Exelon Generation®

200 Exelon Way
Kennett Square, PA 19348
www.exeloncorp.com

10 CFR 50.90

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U.S. Nuclear Regulatory Commission
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Peach Bottom Atomic Power Station, Units 2 and 3
Subsequent Renewed Facility Operating License Nos. DPR-44 and DPR-56
NRC Docket Nos. 50-277 and 50-278

Subject: License Amendment Request
Revise Technical Specifications Administrative Controls Section 5.5.7 Regarding the Frequency for Performing Certain Ventilation Filter Testing

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (Exelon) requests amendments to Appendix A, Technical Specifications (TS) of Subsequent Renewed Facility Operating License Nos. DPR-44 and DPR-56 for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, respectively.

This submittal requests changes to the PBAPS, Units 2 and 3, TS Administrative Controls Section 5.5.7, "Ventilation Filter Testing Program (VFTP)," to change the frequency for performing certain testing requirements from 12 months as currently specified to 24 months. The VFTP establishes the required testing and testing frequency of Engineered Safety Feature (ESF) filter ventilation systems.

Attachment 1 provides the evaluation of the proposed changes. Attachment 2 provides mark-ups of the affected TS pages reflecting the proposed changes. There are no TS Bases associated with the proposed TS changes and, therefore, no revisions to the TS Bases are included.

These proposed changes have been reviewed and approved by the site's Plant Operations Review Committee in accordance with the requirements of the Exelon Quality Assurance Program.

Exelon has concluded that the proposed changes present no significant hazards consideration under the standards set forth in 10 CFR 50.92.

Exelon requests approval of the proposed amendments by April 29, 2022. Upon NRC approval, the amendments shall be implemented within 60 days of issuance.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), Exelon is notifying the Commonwealth of Pennsylvania of this application for license amendment by transmitting a copy of this letter and its attachments to the designated State Official.

There are no regulatory commitments contained within this submittal.

If you have any questions or require additional information, please contact Richard Gropp at (610) 765-5557.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 29th day of April 2021.

Respectfully,

David P. Helker
Sr. Manager, Licensing
Exelon Generation Company, LLC

Attachments: 1. Evaluation of Proposed Changes
2. Proposed Technical Specifications Page Mark-ups

cc: w/ Attachments
Regional Administrator - NRC Region I
NRC Senior Resident Inspector - Peach Bottom Atomic Power Station
NRC Project Manager, NRR - Peach Bottom Atomic Power Station
W. DeHaas, Commonwealth of Pennsylvania, Bureau of Radiation Protection
S. Seaman, State of Maryland

ATTACHMENT 1

License Amendment Request

Peach Bottom Atomic Power Station, Units 2 and 3

Docket Nos. 50-277 and 50-278

EVALUATION OF PROPOSED CHANGES

Revise Technical Specifications Administrative Controls Section 5.5.7 Regarding the Frequency for Performing Certain Ventilation Filter Testing

ATTACHMENT 1
Evaluation of Proposed Changes

1.0 SUMMARY DESCRIPTION

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (Exelon) requests amendments to Appendix A, Technical Specifications (TS) of Subsequent Renewed Facility Operating License Nos. DPR-44 and DPR-56 for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, respectively.

This submittal requests changes to the PBAPS, Units 2 and 3, TS Administrative Controls Section 5.5.7, "Ventilation Filter Testing Program (VFTP)," to change the frequency for performing certain testing requirements from 12 months as currently specified to 24 months. The VFTP establishes the required testing and testing frequency of Engineered Safety Feature (ESF) filter ventilation systems.

A description and evaluation of the proposed changes are provided in this attachment, which includes a description of the proposed TS changes, a technical evaluation and safety assessment of the proposed TS changes, information supporting a finding of No Significant Hazards Consideration, and information supporting an Environmental Assessment. Attachment 2 provides the marked-up TS pages showing the proposed changes. There are no supporting TS Bases associated with the proposed TS changes and, therefore, no revisions to the TS Bases are included.

2.0 DETAILED DESCRIPTION

2.1 System Design and Operation

The VFTP described in TS Section 5.5.7 establishes the required testing of ESF filter ventilation systems; specifically, the Standby Gas Treatment (SGT) system and the Main Control Room Emergency Ventilation Filtration (MCREV) system in accordance with Regulatory Guide 1.52, Revision 2, and ASME N510-1989.

SGT System

The design basis for the SGT system is to mitigate the consequences of a Design Basis Accident (DBA), Loss of Coolant Accident (LOCA), and Fuel Handling Accidents (FHAs). The SGT system is designed to ensure that radioactive materials that leak from the primary containment into the secondary containment following a DBA LOCA are filtered and adsorbed prior to exhausting to the environment. For all events analyzed, the SGT system is designed to automatically initiate to reduce, via filtration and adsorption, the radioactive material released to the environment. The SGT system satisfies Criterion 3 of the NRC Policy Statement.

A single SGT system is common to both Unit 2 and Unit 3 and consists of two fully redundant subsystems, each with its own set of ductwork, dampers, valves, charcoal filter train, and controls. Both SGT subsystems share a common inlet plenum. This inlet plenum is connected

to the reactor building and refueling floor ventilation exhaust duct for each unit and to the suppression chamber and drywell of each unit. Both SGT subsystems exhaust to the plant offgas stack through a common exhaust duct served by three 100% capacity system fans.

Each charcoal filter train consists of (components listed in order of the direction of the air flow):

a. A demister or moisture separator;

b. An electric heater;

c. A prefilter;

d. A high efficiency particulate air (HEPA) filter;

e. A charcoal adsorber; and

f. A second HEPA filter.

The SGT system is sized such that each 100% capacity fan will provide a flow rate of 10,500 cfm at 20 inches water gauge static pressure to support the control of fission product releases. The SGT system is designed to restore and maintain secondary containment at a negative pressure of 0.25 inches water gauge relative to the atmosphere following the receipt of a secondary containment isolation signal.

MCREV System

The MCREV system provides a protected environment for the Control Room Envelope (CRE) boundary from which occupants can control the unit following an uncontrolled release of radioactivity, hazardous chemicals, or smoke. The CRE is the area within the confines of the CRE boundary that contains the spaces that main control room occupants inhabit to control the unit during normal and accident conditions. This area encompasses the main control room and may include other non-critical areas not requiring continuous occupancy in the event of an accident. The CRE is protected during normal operation, natural events, and accident conditions. The CRE boundary is the combination of walls, floor, roof, ducting, dampers, doors, penetrations and equipment that physically form the CRE.

The MCREV system consists of two independent and redundant high efficiency air filtration subsystems and two 100% capacity emergency ventilation supply fans which supply and provide emergency treatment of outside supply air and a CRE boundary that limits the in-leakage of unfiltered air. Each filtration subsystem consists of a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section, a second HEPA filter, and the associated ductwork, valves or dampers, doors, barriers and instrumentation. Either emergency ventilation supply fan can operate in conjunction with either filtration subsystem. HEPA filters remove particulate matter, which may be radioactive. The charcoal adsorbers provide a holdup period for gaseous iodine, allowing time for decay. A dry gas purge is provided to each MCREV subsystem during idle periods to prevent moisture accumulation in the filters.

The MCREV system is a standby system that is common to both Unit 2 and Unit 3. The two MCREV subsystems must be operable if conditions requiring MCREV system operability exist in either Unit 2 or Unit 3. Upon receipt of the initiation signal(s) (indicative of conditions that

could result in radiation exposure to CRE occupants), the MCREV system automatically starts and pressurizes the CRE to minimize infiltration of contaminated air into the CRE. A system of dampers isolates the CRE along the radiological boundary, and outside air, taken in at the normal ventilation intake, is passed through one of the charcoal adsorber filter subsystems for removal of airborne radioactive material. During normal control room ventilation system restoration following operation of the MCREV system, the automatic initiation function of MCREV will briefly be satisfied by operator actions and controlled procedural steps.

The operability of the CRE boundary must be maintained to ensure that the in-leakage of unfiltered air into the CRE will not exceed the in-leakage assumed in the licensing bases analyses of DBA consequences and chemical hazards to CRE occupants. Since the equipment required and the allowable in-leakage is different for radiological and chemical events, the CRE boundary distinguishes between the boundaries required for each event. The CRE and its boundaries are defined in the Control Room Envelope Habitability Program.

2.2 Existing Technical Specification Requirements

Within the VFTP, testing requirements for both SGT and MCREV are included. The testing for the SGT is governed by TS Surveillance Requirement (SR) 3.6.4.3.2, which requires the tests to be performed in accordance with the VFTP. The testing for the MCREV is governed by TS SR 3.7.4.2, which also requires the tests to be performed in accordance with the VFTP. The VFTP is outlined in Section 5.5.7 of the TS.

The current VFTP requirements as specified in TS Section 5.5.7 are described below.

5.5.7 Ventilation Filter Testing Program (VFTP)

The VFTP shall establish the required testing of Engineered Safety Feature (ESF) filter ventilation systems.

Tests described in Specifications 5.5.7.a, 5.5.7.b, and 5.5.7.c shall be performed:

1) Once per 12 months for standby service or after 720 hours of system operation; and,

2) After each complete or partial replacement of the HEPA filter train or charcoal adsorber filter; after any structural maintenance on the system housing; and, following significant painting, fire, or chemical release in any ventilation zone communicating with the system while it is in operation.

Tests described in Specifications 5.5.7.d and 5.5.7.e shall be performed once per 24 months.

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

a. Demonstrate for each of the ESF systems that an inplace test

of the HEPA filters shows a penetration and system bypass < 1.0% when tested in accordance with Regulatory Guide 1.52, Revision 2, Section 5c, and ASME N510-1989, Sections 6 (Standby Gas Treatment (SGT) System only) and 10, at the system flowrate specified below.

ESF Ventilation System	Flowrate (cfm)
SGT System	7200 to 8800
Main Control Room Emergency Ventilation (MCREV) System	2700 to 3300

b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows a penetration and system bypass < 1.0% when tested in accordance with Regulatory Guide 1.52, Revision 2, Section 5d, and ASME N510-1989, Sections 6 (SGT System only) and 11, at the system flowrate specified below.

ESF Ventilation System	Flowrate (cfm)
SGT System	7200 to 8800
MCREV System	2700 to 3300

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, Section 6b, shows the methyl iodide penetration less than the value specified below when tested in accordance with the laboratory testing criteria of ASTM D3803-1989 at a temperature of 30 degrees C [86 degrees F], face velocity, and the relative humidity specified below.

	ESF Ventilation System	
	SGT System	MCREV System
Penetration (%)	5	5
Face Velocity (FPM)	60	57
Relative Humidity: (%)	70	95

d. Demonstrate for each of the ESF systems that the pressure drop across the combined HEPA filters, the prefilters (if installed), and the charcoal adsorbers is less than the value specified below when tested at the system flowrate specified below.

ESF Ventilation System	Delta P (inches wg)	Flowrate (cfm)
SGT System	< 3.9	7200 to 8800
MCREV System	< 8	2700 to 3300

e. Demonstrate that the heaters for the SGT System dissipate ≥ 40 kw.

As noted above, tests described in Specifications 5.5.7.a, 5.5.7.b, and 5.5.7.c shall be performed:

1) Once per 12 months for standby service or after 720 hours of system operation; and,

2) After each complete or partial replacement of the HEPA filter train or charcoal adsorber filter; after any structural maintenance on the system housing; and, following significant painting, fire, or chemical release in any ventilation zone communicating with the system while it is in operation.

Section TS 5.5.7.a establishes the requirement to demonstrate for each of the ESF systems that an in-place test of the HEPA filters shows a penetration and system bypass < 1.0% when tested in accordance with Regulatory Guide 1.52, Revision 2, and ASME N510-1989, Section 6 (SGT system only) and Section 10 at the system flowrates specified below. Utilization of the system bypass value of < 1.0% has been maintained as an exception to Regulatory Guide 1.52, Revision 2, as previously approved in Amendment Nos. 213 and 218, and remains unchanged in this amendment request.

	SGT System	MCREV System
Flowrate (cfm)	7200 to 8800	2700 to 3300

Section TS 5.5.7.b establishes the requirement to demonstrate for each of the ESF systems that an in-place test of the charcoal adsorber shows a penetration and system bypass < 1.0% when tested in accordance with Regulatory Guide 1.52, Revision 2, Section 5d, and ASME N510-1989, Section 6 (SGT system only) and Section 11, at the system flowrates specified (i.e., SGT system 7200 to 8800 cfm and MCREV system 2700 to 3300 cfm). Utilization of the system bypass value of < 1.0% has been maintained as an exception to Regulatory Guide 1.52, Revision 2, as previously approved in Amendment Nos. 213 and 218, and remains unchanged in this amendment request.

	SGT System	MCREV System
Flowrate (cfm)	7200 to 8800	2700 to 3300

Section TS 5.5.7.c establishes the requirement to 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, Section 6b, shows the methyl iodide penetration less than the value specified when tested in accordance with the laboratory testing criteria of ASTM D3803-1989 at a temperature of 30 degree C [86 degree F], face velocity, and the relative humidity values specified below.

	SGT System	MCREV System
Penetration (%)	5	5
Face Velocity (FPM)	60	57
Relative Humidity (%)	70	95

The tests described in Specifications 5.5.7.d and 5.5.7.e shall be performed once per 24 months.

Section TS 5.5.7.d establishes the requirement to demonstrate for each of the ESF systems that the pressure drop across the combined HEPA filters, the prefilters (if installed), and the charcoal adsorbers is less than the values specified when tested at the system flowrates specified below

	SGT System	MCREV System
Delta P (inches wg)	< 3.9	< 8
Flowrate (cfm)	7200 to 8800	2700 to 3300

Section TS 5.5.7.e establishes the requirement to demonstrate that the heaters for the SGT system dissipate ≥ 40 kW.

There are no changes being proposed for Specifications 5.5.7.d and 5.5.7.e in this license amendment request.

2.3 Reason for the Proposed Change

NRC Generic Letter (GL) 91-04, *"Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle,"* dated April 2, 1991, provided licensees an opportunity to amendment their TS to extend 18-month surveillance intervals to once per refueling interval, which is now typically 24 months. By letter dated September 28, 1992, as supplemented, PBAPS requested changes to extend surveillance intervals consistent with guidance provided in GL 91-04. By letter dated August 2, 1993, the NRC issued Amendment Nos. 179 and 182 to Facility Operating License Nos. DPR-44 and DPR-56 for the PBAPS, Units 2 and 3, respectively, approving the requested changes to extend the interval for certain TS surveillance requirements to 24 months with an additional 25-percent grace period. At the time of these changes, PBAPS did not request an extension of the applicable specified testing interval frequency of once every 12 months for SGT and MCREV systems due to concerns about future scheduling. However, more recently, it has been realized that this 12-month frequency is causing an unnecessary testing burden in operating plant equipment with no benefit to nuclear

safety, and increasing the frequency to once every 24 months will help in optimizing the required testing while maintaining and ensuring equipment reliability. In addition, an 18-month frequency, as specified in Regulatory Guide 1.52, Revision 2, was not adopted when PBAPS, Units 2 and 3, transitioned from custom TS to Improved TS (ITS) (i.e., NUREG-1433), since it was not desired at the time due to inefficiencies with test scheduling and seasonal limitations. This frequency is still not desired for the same reasons. The NRC approved the conversion to ITS for PBAPS, Units 2 and 3, as documented in a letter dated August 30, 1995, issuing Amendment Nos. 210 and 214.

The proposed changes will help to improve consistency between the existing TS, the guidance specified in NUREG-1433, and the guidance in Regulatory Guide 1.52, Revisions 2, 3 and 4. The VFTP performance frequencies listed in the existing TS are more succinctly referenced in the NUREG-1433 guidance as "the frequencies specified in Regulatory Guide 1.52, Revision 2."

The proposed changes will support the adoption of a testing frequency for TS Sections 5.5.7.a, 5.5.7.b, and 5.5.7.c by extending the frequency from once every 12 months to once every 24 months.

2.4 Description of the Proposed Changes

A review of equipment performance has been performed to support extending the testing frequency from 12 months to 24 months. This approach uses historical test performance data to justify that a 24-month frequency will not challenge the ventilation equipment and still ensure equipment reliability.

Section 5.5.7 of the TS requires filter testing to be completed when a specific set of requirements are met. The requirements are as follows:

1) *Once per 12 months for standby service or after 720 hours of system operation; and,*

2) *After each complete or partial replacement of the HEPA filter train or charcoal adsorber filter; after any structural maintenance on the system housing; and, following significant painting, fire, or chemical release in any ventilation zone communicating with the system while it is in operation.*

These requirements are delineated in Regulatory Guide 1.52, Revision 2, Section 5c. However, the frequency for performing the testing as specified in Regulatory Guide 1.52, Revision 2, is once every 18 months and not once per 12 months. As noted, the proposed changes would involve extending the testing frequency from 12 months to 24 months, which is consistent with other surveillances performed in the PBAPS, Units 2 and 3, TS and the guidance specified in GL 91-04. The remaining VFTP TS requirements are not being revised under this license amendment request. Performing the testing on a 24-month interval is supported by the guidance specified in Regulatory Guide 1.52, Revision 3 and Revision 4. Therefore, the TS VFTP requirements would be revised as follows to reflect the changes in the testing frequency for the SGT and MCREV systems as described in Specifications 5.5.7.a, 5.5.7.b, and 5.5.7.c:

5.5.7 Ventilation Filter Testing Program (VFTP)

The VFTP shall establish the required testing of Engineered Safety Feature (ESF) filter ventilation systems.

Tests described in Specifications 5.5.7.a, 5.5.7.b, and 5.5.7.c shall be performed:

1) Once per 24 months for standby service or after 720 hours of system operation; and,

2) After each complete or partial replacement of the HEPA filter train or charcoal adsorber filter; after any structural maintenance on the system housing; and, following significant painting, fire, or chemical release in any ventilation zone communicating with the system while it is in operation.

Tests described in Specifications 5.5.7.d and 5.5.7.e shall be performed once per 24 months….

Refer to Attachment 2 for the existing TS page mark-ups showing the proposed changes as described above. There are no supporting TS Bases associated with the proposed TS changes and, therefore, no revisions to the TS Bases are being proposed.

3.0 TECHNICAL EVALUATION

As noted in Section 2.4 above, the proposed changes only involve extending the testing frequency for certain VFTP requirements (i.e., TS Sections 5.5.7.a, 5.5.7.b, and 5.5.7.c) from 12 months to 24 months. The remaining VFTP testing requirements are not being revised or modified under this license amendment request. The proposed changes are being requested to reduce the unnecessary testing burden of performing the tests on a 12-month frequency which affords no beneficial increase in nuclear safety, and to optimize the testing schedules consistent with other TS surveillance testing currently on a 24-month schedule.

By letter dated September 28, 1992, as supplemented, PBAPS requested changes to the TS consistent with the guidance specified in GL 91-04. As documented in a letter dated August 2, 1993, the NRC issued Amendment Nos. 179 and 182 for PBAPS, Units 2 and 3, respectively, approving the requested changes that extended certain TS surveillance requirements to 24 months. However, extending the applicable 12-month testing interval frequency for the SGT and MCREV systems was not specifically requested as part of that change. In addition, an 18-month frequency, as specified in Regulatory Guide 1.52, Revision 2, was not adopted when PBAPS, Units 2 and 3, transitioned from custom TS to Improved TS (ITS) (i.e., NUREG-1433), since it was not desired at the time due to inefficiencies with test scheduling. The NRC approved the conversion to ITS for PBAPS, Units 2 and 3, as documented in a letter dated August 30, 1995, issuing Amendment Nos. 210 and 214. As discussed below, a 24-month frequency is sufficient to ensure that equipment reliability and performance is satisfactorily maintained and is supported by the guidance in Revision 3 and Revision 4 to RG 1.52.

The testing required by TS 5.5.7 is based on Regulatory Guide 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."* Regulatory Position C.5 of Regulatory Guide 1.52, Revision 2, indicates that at least once per 18 months an in-place High Efficiency Particulate Air (HEPA) filter Dioctyl Phthalate (DOP) penetration test should be performed for filter efficiency and that an in-place test of activated carbon adsorber filters bypass leakage with a halogenated hydrocarbon refrigerant should be performed. Regulatory Position C.6 states that at least once per 18 months a sample of the activated carbon adsorber should be laboratory tested for iodine decontamination efficiency.

The required interval of these tests is proposed to be increased from the currently specified once every 12 months to once every 24 months for a maximum interval of 30 months which includes 1.25 times the interval frequency as allowed by TS SR 3.0.2. These tests of the ESF ventilation system filter units verify that they remain capable of providing the designed protection from airborne radionuclides.

The proposed changes will continue to conform to the NUREG-1433 guidance and satisfy the applicable criteria specified in Regulatory Guide 1.52, Revision 2, and ASME N510-1989 with the exception that the frequency for testing related to the cited TS Sections 5.5.7.a, 5.5.7.b, and 5.5.7.c will be extended from 12 months to 24 months. The proposed changes will not modify the previous exception to Regulatory Guide 1.52, Revision 2, guidance for the system bypass value of < 1.0% as previously approved in Amendment Nos. 213 and 218.

In addition, Regulatory Guide 1.140, *"Design, Testing, and Maintenance Criteria for Normal Ventilation Exhaust System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants,"* Revision 2, dated June 2001, also specifies a testing frequency of once every 24 months. Revision 3 maintains this frequency. Revision 1 of Regulatory Guide 1.140, dated October 1979, had a testing frequency established at approximately 18-month intervals. This Regulatory Guide applies to non-ESF systems.

In support of this change, the surveillance history for the associated components was reviewed for a period of the last five years. Over this time period, all required tests for fulfilling the requirements of TS 5.5.7.a, 5.5.7.b, and 5.5.7.c were completed satisfactorily. There were no failures during this period that could have been detected solely during periodic performance of these tests, since there were no failures of the equipment. Specifically, as shown in the table below, both trains of the SGT system and both trains of the MCREV filter system demonstrated a penetration and system bypass of < 1.0% for the HEPA filters, a penetration and system bypass of < 1.0% for the charcoal adsorber, and less than 5% methyl iodide penetration when tested at the conditions specified.

MCREV Filter Train A, ST-M-40D-905-2		
Date	Pass/Fail	Results
5/27/2020	Pass	Upstream HEPA penetration = 0.01% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.1%

		Filter efficiency = 97.756% Methyl iodide penetration = 2.244%
5/30/2019	Pass	Upstream HEPA penetration = 0.03% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.4% Filter efficiency = 99.547% Methyl iodide penetration = 0.453%
5/30/2018	Pass	Upstream HEPA penetration = 0.03% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = < 0.01% Filter efficiency = 99.768% Methyl iodide penetration = 0.232%
5/31/2017	Pass	Upstream HEPA penetration = 0.02% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.13% Filter efficiency = 97.625% Methyl iodide penetration = 2.375%
6/2/2016	Pass	Upstream HEPA penetration = 0.3% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.48% Filter efficiency = 97.436% Methyl iodide penetration = 2.564%
8/19/2015	Pass	Upstream HEPA penetration = 0.02% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.17% Filter efficiency = 98.336% Methyl iodide penetration = 1.664%
MCREV Filter Train B, ST-M-40D-910-2		
1/13/2021	Pass	Upstream HEPA penetration = < 0.01% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = < 0.01% Filter efficiency = 98.548% Methyl iodide penetration = 1.452%
1/8/2020	Pass	Upstream HEPA penetration = < 0.01% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = < 0.01% Filter efficiency = 98.802% Methyl iodide penetration = 1.198%
1/9/2019	Pass	Upstream HEPA penetration = < 0.01% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.32% Filter efficiency = 98.689% Methyl iodide penetration = 1.311%
1/10/2018	Pass	Upstream HEPA penetration = 0.013% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.084%

		Filter efficiency = 95.981% Methyl iodide penetration = 4.019%
1/11/2017	Pass	Upstream HEPA penetration = < 0.01% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.057% Filter efficiency = 96.784% Methyl iodide penetration = 3.216%
1/6/2016	Pass	Upstream HEPA penetration = 0.02% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.25% Filter efficiency = 97.349% Methyl iodide penetration = 2.651%
SGT Filter Train A, ST-M-09A-600-2		
5/26/2020	Pass	Upstream HEPA penetration = 0.013% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.04% Filter efficiency = 99.108% Methyl iodide penetration = 0.892%
5/28/2019	Pass	Upstream HEPA penetration = 0.025% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.85% Filter efficiency = 99.429% Methyl iodide penetration = 0.571%
5/29/2018	Pass	Upstream HEPA penetration = 0.02% Downstream HEPA penetration = 0.02% Charcoal adsorber penetration = 0.15% Filter efficiency = 99.330% Methyl iodide penetration = 0.670%
5/30/2017	Pass	Upstream HEPA penetration = 0.04% Downstream HEPA penetration = 0.01% Charcoal adsorber penetration = 0.28% Filter efficiency = 99.035% Methyl iodide penetration = 0.965%
6/1/2016	Pass	Upstream HEPA penetration = 0.025% Downstream HEPA penetration = 0.013% Charcoal adsorber penetration = 0.33% Filter efficiency = 99.332% Methyl iodide penetration = 0.668%
8/20/2015	Pass	Upstream HEPA penetration = 0.04% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.15% Filter efficiency = 99.066% Methyl iodide penetration = 0.934%
SGT Filter Train B, ST-M-09A-601-2		
1/12/2021	Pass	Upstream HEPA penetration = < 0.01%

		Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.06% Filter efficiency = 99.778% Methyl iodide penetration = 0.222%
1/7/2020	Pass	Upstream HEPA penetration = < 0.01% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.104% Filter efficiency = 98.237% Methyl iodide penetration = 1.763%
1/8/2019	Pass	Upstream HEPA penetration = < 0.01% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.05% Filter efficiency = 99.634% Methyl iodide penetration = 0.366%
1/9/2018	Pass	Upstream HEPA penetration = < 0.01% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.08% Filter efficiency = 99.634% Methyl iodide penetration = 0.366%
1/10/2017	Pass	Upstream HEPA penetration = < 0.01% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.124% Filter efficiency = 99.296% Methyl iodide penetration = 0.704%
1/5/2016	Pass	Upstream HEPA penetration = < 0.01% Downstream HEPA penetration = < 0.01% Charcoal adsorber penetration = 0.1% Filter efficiency = 99.881% Methyl iodide penetration = 0.119%

Regulatory Guide 1.52, Revision 3 recognizes the general acceptability of this longer testing interval, since it states that the allowed frequency for test is 24 months, as described.

> *"In-place aerosol leak tests for HEPA filters upstream from the carbon adsorbers in ESF atmosphere cleanup systems should be performed (1) initially, (2) at least once each 24 months, (3) after each partial or complete replacement of a HEPA filter bank, (4) following detection of, or evidence of, penetration or intrusion of water or other material into any portion of an ESF atmosphere cleanup system that may have an adverse effect on the functional capability of the filters, and (5) following painting, fire, or chemical release in any ventilation zone communicating with the system that may have an adverse effect on the functional capability of the system."*

Revision 4 to this Regulatory Guide has similar criteria.

As noted above, a review of the test performance history over the 5-year interval identified no failures of the surveillance requirements associated with TS 5.5.7.a, 5.5.7.b, or 5.5.7.c. There have been no maintenance rule functional failures for SGT and MCREV systems within this

period. Based on prior test results, extending the frequency of testing to 24 months does not pose a substantial risk that the systems would degrade and experience test failures. The results of each test are reviewed by knowledgeable station personnel to identify signs of degradation within the filter train. Any such degradation would be entered into the station's corrective action program, and appropriate corrective actions will be taken. Additionally, testing of the filter train is required for activities which are likely to affect performance, as written in Specification 5.5.7. The activities listed in this specification are those that have the potential to significantly affect system performance, and the scope of testing ensures that the filter train remains functional after such activities. The proposed changes would not impact the ability of the ESF filter systems to mitigate a design basis accident.

The requirements described in Specification 5.5.7.2 related to testing after 1) completion or partial replacement of the HEPA filter train or charcoal adsorber filter; 2) any structural maintenance on the system housing; and 3) significant painting, fire, or chemical release in any ventilation zone communicating with the system while it is in operation will remain unchanged.

4.0 REGULATORY ANALYSIS

4.1 Applicable Regulatory Requirements/Criteria

10 CFR 50.36(c)(i) provides that TS will include Limiting Conditions for Operation (LCOs) which are "*…the lowest functional capability or performance levels of equipment required for safe operation of the facility. When a limiting condition for operation of a nuclear reactor is not met, the licensee will shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met."*

10 CFR 50.36(c)(2)(ii) specifies the following:

> *"A technical specification limiting condition for operation of a nuclear reactor must be established for each item meeting one or more of the following criteria:*
>
> *(A) Criterion 1. Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.*
>
> *(B) Criterion 2. A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.*
>
> *(C) Criterion 3. A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.*
>
> *(D) Criterion 4. A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety."*

The proposed changes are consistent with current regulations and satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

The proposed frequency does not impact the ability of the ESF filter systems to mitigate a design basis accident, and as such continues to meet 10 CFR 50.36(c)(2)(ii). The proposed 24-month frequency does not invalidate any assumptions in the plant licensing basis. Therefore, the impact of this change on safety, if any, is considered small.

PBAPS is committed to Regulatory Guide 1.52, Revision 2, Regulatory Position C.5.c, which allows an 18-month surveillance interval. Regulatory Guide 1.52, Revision 3, Regulatory Positions 6.3, 6.4 and 7.2, incorporated a 24-month interval. This interval was carried into Revision 4. The requested change to extend the testing frequency interval to 24 months is in line with the regulatory guidance in Revision 3 and Revision 4 of Regulatory Guide 1.52.

NUREG-1433, *"Standard Technical Specifications General Electric BWR/4 Plants,"* contain the criteria and guidance for Improved Technical Specifications (ITS) for GE BWR/4 plants. The ITS were developed based on the criteria in the Final Commission Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors, dated July 22, 1993, which was subsequently codified by changes contained in 10 CFR 50.36. Licensees were encouraged to upgrade their TS consistent with the ITS to the extent practical. PBAPS, Units 2 and 3, upgraded to ITS as approved in Amendment Nos. 210 and 214, respectively. Other than the requested change in the testing frequency and the previously approved changes issued in Amendment Nos. 213 and 218, the VFTP requirements conform to the guidance provided in NUREG-1433.

4.2 Precedent

Currently, similar VFTP testing is performed at other Exelon sites at the following frequencies:

- Braidwood Station - 18 months pursuant to TS 3.7.12.4 and 3.7.13.5
- Calvert Cliffs Nuclear Power Plant, Units 1 and 2 - 18 month/24 month
- Clinton Power Station - 24 months
- Dresden Nuclear Power Station, Units 2 and 3 - 24 months
- LaSalle County Station, Units 1 and 2 - 24 months
- Limerick Generating Station, Units 1 and 2 - 24 months (pursuant to Surveillance Frequency Control Program Section 4.6.5.3.b)
- Nine Mile Point Nuclear Station, Unit 2 - 24 months
- Quad Cities Nuclear Power Station, Units 1 and 2 - 24 months

In addition, by letter dated October 2, 2012, as supplemented, Entergy Operations, Inc. requested changes for Grand Gulf Nuclear Station, Unit 1, that revised TS surveillance requirement frequencies from 18 months to 24 months. This request was subsequently approved by the NRC as documented in a letter dated December 26, 2013 (ML13343A109), issuing Amendment No. 197 to the Facility Operating License No. NPF-29 for Grand Gulf, Unit 1. In conjunction with this amendment, the NRC also approved changes to the Administrative Controls TS Section 5.5.7, "Ventilation Filter Testing Program (VFTP)," to address changes related to extending the 18-month frequencies that are specified in NRC Regulatory Guide (RG)

1.52, Revision 2, to 24 months. This specific change is similar to this PBAPS license amendment request.

A number of other plants throughout the industry extended VFTP testing frequencies to 24 months in conjunction with implementing NRC-approved changes consistent with the guidance specified in GL 91-04.

4.3 No Significant Hazards Consideration

Exelon has concluded that the proposed changes to the Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, Technical Specifications (TS), to modify the testing frequency defined in the Ventilation Filter Testing Program (VFTP) requirements cited in Specifications 5.5.7.a, 5.5.7.b, and 5.5.7.c for the Standby Gas Treatment (SGT) and Main Control Room Emergency Ventilation (MCREV) systems from 12 months to 24 months do not involve a Significant Hazards Consideration. In support of this determination, an evaluation of each of the three (3) standards, set forth in 10 CFR 50.92, "Issuance of amendment," is provided below.

1. Will operation of the facility in accordance with the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed changes align certain VFTP testing frequency requirements specified in Specifications 5.5.7.a, 5.5.7.b, and 5.5.7.c to be more consistent with the guidance established in RG 1.52, *"Design, Testing, and Maintenance Criteria Post-Accident Engineered Safety-Feature Atmospheric Cleanup System Air Filtration and Adsorption Units for Light-Water-Cooled Nuclear Power Plants,"* Revisions 2, 3 and 4, and NUREG-1433, *"Standard Technical Specifications - General Electric BWR/4 Plants."* Specifically, the testing frequency described in the PBAPS VFTP for the SGT and MCREV systems will be extended from 12 months to 24 months. The remaining VFTP testing requirements are not changed under this license amendment request.

Since the SGT and MCREV systems are Engineered Safety Features (ESF) systems and not accident initiators, the probability of an accident evaluated in the Updated Final Safety Analysis Report (UFSAR) will not be increased. The proposed changes do not affect plant operation, design function, or any analysis that verifies the capability of a Structure, System, or Component (SSC) to perform a design function. There are no physical changes or modifications to the SGT or MCREV systems and these systems will continue to function as designed in all modes of operation. The proposed changes do not modify the operating parameters for the SGT and MCREV systems as described in the TS. There is no adverse impact on the SGT and MCREV systems which are designed to mitigate the consequences of accidents. As such, the probability of occurrence for a previously analyzed accident is not significantly increased. The consequences of a previously analyzed event are dependent on the initial conditions assumed for the analysis and the availability and successful functioning of the equipment assumed to operate in response to the analyzed event. The proposed

changes do not affect the performance of any credited equipment, and the details of testing do not alter the assumptions made in the safety analysis. As such, the consequences of an accident previously evaluated are not significantly increased.

Based on the above, Exelon concludes that the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Will operation of the facility in accordance with the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed changes to extend the testing frequency described in the VFTP (i.e., Specifications 5.5.7.a, 5.5.7.b, and 5.5.7.c) for the SGT and MCREV systems from 12 months to 24 months do not alter the design function or operation of the systems. The proposed changes do not involve a physical alteration to the plant (i.e., no new or different type of equipment will be installed) or a change to the methods governing normal plant operation. The changes do not alter the assumptions made in the safety analysis. These systems will continue to function as designed in all modes of operation to mitigate the consequences of an accident. There are no new system components being installed, no new construction, and no performance of a new test or maintenance function. The proposed TS changes do not create the possibility of a new credible failure mechanism or malfunction. The proposed changes do not modify the design function or operation of the SGT or MCREV systems. The proposed changes do not introduce new accident initiators. These systems will continue to function as designed and radiological consequences from the accidents analyzed in the UFSAR are not increased. The proposed changes do not modify the operating parameters for the SGT and MCREV systems as currently described in the TS. Since these conditions do not change, the likelihood of failure of the systems in not increased. Consequently, the proposed changes cannot create the possibility of a new or different kind of accident from any accident previously evaluated.

Based on the above discussion, Exelon concludes that the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Will operation of the facility in accordance with the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The proposed changes to extend the testing frequency described in the VFTP (i.e., Specifications 5.5.7.a, 5.5.7.b, and 5.5.7.c) for the SGT and MCREV systems from 12 months to 24 months do not alter the design function or operation of the systems. The proposed changes align the testing frequency requirements specified in VFTP for the SGT and MCREV systems to be more consistent with the guidance established in

Regulatory Guide 1.52, Revisions 2, 3 and 4, and NUREG-1433. No regulatory requirements are being removed and conformance to the guidance of the Regulatory Guide 1.52, Revision 2, and ASME N510-1989 will be maintained with the exception that the testing frequency for the SGT and MCREV systems is being extended from 12 months to 24 months as noted. The remaining VFTP testing requirements are unchanged and will remain the same. The proposed changes do not modify the operating parameters for the SGT and MCREV systems as currently described in the TS. The proposed changes do not exceed or alter a design basis or a safety limit for a parameter described or established in the UFSAR or the Subsequently Renewed Facility Operating License (SRFOL). Consequently, the proposed changes do not result in a reduction in the margin of safety.

Based on the above, Exelon concludes that the proposed changes do not involve a significant reduction in a margin of safety.

Based on the above evaluation of the three criteria, Exelon concludes that the proposed amendments present no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

4.4 Conclusions

There are no changes being proposed in this license amendment request such that commitments to applicable regulatory requirements and guidance documents described above would come into question. The evaluations documented above confirm that PBAPS will continue to comply with all applicable regulatory requirements. In conclusion, based on the considerations discussed above, (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 the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

The proposed changes involve extending the testing frequency described in PBAPS VFTP for the SGT and MCREV systems from 12 months to 24 months. As such, the proposed changes would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed changes do not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed changes meet the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed changes.

6.0 REFERENCES

1. Regulatory Guide 1.52, Revision 2, *"Design, Testing, and Maintenance Criteria Post-Accident Engineered Safety-Feature Atmospheric Cleanup System Air Filtration and Adsorption Units for Light-Water-Cooled Nuclear Power Plants,"* dated March 1978.

2. Regulatory Guide 1.52, Revision 3, *"Design, Testing, and Maintenance Criteria Post-Accident Engineered Safety-Feature Atmospheric Cleanup System Air Filtration and Adsorption Units for Light-Water-Cooled Nuclear Power Plants,"* dated June 2001.

3. Regulatory Guide 1.52, Revision 4, *"Design, Inspection, and Testing Criteria for Air Filtration and Adsorption Units of Post-Accident Engineered-Safety-Feature Atmosphere Cleanup Systems in Light-Water-Cooled Nuclear Power Plants,"* dated September 2012.

4. NUREG-1433, Revision 4, *"Standard Technical Specifications - General Electric BWR/4 Plants,"* dated April 2012.

5. Regulatory Guide 1.140, Revision 3, *"Design, Inspection and Testing Criteria for Air Filtration and Adsorption Units for Normal Atmosphere Cleanup Systems in Light-Water-Cooled Nuclear Power Plants,"* dated August 2016.

Attachment 2

Peach Bottom Atomic Power Station, Units 2 and 3

NRC Docket Nos. 50-277 and 50-278

Revise Technical Specifications Administrative Controls Section 5.5.7 Regarding the Frequency for Performing Certain Ventilation Filter Testing

Proposed Technical Specifications

Unit 2	Unit 3
5.0-12	5.0-12

5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

1) Once per ~~12~~24 months for standby service or after 720 hours of system operation; and,

2) After each complete or partial replacement of the HEPA filter train or charcoal adsorber filter; after any structural maintenance on the system housing; and, following significant painting, fire, or chemical release in any ventilation zone communicating with the system while it is in operation.

Tests described in Specifications 5.5.7.d and 5.5.7.e shall be performed once per 24 months.

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

a. Demonstrate for each of the ESF systems that an inplace test of the HEPA filters shows a penetration and system bypass < 1.0% when tested in accordance with Regulatory Guide 1.52, Revision 2, Section 5c, and ASME N510-1989, Sections 6 (Standby Gas Treatment (SGT) System only) and 10, at the system flowrate specified below.

ESF Ventilation System	Flowrate (cfm)
SGT System	7200 to 8800
Main Control Room Emergency Ventilation (MCREV) System	2700 to 3300

(continued)

5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

1) Once per ~~12~~24 months for standby service or after 720 hours of system operation; and,

2) After each complete or partial replacement of the HEPA filter train or charcoal adsorber filter; after any structural maintenance on the system housing; and, following significant painting, fire, or chemical release in any ventilation zone communicating with the system while it is in operation.

Tests described in Specifications 5.5.7.d and 5.5.7.e shall be performed once per 24 months.

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

a. Demonstrate for each of the ESF systems that an inplace test of the HEPA filters shows a penetration and system bypass < 1.0% when tested in accordance with Regulatory Guide 1.52, Revision 2, Section 5c, and ASME N510-1989, Sections 6 (Standby Gas Treatment (SGT) System only) and 10, at the system flowrate specified below.

ESF Ventilation System	Flowrate (cfm)
SGT System	7200 to 8800
Main Control Room Emergency Ventilation (MCREV) System	2700 to 3300

(continued)