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Docket Number 50-440
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United States Nuclear Regulatory Commission
Document Control Desk
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Subject: Perry Nuclear Power Plant
License Amendment Request to Revise Technical Specification 5.5.7, Ventilation
Filter Test Program to Correct Referenced Flow Units

Ladies and Gentlemen:

Nuclear Regulatory Commission (NRC) review and approval of a license amendment for the Perry Nuclear Power Plant (PNPP) is requested. The proposed license amendment revises the Ventilation Filter Test Program (VFTP) in Technical Specification (TS) 5.5.7. The license amendment is a corrective action to revise the flow rate units specified in the VFTP from standard cubic feet per minute to cubic feet per minute. This amendment will ensure the PNPP TS are consistent with plant design documentation, testing criteria, and the industry.

Approval of the license amendment is requested prior to June 6, 2007, with the amendment to be implemented within 120 days following its effective date.

The proposed changes have been reviewed by the PNPP Plant Operations Review Committee and the Company Nuclear Review Board. Enclosure 1 includes an evaluation of the proposed amendment.

There are no regulatory commitments included in this letter or its attachments. If there are any questions or if additional information is required, please contact Mr. Gregory A. Dunn, Manager – FENOC Fleet Licensing, at (330) 315-7243.

A001

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I declare under penalty of perjury that the foregoing is true and correct. Executed on
June 6, 2006.



Enclosure:

1. Revision of Technical Specification 5.5.7, Ventilation Filter Test Program to correct the referenced air flow units from scfm to cfm

Attachment:

1. Proposed Mark-Up Of Technical Specification Pages

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

LICENSE AMENDMENT REQUEST

Subject: Revision of Technical Specification 5.5.7, Ventilation Filter Test Program to correct the referenced air flow units from scfm to cfm

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1. DESCRIPTION

This License Amendment Request, which is being submitted to the Nuclear Regulatory Commission (NRC) for review and approval, corrects the referenced units specified for air flow rates within Technical Specification 5.5.7, Ventilation Filter Test Program (VFTP). The air flow units should be referenced in cubic feet per minute (cfm) as opposed to standard cubic feet per minute (scfm).

2. PROPOSED CHANGE

The Perry Nuclear Power Plant (PNPP) VFTP specifies flow rates for the Engineered Safety Feature (ESF) ventilation systems in scfm, which is not consistent with plant design documentation, testing criteria or the industry. To address this inconsistency, the air flow units specified within Technical Specification 5.5.7 will be changed from scfm to cfm. Attachment 1 indicates the proposed changes to the associated Technical Specification pages.

3. BACKGROUND

The PNPP VFTP ensures that the required testing of ESF ventilation systems is performed in accordance with Regulatory Guide (RG) 1.52, Revision 2, "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," when required for operability. The ESF ventilation systems at the PNPP are the Control Room Emergency Recirculation System (CRERS), the Fuel Handling Area Exhaust System (FHAES), and the Annulus Exhaust Gas Treatment System (AEGTS).

Air flow rates are normally indicated in cfm using test equipment or installed instrumentation. Air flow rates are not normally indicated in units of scfm, which reflects the air flow rate at standard temperature and pressure conditions.

PNPP design documents indicate that the design and testing of the ESF ventilation systems are to be based upon air flow units of cfm. The General Electric Standard Technical Specifications reference flow rate values in cfm. In addition, the Technical Specifications for similar plants indicate ESF ventilation system flow rates in units of cfm as opposed to at standard air conditions or scfm. The draft Technical Specifications for BWR/6 plants provided by the NRC to the PNPP staff on December 27, 1982 referenced ESF ventilation system air flow in units in cfm. However, the air flow units were later referenced as scfm in a follow up letter from the NRC on October 21, 1985, which provided the final draft PNPP Technical Specifications for proof and review. This change in units was inadvertently carried forward from the 1985 letter. Therefore, the Administrative Controls Section of the PNPP Technical Specifications (Section 5.5.7), which addresses the VFTP, references air flow rate values in scfm as opposed to cfm.

The inconsistency in air flow units was documented in a Condition Report in the PNPP Corrective Action Program. A corrective action was generated as a result of the condition

report investigation to submit a license amendment request to correct the ESF ventilation system air flow rate units specified in the VFTP from standard cubic feet per minute to cubic feet per minute. Therefore, a license amendment request is proposed to correct the VFTP to accurately reflect the design basis of the atmospheric filtration systems with respect to air flow units. As an interim corrective action, the associated surveillance procedures for VFTP testing have been revised to verify flow is within the Technical Specification values in scfm as well as to verify flow is within the design basis values in cfm. This conservative measure has been taken until the proposed license amendment request is approved.

4. TECHNICAL ANALYSIS

The Industrial Ventilation Manual, 21st Edition, by the American Conference of Governmental Industrial Hygienists, Inc., does not require correction of air flow values from cfm to scfm for air velocity measurements. Within Section 9.4 of the Industrial Ventilation Manual, the following statement is made: "Where temperatures of an air stream vary more than 30 F from the standard temperature of 70 F and/or if the altitude is greater than 1,000 feet, it is advisable to make a correction for temperature and pressure."

The average ambient air temperature of the plant areas served by the PNPP ESF ventilation systems does not vary more than 30°F from the standard temperature of 70°F and the elevation of the PNPP site is approximately 645 feet above mean sea level.

Indicating the measured air flows from the ESF ventilation systems as cfm is consistent with the requirements of ANSI/ASME N509-1980, "Nuclear Power Plant Air Cleaning Units and Components," ANSI/ASME N510-1980, "Testing of Nuclear Air-Cleaning Systems," RG 1.52, and the PNPP design basis

In addition, changing the air flow units to cfm in the PNPP VFTP does not involve any physical change to the plant and will not affect ESF ventilation system performance, since for the average ambient temperatures and pressures of the plant areas served by the PNPP ESF ventilation systems the difference between cfm and scfm values is well within the design margin of +/- 10%.

5. REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

The PNPP staff has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

The proposed amendment corrects the VFTP to accurately reflect the design basis of the ESF atmospheric filtration systems with respect to air flow units. The proposed amendment ensures the VFTP is consistent with the PNPP design basis.

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response:

The ESF Ventilation systems reduce the concentration of airborne radioactive contaminants following a design basis accident and therefore are not initiators of design bases accidents. The proposed amendment does not change the manner in which the ESF ventilation systems are operated or tested. Implementation of the proposed amendment will ensure the ESF ventilation systems perform their function when called upon and does not affect the plant operations, design function or analysis that verifies the capability of a structures, systems or components.

The proposed amendment does not affect the design of the ESF ventilation systems, the operational characteristics of the ESF ventilation systems, the interfaces between the ESF ventilation systems and those plant systems they support, or the reliability of the ESF ventilation systems.

Therefore, the ESF ventilation systems will be capable of performing their accident mitigation function and there is no increase in the probability or consequences of an accident already evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response:

The proposed amendment introduces no new mode of plant operation and does not involve a physical modification to the plant. New equipment is not installed with the proposed amendment, nor does the proposed amendment cause existing equipment to be operated in a new or different manner.

Since the proposed changes do not involve a change to the plant design or operation, no new system interactions are created by this change. The proposed amendment does not produce any parameters or conditions that could contribute to the initiation of accidents different from those already evaluated in the Updated Safety Analysis Report.

The changes to the VFTP do not affect the assumed accident performance of the ESF Ventilation systems, nor any plant structure, system or component previously evaluated.

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

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response:

The proposed amendment does not impact the ESF ventilation systems performance, including the capability for each ESF ventilation system to attain and maintain required air flow assumed in the plant safety analysis.

The proposed amendment does not involve a significant reduction in a margin of safety since the operability of the ESF ventilation systems continues to be determined as required to support the capability of the ESF ventilation systems to provide the required ventilation, filtration and temperature control to mitigate the consequences of an accident.

5.2 Applicable Regulatory Requirements/Criteria

The U.S. NRC Standard Review Plan (NUREG-0800), Revision 2 – July 1981, Section 6.5.1, “ESF Atmosphere Cleanup Systems,” Subsection II, “Acceptance Criteria,” states the following: “The [ESF] systems should be redundant, be designed to Seismic Category I requirements, be able to actuate automatically, and be limited to an air flow rate of approximately 30,000 cfm.”

NUREG-0887, “Safety Evaluation Report related to the operations of Perry Nuclear Power Plant, Units 1 and 2,” Sections 6.4. “Control Room Habitability,” and Section 6.5. “Engineered Safety Feature Filter Systems,” reflects flow values in cfm for the CRERS, the AEGTS, and the FHAES (identified in the Safety Evaluation Report as FHACES).

Also, Generic Letter (GL) 83-13 issued on March 2, 1983 addresses “Clarification of Surveillance Requirements for HEPA Filters and Charcoal Adsorber Units In Standard Technical Specifications on ESF Cleanup Systems.” The GL Enclosure uses the following words in numerous subsections: “a flow rate of cfm +/-10%.”

The VFTP and the PNPP ESF ventilation systems comply with RG 1.52, Revision 2, ANSI/ASME N509-1980 and ANSI/ASME N510-1980.

RG 1.52, Revision 2, Section C.2.f, “System Design Criteria,” states the following regarding the design criteria for ESF atmospheric cleanup systems: “The volumetric air flow rate of a single cleanup train should be limited to approximately 30,000 ft³/min.” RG 1.52, Revision 3 also carries forward the reference to air flow units in cfm.

ANSI/ASME Standard N509-1980, which is referenced in the PNPP Updated Safety Analysis Report for the PNPP design of the ESF systems, provides the methodology for determining the nominal air flow capacity of the adsorber. The ANSI standard methodology provides air flow capacity in the units of cfm.

RG 1.52 and ASME/ANSI N510 do not require airflow to be measured in scfm but require airflow to meet the system design flow. The PNPP system design calculations were correctly based upon cfm values and the original design and testing of the ESF systems were based upon cfm.

Per the requirements of RG 1.52, the ESF ventilation systems High Efficiency Particulate Air (HEPA) filters are designed to Military Specification MIL-F-51068, "Filters, Particulate (High-Efficiency Fire Resistant)." Throughout MIL-F-51068, the required air flow units are specified as cfm for testing and design requirements. MIL-F-51068 has been withdrawn by the Department of Defense and replaced by the American Society of Mechanical Engineers (ASME) Code On Nuclear Air and Gas Treatment, AG-1 and Department of Energy (DOE) Standard DOE-STD-3020-97, "Specification For HEPA Filters Used By DOE Contractors." Within DOE-STD-3020-97 the required nominal air flow ratings for HEPA filters are listed in units of cfm.

Review of the Technical Specifications, Section 5.5, "Programs and Manuals" for other BWR plants similar to the PNPP, such as the River Bend Station, the Browns Ferry Nuclear Plant and the Grand Gulf Nuclear Station, indicates that their VFTP ESF ventilation system air flow units are indicated as cfm as opposed to scfm.

The proposed amendment corrects the referenced units specified for air flow rates within the VFTP from scfm to cfm to ensure consistency with the requirements of the Standard Review Plan (NUREG-0800); RG 1.52, Revision 2; ANSI/ASME N510-1980; ANSI/ASME N509-1980; the PNPP design basis; and plants of similar design.

6. ENVIRONMENTAL CONSIDERATION

The proposed amendment was evaluated against the criteria of 10 CFR 51.22 for environmental considerations. The proposed amendment 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 off-site, and as discussed in the Regulatory Safety Analysis, does not involve a significant hazards consideration. Based on the foregoing, it has been concluded that the proposed amendment meets the criteria given in 10 CFR 51.22(c)(9) for categorical exclusion from the requirement for an Environmental Impact Statement.

7. REFERENCES

Standard Review Plan (NUREG-0800), Section 6.5.1
Standard Technical Specifications General Electric Boiling Water Reactors (GE-STS)
BWR/6 and Reviewers Notes
PNPP Letter from the NRC dated December 27, 1982 (Log No. 12/27/82A)
PNPP Letter from the NRC dated October 21, 1985 (Letter No. PY-NRR/CEI-0258L)
PNPP Condition Report 04-03817
PNPP ESF Ventilation System Calculations
RG 1.52, Revision 2 and Revision 3
ANSI/ASME N509-1980
ANSI/ASME N510-1980
MIL-F-51068, "Filters, Particulate (High-Efficiency Fire Resistant)"
DOE-STD-3020-97, "Specification For HEPA Filters Used By DOE Contractors"
PNPP USAR Chapters 2, 3 and 6
Industrial Ventilation Manual, 21st Edition
River Bend Station Technical Specifications, Section 5.5, "Programs and Manuals"
Browns Ferry Nuclear Plant Unit 1 Technical Specifications, Section 5.5, "Programs and
Manuals"
Grand Gulf Nuclear Station Technical Specifications, Section 5.5, "Programs and Manuals"

8. ATTACHMENTS

1. Proposed Mark-Up Of Technical Specification Pages

Proposed Mark-Up Of Technical Specification Pages

Programs and Manuals
5.5

5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

- a. Demonstrate for each of the ESF systems that an in-place 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 in-place 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)

Programs and Manuals
5.5

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)