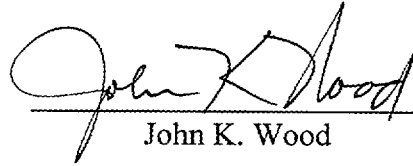


Attachments

cc: NRC Project Manager
NRC Resident Inspector
NRC Region III
State of Ohio

A081

I, John K. Wood, hereby affirm that (1) I am Vice President - Perry, of the FirstEnergy Nuclear Operating Company, (2) I am duly authorized to execute and file this certification as the duly authorized agent for The Cleveland Electric Illuminating Company, Toledo Edison Company, Duquesne Light Company, Ohio Edison Company, and Pennsylvania Power Company, and (3) the statements set forth herein are true and correct to the best of my knowledge, information and belief.


John K. Wood

Subscribed to and affirmed before me, the 1st day of November, 1999


JANE E. MOTT
Notary Public, State of Ohio
My Commission Expires Feb. 20, 2000
(Recorded in Lake County)

SUMMARY

This License Amendment Request proposes an amendment of the Facility Operating License NPF-58, Appendix A, Technical Specifications (TS) for the Perry Nuclear Power Plant (PNPP), Unit Number 1. The proposed license amendment is prescribed by the requested actions of Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear Grade – Activated Charcoal". This GL requests that all addressees determine whether their TS reference American Society for Testing and Materials (ASTM) D3803 – 1989, "Standard Test Method for Nuclear – Grade Activated Carbon", for activated carbon (charcoal) filter laboratory testing for Engineered Safety Features (ESF) ventilation systems.

GL 99-02 requests that plants whose TS do not reference ASTM D3803 - 1989, are to either amend their TS to reference this later standard or petition for approval of an alternative test protocol. Within the referenced GL, the NRC has stated that the ASTM D3803 – 1989 standard provides a more accurate and demanding test than older standards. Therefore, plants that upgrade their TS to reference ASTM D3803 – 1989, will be able to use a safety factor as low as 2 for determining the acceptance criteria for charcoal filter efficiency. The proposed amendment modifies the existing PNPP Ventilation Filter Testing Program (VFTP) contained in the Perry TS, 5.5.7.c. The current standard referenced in the PNPP TS for ESF ventilation system charcoal filter testing is ASTM D3803 – 1986. This amendment will modify the PNPP VFTP to reference the later ASTM D3803 – 1989 standard for charcoal filter testing for ESF ventilation systems. Also, this amendment will incorporate the suggested safety factor for charcoal filter efficiency regarding methyl iodide penetration.

DESCRIPTION OF THE PROPOSED TECHNICAL SPECIFICATION CHANGE

In accordance with 10 CFR 50.90, an amendment to Operating License NPF-58 is proposed to modify the VFTP to reference ASTM D3803 – 1989 as the standard for charcoal filter testing for ESF ventilation systems. The proposed amendment constitutes the response to GL 99-02.

The following changes to the Perry TS are proposed:

Change TS 5.5.7.c to read:

- c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 2, shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803 – 1989 at a temperature of 30°C [86°F] and the relative humidity (RH) specified below:

<u>ESF Ventilation System</u>	<u>Penetration</u>	<u>RH</u>
a) Control Room Emergency Recirculation	2.5%	70%
b) Fuel Handling Building	2.5%	70%
c) Annulus Exhaust Gas Treatment	0.5%	70%

The proposed TS change is annotated on the affected pages from the Perry TS in Attachment 3.

SAFETY ANALYSIS

Requested Action 1 of GL 99-02 states that within 180 days of the date of the GL, a written response containing the current TS requirements for the laboratory testing of the ESF ventilation systems, including the test protocol, temperature, relative humidity (RH), charcoal bed thickness, total residence time per bed depth, and penetration limit per the TS is to be submitted. Requested Action 2 of the GL requires the submittal of a TS amendment request within 180 days of the date of the GL if the licensee chooses to adopt ASTM D3803 – 1989 test protocol and include the test temperature, RH, and penetration limit for the proposed TS and the basis for these values.

Pursuant to Requested Action 1, PNPP was conducting laboratory testing in accordance with ASTM D3803 – 1986, Method A as identified in the TS. The guidance regarding new and used carbon testing contained within the protocol document was utilized for the testing. Therefore, in accordance with GL 99-02, PNPP should be categorized as a Group 2 plant (plants in compliance with their TS that test in accordance with a test protocol other than ASTM D3803 – 1989). The following table identifies the test and bed parameters requested by Requested Actions 1 and 2 of the GL:

ESF Ventilation System	Bed Depth (Inches)	Residence Time /Bed Depth (sec./inch)	Test Temperature (°C)	Test RH (%)	Allowable Penetration (%)
Control Room Emergency Recirculation (0M26)	2	0.125	30	70	< 1.0
Fuel Handling Building (0M40)	2	0.125	30	70	< 1.0
Annulus Exhaust Gas Treatment (1M15)	4	0.125	30	70	< 0.175

Pursuant to GL 99-02, because ASTM D3803 – 1989 is a more accurate and demanding test than older tests, plants that upgrade their TS to the new 1989 protocol may use a safety factor as low as 2 for determining the acceptance criteria for charcoal filter efficiency.

Regarding Requested Action 2 of the GL, PNPP has chosen to adopt the ASTM D3803 – 1989 test protocol. Since all ESF Ventilation Filter systems at PNPP contain heaters to control humidity upstream of the carbon filters, the testing will be conducted at 70% RH vice 95% as allowed by the GL, Attachment 2.

ESF Ventilation System	Allowable Penetration (%)	Test RH (%)	Test Temperature (°C)
Control Room Emergency Recirculation (0M26)	< 2.5	70	30
Fuel Handling Building (0M40)	< 2.5	70	30
Annulus Exhaust Gas Treatment (1M15)	< 0.5	70	30

In response to Requested Action 2 of the GL, the following describes the basis for the values in the table above. The revised Allowable Penetration values have been calculated based upon a safety factor of 2, which is based upon the credited efficiency approved by the NRC and as specified in Attachment 2 of GL 99-02. The Test Relative Humidity (RH) and Test Temperature are derived from Regulatory Guide 1.52, Revision 2, "Design, Testing, and Maintenance Criteria for Post Accident Engineered-Safety-Feature Atmospheric Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants," ANSI N509-1976, "Nuclear Power Plant Air-Cleaning Units and Components" and ASTM D3803 – 1989.

Requested Action 2 of the GL also requires that the date of the next scheduled laboratory test be provided. The following table provides the anticipated date of the sample removal for each ESF ventilation filter subsystem:

ESF Ventilation Subsystem	Unit	Anticipated Removal Date	Comments
Control Room Emergency Recirculation	0M26D001A	7/08/00	
Control Room Emergency Recirculation	0M26D001B	9/16/00	
Fuel Handling Building	0M40D001A	3/04/00	
Fuel Handling Building	0M40D001B	4/15/00	
Fuel Handling Building	0M40D001C	9/23/00	
Annulus Exhaust Gas Treatment	1M15D001A	11/28/00	
Annulus Exhaust Gas Treatment	1M15D001B	9/08/99	Tested to ASTM D3803-1989

Requested Actions 3 and 5 of GL 99-02 are not applicable to the PNPP.

As noted in Requested Action 4 of GL 99-02, tests conducted 60 days or more following the date of the GL are being conducted in accordance with ASTM D3803 – 1989 and in accordance with the blanket Notice of Enforcement Discretion provided in the GL.

Attachment 2 of GL 99-02 provides the format for an acceptable sample TS amendment request. The test parameter values for allowable penetration and RH listed in the previous table are derived from the GL 99-02, Attachment 2 sample TS amendment request.

COMMITMENTS

There are no regulatory commitments made in this letter. Any actions discussed in this document are not regulatory commitments and represent intended or planned actions that are described for the NRC's information. Please notify the Manager - Regulatory Affairs at the PNPP of any questions regarding this document.

ENVIRONMENTAL CONSIDERATIONS

The proposed Technical Specifications change request was evaluated against the criteria of 10 CFR 51.22 for environmental considerations. The proposed change does not significantly increase individual or cumulative occupational radiation exposures, does not significantly change the types or significantly increase the amounts of effluents that may be released offsite, and as discussed in Attachment 2, does not involve a significant hazards consideration. Based on the foregoing, it has been concluded that the proposed Technical Specification change meets the criteria given in 10 CFR 51.22 (c) (9) for a categorical exclusion from the requirement for an Environmental Impact Statement.

SIGNIFICANT HAZARDS CONSIDERATIONS

The standards used to arrive at a determination that a request for amendment involves no significant hazards considerations are included in the Commission's Regulations, 10 CFR 50.92, which state that the 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; or (2) create the possibility of a new or different kind of accident from any previously evaluated; or (3) involve a significant reduction in the margin of safety.

The proposed amendment has been reviewed with respect to these three factors and it has been determined that the proposed change does not involve a significant hazard because:

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

The proposed change to reference American Society for Testing and Materials (ASTM) D3803 – 1989, "Standard Test Method for Nuclear – Grade Activated Carbon", for laboratory testing of Engineered Safety Features (ESF) ventilation systems in lieu of ASTM D3803 – 1986 is prescribed by the requested actions of Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear – Grade Activated Charcoal." The use of ASTM D3803 – 1989 allows for increased accuracy in monitoring the degradation of ESF ventilation system activated carbon (charcoal) over time and is a reproducible method for determining the realistic capability of charcoal. The 1989 standard is endorsed by the NRC and is considered to be more stringent regarding testing criteria than the previous referenced standard (1986). GL 99-02 encourages addressees, if necessary, to amend their Technical Specifications (TS) to reference ASTM D3803 – 1989 for charcoal filter laboratory testing for ESF ventilation systems. In response to the referenced GL, the proposed change modifies the existing Perry Nuclear Power Plant (PNPP) Ventilation Filter Testing Program (VFTP) contained in the PNPP TS to reference ASTM D3803 – 1989 as the standard for charcoal filter laboratory testing for ESF ventilation systems. In addition, the proposed change incorporates the safety factor suggested within GL 99-02 for charcoal filter efficiency with respect to methyl iodide penetration. The proposed change provides assurance for compliance with the current licensing basis regarding dose limits of General Design Criteria (GDC) 19 of Appendix A to 10 CFR 50 and 10 CFR 100. The proposed change ensures originally stated design criteria are met and therefore does not affect the precursors for accidents or transients analyzed in Chapter 15 of the PNPP Updated Safety Analysis Report (USAR). With the proposed change, the radiological consequences are the same as previously stated in the USAR. Therefore, the implementation of the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

The proposed change to reference ASTM D3803 – 1989 for the laboratory testing of charcoal filters of ESF ventilation systems in lieu of ASTM D3803 – 1986 is prescribed by the requested actions of GL 99-02. ASTM D3803 – 1989 is endorsed by the NRC and is considered a more stringent testing standard than the previous referenced standard, ASTM D3803 – 1986. In addition, the proposed change incorporates the safety factor suggested within GL 99-02 for charcoal filter efficiency with respect to methyl iodide penetration. The proposed change provides assurance for compliance with the current licensing basis regarding dose limits of GDC 19 of Appendix A to 10 CFR 50 and 10 CFR 100. The proposed change does not change the assumptions used in any accident analysis and no new or different kind of accident is created. The proposed change ensures originally stated design criteria are met and therefore does not affect the precursors for accidents or transients analyzed in Chapter 15 of the PNPP USAR. Therefore, the implementation of the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

The proposed change is prescribed by the requested actions of GL 99-02. The use of ASTM D3803 – 1989 allows for increased accuracy in monitoring the degradation of ESF ventilation systems charcoal over time and is a very accurate and reproducible method for determining the realistic capability of charcoal. ASTM D3803 – 1989 is more stringent testing standard than the previous referenced standard, ASTM D3803 – 1986. Additionally, as specified in GL 99-02, a safety factor of 2 has been utilized in the calculation of the revised allowable penetration based upon the credited efficiency approved by the NRC. The proposed change provides assurance for compliance with the current licensing basis regarding dose limits of GDC 19 of Appendix A to 10 CFR 50 and 10 CFR 100. Therefore, the implementation of the proposed change does not involve a reduction in the margin of safety.

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5.5 Programs and Manuals (continued)

5.5.6 Inservice Testing Program

This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components, including applicable supports. The program shall include the following:

- a. Testing frequencies specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as follows:

<u>ASME Boiler and Pressure Vessel Code and applicable Addenda terminology for inservice testing activities</u>	<u>Required frequencies for performing inservice testing activities</u>
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennially or every 2 years	At least once per 731 days

- b. The provisions of SR 3.0.2 are applicable to the above required frequencies for performing inservice testing activities;
- c. The provisions of SR 3.0.3 are applicable to inservice testing activities; and
- d. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supersede the requirements of any TS.

5.5.7 Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of Engineered Safety Feature (ESF) filter ventilation systems at the frequencies specified in Regulatory Guide 1.52, Revision 2.

(continued)

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5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

- a. Demonstrate for each of the ESF systems that an inplace test of the high efficiency particulate air (HEPA) filters shows a penetration and system bypass < 0.05% when tested in accordance with Regulatory Guide 1.52, Revision 2 and ANSI N510-1980 at the system flowrate specified below \pm 10%:

<u>ESF Ventilation System</u>	<u>Flowrate</u>
a) Control Room Emergency Recirculation	30,000 scfm
b) Fuel Handling Building	15,000 scfm
c) Annulus Exhaust Gas Treatment	2,000 scfm

- b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows a penetration and system bypass < 0.05% when tested in accordance with Regulatory Guide 1.52, Revision 2 and ANSI N510-1980 at the system flowrate specified below \pm 10%:

<u>ESF Ventilation System</u>	<u>Flowrate</u>
a) Control Room Emergency Recirculation	30,000 scfm
b) Fuel Handling Building	15,000 scfm
c) Annulus Exhaust Gas Treatment	2,000 scfm

- c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 2, shows the methyl iodide penetration less than the value specified 1989 below when tested in accordance with ASTM D3803-1986 at a temperature of 30°C and equal to the relative humidity (RH) specified below:

<u>ESF Ventilation System</u>	<u>Penetration</u>	<u>RH</u>
a) Control Room Emergency Recirculation	-1% 2.5%	70%
b) Fuel Handling Building	-1% 2.5%	70%
c) Annulus Exhaust Gas Treatment	-0.175% 0.5%	70%

(continued)

INFORMATION ONLY

Programs and Manuals
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5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

- d. Demonstrate for each of the ESF systems that the pressure drop across the combined HEPA filters and the charcoal adsorbers is less than the value specified below when tested in accordance with Regulatory Guide 1.52, Revision 2, and ANSI N510-1980 at the system flowrate specified below $\pm 10\%$:

<u>ESF Ventilation System</u>	<u>Delta P</u>	<u>Flowrate</u>
a) Control Room Emergency Recirculation	4.9" H ₂ O	30.000 scfm
b) Fuel Handling Building	4.9" H ₂ O	15.000 scfm
c) Annulus Exhaust Gas Treatment	6.0" H ₂ O	2.000 scfm

- e. Demonstrate that the heaters for each of the ESF systems dissipate the value specified below $\pm 10\%$ when corrected to nominal input voltage when tested in accordance with ANSI N510-1980:

<u>ESF Ventilation System</u>	<u>Wattage</u>
a) Control Room Emergency Recirculation	100 kW
b) Fuel Handling Building	50 kW
c) Annulus Exhaust Gas Treatment	20 kW

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test frequencies.

5.5.8 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the main condenser offgas treatment system, and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks.

The program shall include:

- a. The limits for concentrations of hydrogen in the main condenser offgas treatment system and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion); and

(continued)