MODEL SAFETY EVALUATION FOR PLANT-SPECIFIC ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE TRAVELER TSTF-522, REVISION 0, "REVISE VENTILATION SYSTEM SURVEILLANCE REQUIREMENTS TO OPERATE FOR 10 HOURS PER MONTH" USING THE CONSOLIDATED LINE ITEM IMPROVEMENT PROCESS

1.0 INTRODUCTION

By letter dated [DATE], [LICENSEE] (the licensee) requested changes to the technical specifications (TSs) for [PLANT]. Specifically the licensee requested to adopt U.S. Nuclear Regulatory Commission (NRC)-approved Technical Specifications Task Force (TSTF) Standard Technical Specifications (STS) Change Traveler TSTF-522, "Revise Ventilation System Surveillance Requirements to Operate for 10 hours per Month" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML100890316), dated March 30, 2010.

{NOTE: On June 23, 2009, the NRC approved TSTF-425, "Relocate Surveillance Frequencies to Licensee Control - RITSTF Initiative 5b" (ADAMS Accession Number ML090900716). This Traveler relocated periodic Surveillance Frequencies to licensee control, including the 31-day frequency of the subject Surveillance Requirements. Therefore, throughout the SE the option of either "every 31 days" or "at a frequency controlled in accordance with the SFCP [surveillance frequency program]" has been included. The SFCP option is only to be used for plants that already have TSTF-425 in their TS. A licensee cannot use TSTF-522 to get the SFCP approved for their plant.}

The proposed change would revise Surveillance Requirements (SRs) which currently require operating the ventilation system for at least [10 continuous hours] with the heaters operating [every 31 days][at a frequency controlled in accordance with the SFCP]. The SRs would be changed to require at least 15 continuous minutes of ventilation system operation [every 31 days][at a frequency controlled in accordance with the SFCP].

{NOTE: Chose one of the following paragraphs, depending on the plant vendor/type.}

{For Babcock and Wilcox (B&W) Plants} Changes were proposed for [TS 3.7.10, "Control Room Emergency Ventilation System (CREVS)," TS 3.7.12, "Emergency Ventilation System (EVS)," and TS 3.7.13, "Fuel Storage Pool Ventilation System (FSPVS)." In particular SRs 3.7.10.1, 3.7.12.1 and 3.7.13.1], which currently require operating the respective systems for at least 10 continuous hours with heaters operating [every 31 days][at a frequency controlled in accordance with the SFCP], would be changed to require at least 15 continuous minutes of ventilation system operation [with heaters operating] [every 31 days][at a frequency controlled in accordance with the SFCP].

{For Westinghouse Plants} Changes were proposed for [TS 3.6.11, "Iodine Cleanup System (ICS) (Atmospheric and Subatmospheric)," TS 3.6.13, "Shield Building Air Cleanup System (SBACS) (Dual and Ice Condenser)," TS 3.7.10, "Control Room Emergency Filtration System (CREFS)," TS 3.7.12, "Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)," TS 3.7.13, "Fuel Building Air Cleanup System (FBACS)," and TS 3.7.14, "Penetration Room Exhaust Air Cleanup System (PREACS)." In particular SRs 3.6.11.1, 3.6.13.1, 3.7.10.1, 3.7.12.1, 3.7.13.1, and 3.7.14.1], which currently require operating the respective systems for at least 10 continuous hours with heaters operating [every 31 days][at a frequency controlled in accordance with the SFCP], would be changed to require at least 15 continuous minutes of ventilation system operation [with heaters operating] [every 31 days][at a frequency controlled in accordance with the SFCP].

{For Combustion Engineering Plants} Changes were proposed for [TS 3.6.8, "Shield Building Exhaust Air Cleanup System (SBEACS) (Dual)," TS 3.6.10, "Iodine Cleanup System (ICS) (Atmospheric and Dual)," TS 3.7.11 , "Control Room Emergency Air Conditioning System (CREACS)," TS 3.7.13, "Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)," TS 3.7.14, "Fuel Building Air Cleanup System (FBACS)," and TS 3.7.15, "Penetration Room Exhaust Air Cleanup System (PREACS)." In particular SRs 3.6.8.1, 3.6.10.1, 3.7.11.1, 3.7.13.1, 3.7.14.1, and 3.7.15.1], which currently require operating the respective systems for at least 10 continuous hours with heaters operating [every 31 days][at a frequency controlled in accordance with the SFCP], would be changed to require at least 15 continuous minutes of ventilation system operation [with heaters operating] [every 31 days][at a frequency controlled in accordance with the SFCP].

{For General Electric BWR/4 Plants} Changes were proposed for [TS 3.6.4.3, "Standby Gas Treatment (SGT) System," and TS 3.7.4, "Main Control Room Environmental Control (MCREC)] System." In particular SRs 3.6.4.3.1 and 3.7.4.1], which currently require operating the respective systems for at least 10 continuous hours with heaters operating [every 31 days][at a frequency controlled in accordance with the SFCP], would be changed to require at least 15 continuous minutes of ventilation system operation [with heaters operating] [every 31 days][at a frequency controlled in accordance with the SFCP].

{For General Electric BWR/6 Plants} Changes were proposed for [TS 3.6.4.3, "Standby Gas Treatment (SGT) System," and TS 3.7.3, "Control Room Fresh Air (CRFA) System." In particular SRs 3.6.4.3.1 and 3.7.3.1], which currently require operating the respective systems for at least 10 continuous hours with heaters operating [every 31 days][at a frequency controlled in accordance with the SFCP], would be changed to require at least 15 continuous minutes of ventilation system operation [with heaters operating] [every 31 days][at a frequency controlled in accordance with the SFCP].

The licensee stated that the license amendment request is consistent with NRC-approved Traveler TSTF-522. The availability of this TS improvement was announced in the *Federal Register* on [Date] ([ ] FR [ ]) as part of the consolidated line item improvement process.

2.0 REGULATORY EVALUATION

One of the reasons air filtration and adsorption systems are required at nuclear power plants is to lower the concentration of airborne radioactive material that may be released from the site to the environment due to a design basis event. Lowering the concentration of airborne radioactive materials can mitigate doses to plant operators and members of the public in the event of a design basis event. A typical system consists of ventilation ductwork, fans, dampers, valves, instrumentation, prefilters or demisters, high efficiency particulate air (HEPA) filters, heaters, and activated charcoal adsorbers. These systems are tested by operating the systems and monitoring the response of the overall system as well as individual components. Laboratory tests of charcoal adsorbers are also performed to ensure the charcoal adsorbs an acceptable amount of radioactive gasses.

Current testing requirements for the air filtration and adsorption systems state that the systems should be operated for at least 10 continuous hours with heaters operating [every 31 days][at a frequency controlled by the SFCP]. These requirements are based on NRC staff guidance for

testing air filtration and adsorption systems that has been superseded. New NRC staff guidance states at least 15 continuous minutes of ventilation system operation with heaters operating every 31 days is acceptable for those plants that test ventilation system adsorption at a relative humidity of less than 95 percent. Plants that test ventilation system adsorption at a relative humidity of 95 percent do not require heaters for the ventilation system to perform its specified safety function and the bracketed phrase "with heaters operating" is not included in the SRs.

The licensee has proposed revising SRs which currently require operating the ventilation system for at least [10 continuous hours] with the heaters operating [every 31 days][at a frequency controlled in accordance with the SFCP]. The SRs would be changed to require at least 15 continuous minutes of ventilation system operation [every 31 days][at a frequency controlled in accordance with the SFCP].

The regulatory requirements for design and testing of these systems are contained in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.67 and Part 100, as well as Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants," General Design Criteria 19, 41, 42, 43, and 61.

Regulatory Guide (RG) 1.52, Revision 2, “Design, Testing, and Maintenance Criteria for Post-Accident Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorbtion Units of Light-Water-Cooled Nuclear Power Plants” (ADAMS Accession No. ML003740139) was published in March 1978 to provide guidance and criteria acceptable to the NRC staff for licensees to implement the regulations in 10 CFR related to air filtration and adsorption systems.

Regulatory Position 4.d of Revision 2 of RG 1.52 stated that “Each ESF [engineered safety feature] atmosphere cleanup train should be operated at least 10 hours per month, with the heaters on (if so equipped), in order to reduce the buildup of moisture on the adsorbers and HEPA filters.” The purpose of this position is to minimize the moisture content in the system and thereby enhance efficiency in the event the system is called upon to perform its design basis function. SRs {for B&W Plants}[3.7.10.1, 3.7.12.1, and 3.7.13.1] {for Westinghouse Plants}[3.6.11.1 3.6.13.1, 3.7.10.1, 3.7.12.1, 3.7.13.1, and 3.7.14.1] {for Combustion Engineering Plants}[3.6.8.1, 3.6.10.1, 3.7.11.1, 3.7.13.1, 3.7.14.1, and 3.7.15.1] {for General Electric Plants}[3.6.4.3.1 and 3.7.4.1] currently require operating the heaters in the respective ventilation and filtering systems for at least 10 continuous hours every 31 days. The current STS Bases explain that operation of heaters for 10 hours would {for Westinghouse, Combustion Engineering, and General Electric Plants}[eliminate moisture] {for B&W Plants}[dry out any moisture that may have accumulated] on the charcoal adsorbers and HEPA filters.

Subsequently, the NRC staff was informed that 10 continuous hours of system operation would dry out the charcoal adsorber for a brief period of time but, following heater de-energization, the level of moisture accumulation in adsorbers would rapidly return to the pre-test level. The NRC staff found this information persuasive and subsequently issued NRC Generic Letter (GL) 99-02: “Laboratory Testing of Nuclear-Grade Activated Charcoal” (ADAMS Accession No. ML082350935 and errata sheet at Accession No. ML031110094). GL 99-02 requested licensees to confirm their charcoal testing protocols accurately reflect the adsorber gaseous activity capture capability. GL 99-02 also requested the licensees to account for the effects of moisture accumulation in adsorbers.

Therefore the NRC staff updated RG 1.52 to include the new information (ADAMS Accession No. ML011710176). RG 1.52, Revision 3, Regulatory Position 6.1 states, "Each ESF atmosphere cleanup train should be operated continuously for at least 15 minutes each month, with the heaters on (if so equipped), to justify the operability of the system and all its components."

One of the reasons for the previous 10-hour requirement for ventilation system operation with heaters operating was to minimize the effects of moisture on the adsorber's ability to capture gaseous activity. However, these effects are already accounted for in the Ventilation Filter Testing Program by performing testing at a relative humidity of 95 percent. The [PLANT] TS [5.5.11] Ventilation Filter Testing Program requires testing charcoal adsorbers in a manner to account for the effects of moisture on the adsorber's ability to capture gaseous activity. Therefore, the licensee proposed to remove the requirement to operate heaters from SRs {for B&W Plants}[3.7.10.1, 3.7.12.1, and 3.7.13.1] {for Westinghouse Plants}[3.6.11.1 3.6.13.1, 3.7.10.1, 3.7.12.1, 3.7.13.1, and 3.7.14.1] {for Combustion Engineering Plants}[3.6.8.1, 3.6.10.1, 3.7.11.1, 3.7.13.1, 3.7.14.1, and 3.7.15.1] {for General Electric Plants}[3.6.4.3.1 and 3.7.4.1].

The NRC's regulatory requirements related to the content of the TS are contained in 10 CFR 50.36. The regulations at 10 CFR 50.36 require that the TS include items in the following categories: (1) safety limits, limiting safety systems settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) SRs; (4) design features; and (5) administrative controls. SRs are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the LCOs will be met.

The NRC's guidance for the format and content of licensee TSs can be found in [NUREG-1430, "Standard Technical Specifications Babcock and Wilcox Plants"][NUREG-1431, "Standard Technical Specifications Westinghouse Plants"][NUREG-1432, "Standard Technical Specifications Combustion Engineering Plants"][NUREG-1433, "Standard Technical Specifications General Electric Plants BWR/4"][NUREG-1434, "Standard Technical Specifications General Electric Plants, BWR/6"].

3.0 TECHNICAL EVALUATION

The NRC staff evaluated the licensee's proposed change against the applicable regulatory guidance in RG 1.52, Revision 3, guidance in the STS as modified by TSTF-522, and the regulatory requirements of 10 CFR 50.36.

The NRC staff evaluated the licensee's proposed change against the applicable regulatory guidance in RG 1.52, Revision 3. The proposed change would require at least 15 minutes of system operation. The NRC staff found that the proposed change is consistent with guidance in RG 1.52, Revision 3.

The NRC staff evaluated the licensee's proposed change against the applicable regulatory guidance in the STS, as modified by TSTF-522. The proposed change adopted the TS format and content, to the extent practicable, contained in the changes made to [NUREG-1430, "Standard Technical Specifications Babcock and Wilcox Plants"][NUREG-1431, "Standard

Technical Specifications Westinghouse Plants"][NUREG-1432, "Standard Technical Specifications Combustion Engineering Plants"][NUREG-1433, "Standard Technical Specifications General Electric Plants BWR/4"][NUREG-1434, "Standard Technical Specifications General Electric Plants, BWR/6"] by TSTF-522. The NRC staff found that the proposed change is consistent with guidance in the STS, as modified by TSTF-522.

The NRC staff compared the proposed change to the existing SRs, as well as the regulatory requirements of 10 CFR 50.36. The existing SRs provide assurance that the necessary quality of ventilation systems and components will be maintained and that the LCOs will be met. The proposed change reduces the amount of required system operational time from 10 hours to 15 minutes. The 10-hour operational requirement for heaters was based on using the SR to {for Westinghouse, Combustion Engineering, and General Electric Plants}[eliminate moisture] {for B&W Plants}[dry out any moisture that may have accumulated] in the adsorbers and thus ensure the adsorbers would capture gaseous activity. As discussed in Section 2.0, the effects of moisture on the adsorber's ability to capture gaseous activity are now accounted for in the licensee's Ventilation Filter Testing Program by performing testing at a relative humidity of 95 percent. Since the SR's are no longer relied upon to ensure the effects of moisture on the adsorber's ability to capture gaseous activity are accounted for, the 10-hour heater operational requirement is unnecessary. The NRC staff found that reducing the required minimum system operation time to 15 minutes, consistent with RG 1.52, Revision 3, in conjunction with the Ventilation Filter Testing Program, is sufficient to justify operability of the system and all its components. The NRC staff found that the proposed SRs meet the regulatory requirements of 10 CFR 50.36 because they provide assurance that the necessary quality of ventilation systems and components will be maintained and that the LCOs will be met. Therefore, the NRC staff finds the proposed change acceptable.

The regulation at 10 CFR 50.36 states: "A summary statement of the bases or reasons for such specifications … shall also be included in the application, but shall not become part of the technical specifications." The licensee may make changes to the TS Bases without prior NRC staff review and approval in accordance with the TS Bases Control Program [TS 5.5.14]. Accordingly, along with the proposed TS changes, the licensee also submitted TS Bases changes corresponding to the proposed TS changes. The NRC staff determined that TS Bases changes are consistent with the proposed TS changes and provide the purpose for each requirement in the specification consistent with the Commission's Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors, dated July 2, 1993 (58 FR 39132).

4.0 STATE CONSULTATION

{NOTE: Per LIC-101, the PM is responsible for contacting the state official and completing the bracketed information appropriately.}

In accordance with the Commission's regulations, the [Name of State] State official was notified of the proposed issuance of the amendment. The State official had [no] comments. [If comments were provided, they should be addressed here].

5.0 ENVIRONMENTAL CONSIDERATION

{NOTE: Caution per LIC-101: The environmental consideration discussed below is written for a categorical exclusion based on 10 CFR 51.22(c)(9). The PM is responsible to ensure that this is accurate for the specific amendment being issued.}

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes SRs. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents 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 the amendment involves no significant hazards consideration, and there has been no public comment on such finding [enter *Federal Register* citation (XX FR XXXX) and date]. Accordingly, the 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 the amendment.

6.0 CONCLUSION

{NOTE: the PM is responsible for ensuring the current LIC-101 wording is used.}

The Commission 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) there is reasonable assurance that 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.

7.0 REFERENCES

[Optional section to be prepared by the PM or primary reviewers.]

Principal Contributor: [M. Hamm]

Date: September 13, 2012