October 12, 2000

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Mr. John K. Wood
Vice President - Nuclear, Perry
FirstEnergy Nuclear Operating Company
P.O. Box 97, A200
Perry, OH 44081

SUBJECT: PERRY NUCLEAR POWER PLANT, UNIT 1 - RE-ISSUANCE OF AMENDMENT RE: ADOPTION OF ASTM D3803 - 1989 FOR THE LABORATORY TESTING OF ACTIVATED CARBON SAMPLES (TAC NO. MA7135)

Dear Mr. Wood:

By letter dated October 3, 2000, the U.S. Nuclear Regulatory Commission issued a license amendment to Facility Operating License No. NPF-58 for the Perry Nuclear Power Plant (PNPP), Unit 1, and inadvertently mislabeled it as Amendment No. 113. This amendment revised PNPP Technical Specification 5.5.7, "Ventilation Filter Testing Program," in response to your application dated November 1, 1999 (PY-CEI/NRR-2436L), as supplemented by submittal dated May 22, 2000 (PY-CEI/NRR-2497L).

As discussed with your staff, the technical specification changes should have been issued as Amendment No. 117. Therefore, the staff is re-issuing this license amendment in its entirety.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

We apologize for any inconvenience this may have caused.

Sincerely,

/RA/

Douglas V. Pickett, Senior Project Manager, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-440

Enclosures: 1. Amendment No. 117 to License No. NPF-58
2. Safety Evaluation
cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 12, 2000

Mr. John K. Wood
Vice President - Nuclear, Perry
FirstEnergy Nuclear Operating Company
P.O. Box 97, A200
Perry, OH 44081

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2. Safety Evaluation

cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

FIRSTENERGY NUCLEAR OPERATING COMPANY

DOCKET NO. 50-440

PERRY NUCLEAR POWER PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 117
License No. NPF-58

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by the FirstEnergy Nuclear Operating Company (the licensee) dated November 1, 1999, as supplemented by submittal dated May 22, 2000, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-58 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 117 are hereby incorporated into this license. The FirstEnergy Nuclear Operating Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented not later than 90 days after issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Anthony J. Mendiola, Chief, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: October 12, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 117

FACILITY OPERATING LICENSE NO. NPF-58

DOCKET NO. 50-440

Replace the following page of the Appendix "A" Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the areas of change.

Remove	Insert
5.0-11	5.0-11

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 ± 10%:

ESF Ventilation System	Flowrate
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 ± 10%:

ESF Ventilation System	Flowrate
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 below when tested in accordance with ASTM D3803-1989 at a temperature of 30 °C and equal to the relative humidity (RH) specified below:

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

(continued)

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 117 TO FACILITY OPERATING LICENSE NO. NPF-58

FIRSTENERGY NUCLEAR OPERATING COMPANY

PERRY NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-440

1.0 INTRODUCTION

By application dated November 1, 1999, as supplemented by letter dated May 22, 2000, FirstEnergy Nuclear Operating Company (the licensee) requested changes to the Technical Specifications (TSs) for the Perry Nuclear Power Plant (PNPP), Unit 1. The proposed changes would change TS 5.5.7, "Ventilation Filter Testing Program (VFTP)," to include the requirement for laboratory testing of Engineered Safety Feature Ventilation System charcoal samples per American Society for Testing and Materials (ASTM) D3803-1989 and the application of a safety factor of 2.0 to the charcoal filter efficiency assumed in the plant design-basis dose analyses.

The supplemental information contained clarifying information and did not change the initial no significant hazards consideration determination and did not expand the scope of the original *Federal Register* notice.

2.0 EVALUATION

The Nuclear Regulatory Commission (NRC) staff, with technical assistance from Brookhaven National Laboratory (BNL), has reviewed the licensee's submittals. In addition, the staff has reviewed the attached BNL Technical Evaluation Report (TER) regarding the proposed TS changes for PNPP. Based on its review, the staff adopts the TER. In view of the above, and because the NRC staff considers ASTM D3803-1989 to be an accurate and realistic protocol for testing charcoal in safety-related ventilation systems, the NRC staff finds that the proposed TS changes satisfy the actions requested in Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999, and are acceptable.

The NRC received a letter from ASTM in response to a March 8, 2000, *Federal Register* Notice (65 FR 12286) related to revising testing standards in accordance with ASTM D3803-1989 for laboratory testing of activated charcoal in response to GL 99-02. ASTM notified the NRC that the 1989 standard is out of date and should be replaced by D3803-1991(1998). The staff acknowledges that the most current version of ASTM D3803 is ASTM D3803-1991 (reaffirmed in 1998). However, there are no substantive changes between the 1989 and 1998 versions of the test protocol, and prior to GL 99-02 being issued, approximately one-third of nuclear reactors had TSs that referenced ASTM D3803-1989. Accordingly, for consistency, all nuclear reactors should test charcoal in accordance with the same standard (ASTM D3803-1989).

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Ohio State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

This amendment changes a surveillance requirement. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluent that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding (64 FR 70088). Accordingly, this 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 need be prepared in connection with the issuance of this amendment.

5.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: Mano Subudhi, BNL
Anthony Fresco, BNL

Attachment: Technical Evaluation Report

Date: October 12, 2000

ATTACHMENT

TECHNICAL EVALUATION REPORT
BROOKHAVEN NATIONAL LABORATORY
FOR THE OFFICE OF NUCLEAR REACTOR REGULATION
DIVISION OF SYSTEMS SAFETY AND ANALYSIS
PLANT SYSTEMS BRANCH
RELATED TO AMENDMENT TO FACILITY OPERATING LICENSE NO. NPF-58
FIRSTENERGY NUCLEAR OPERATING COMPANY
PERRY NUCLEAR POWER PLANT
DOCKET NO. 50-440

1.0 INTRODUCTION

By letter dated November 1, 1999 (PY-CEI/NRR-2436L), FirstEnergy Nuclear Operating Company (FENOC) submitted its response to the actions requested in Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999, for the Perry Nuclear Power Plant. By the same letter dated November 1, 1999, FENOC requested changes to the Technical Specifications (TS) Section 5.5.7.c, "Ventilation Filter Testing Program (VFTP)," covering the Control Room Emergency Recirculation (CRER) system, the Fuel Handling Building (FHB), and the Annulus Exhaust Gas Treatment (AEGT) system for the Perry Nuclear Power Plant. By letter dated May 22, 2000, FENOC provided information concerning maximum ventilation system face velocities. The proposed changes would revise the TS surveillance testing of the safety related ventilation system charcoal to meet the requested actions of GL 99-02.

2.0 BACKGROUND

Safety-related air-cleaning units used in the engineered safety features (ESF) ventilation systems of nuclear power plants reduce the potential onsite and offsite consequences of a radiological accident by filtering radioiodine. Analyses of design basis accidents assume particular safety related charcoal adsorption efficiencies when calculating offsite and control room operator doses. To ensure that the charcoal filters used in these systems will perform in a manner that is consistent with the licensing basis of a facility, licensees have requirements in their TS to periodically perform a laboratory test (in accordance with a test standard) of charcoal samples taken from these ventilation systems.

In GL 99-02, the staff alerted 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 their current licensing bases with respect to the dose limits of General Design Criterion (GDC) 19 of Appendix A to Part 50 of Title 10 of the Code of Federal Regulations (10 CFR) and Subpart A of 10 CFR Part 100.

GL 99-02 requested that all licensees determine whether their 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 ASTM D3803-1989 or propose an alternative test protocol.

3.0 EVALUATION

3.1 Laboratory Charcoal Sample Testing Surveillance Requirements

The current and proposed TS surveillance requirements for laboratory charcoal sample testing for the CRER system, the FHB, and the AEGT system are shown in Table 1 and Table 2, respectively.

The proposed use of ASTM D3803-1989 is acceptable because it provides accurate and reproducible test results. The proposed test temperature of 30 °C for all three systems is acceptable because it is consistent with ASTM D3803-1989. The proposed test relative humidity (RH) of 70 percent is also acceptable, because all three systems are equipped with safety-related heaters to maintain the RH at less than or equal to 70 percent during accident conditions. This is consistent with the actions requested in GL 99-02.

The credited accident removal efficiency for radioactive organic iodine for the CRER and the FHB is 95 percent. In addition, the credited accident removal efficiency for radioactive organic iodine for the AEGT is 99 percent. The proposed test penetration for radioactive methyl iodide for the CRER and the FHB systems is less than 2.5 percent, and for the AEGT is less than 0.5 percent. The proposed test penetration was obtained by applying a safety factor of 2 to the credited efficiency. The proposed safety factor of 2 for both systems is acceptable because it ensures that the efficiency credited in the accident analysis is still valid at the end of the surveillance interval. This is consistent with the minimum safety factor of 2 specified in GL 99-02.

In the November 29, 1999 letter, FENOC stated that the residence time for all three systems corresponds to a face velocity of 40 fpm. In the May 22, 2000 letter, FENOC indicated that all three systems are designed to have a nominal face velocity of 40±10 percent fpm and that the maximum expected charcoal bed face velocity is 44 fpm at design basis accident flow rates. This is acceptable because it ensures that the testing will be consistent with the operation of the ventilation system during accident conditions. This is consistent with the August 23, 1999, errata to GL 99-02.

4.0 CONCLUSION

On the basis of its evaluation, BNL recommends that the Nuclear Regulatory Commission (NRC) staff consider the proposed TS changes to be acceptable.

Principal Contributor: Mano Subudhi and Anthony Fresco, BNL

Project Monitor: John P. Segala, SPLB/DSSA/NRR

PERRY NUCLEAR POWER PLANT

TABLE 1 - CURRENT TS REQUIREMENTS											
System Description						Current TS Requirements					
TS Section	System	Bed Thickness (inches)	Actual Charcoal		Credited Efficiency (Methyl Iodide)	Test Pene-tration (Methyl Iodide)	Safety Factor	Test Standard	Test Temp (° C)	Test RH (%)	Test Face Velocity (fpm)
			Res. Time (sec)	Face Velocity (fpm)							
5.5.7.c	CRER	2	0.25	40	95%	1%	5	ASTM D3803-1986	30	70	40
	FHB	2	0.25	40	95%	1%	5	ASTM D3803-1986	30	70	40
	AEGT	4	0.50	40	99%	0.175%	5.7	ASTM D3803-1986	30	70	40

TABLE 2 - PROPOSED TS REQUIREMENTS											
System Description						Proposed TS Requirements					
TS Section	System	Bed Thickness (inches)	Actual Charcoal		Credited Efficiency (Methyl Iodide)	Test Pene-tration (Methyl Iodide)	Safety Factor	Test Standard	Test Temp (° C)	Test RH (%)	Test Face Velocity (fpm)
			Res. Time (sec)	Face Velocity (fpm)							
5.5.7.c	CRER	2	0.25	40*	95%	2.5%	2	ASTM D3803-1989	30	70%	40*
	FHB	2	0.25	40*	95%	2.5%	2	ASTM D3803-1989	30	70%	40*
	AEGT	4	0.50	40*	99%	0.5%	2	ASTM D3803-1989	30	70%	40*

*In a May 22, 2000, letter, FENOC indicated that the maximum expected charcoal bed face velocity is 44 fpm at design basis accident flow rates. This is consistent with the August 23, 1999, errata to GL 99-02.