FINAL SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

TECHNICAL SPECIFICATIONS TASK FORCE TRAVELER

TSTF-551, REVISION 3,

"REVISE SECONDARY CONTAINMENT SURVEILLANCE REQUIREMENTS"

1.0 INTRODUCTION

By letter dated October 30, 2014 (Agencywide Document Access and Management System (ADAMS) Accession No. ML14304A034), the Technical Specifications (TS) Task Force (TSTF) submitted traveler TSTF-551, "Revise Secondary Containment Surveillance Requirements," Revision 0, for U.S. Nuclear Regulatory Commission (NRC) review and approval. By letter dated September 3, 2015, the TSTF submitted Revision 1 to traveler TSTF-551 (ADAMS Accession No. ML15246A131), and by letter dated May 12, 2016, the TSTF submitted Revision 2 to the traveler (ADAMS Accession No. ML16133A536). By letter dated October 3, 2016 (ADAMS Accession No. ML16277A226), the TSTF submitted Revision 3 of the Traveler TSTF-551.

Traveler TSTF-551 proposes changes to the Standard Technical Specifications (STS) and Bases for boiling water reactor (BWR) designs BWR/4 and BWR/6.[1] The changes would be incorporated into future revisions of NUREG-1433, Volumes 1 and 2 and NUREG-1434, Volumes 1 and 2. NUREG-1433 is based on the BWR/4 plant design, but is also representative of the BWR/2, BWR/3, and, in some cases, BWR/5 designs. NUREG-1434 is based on the BWR/6 plant design, and is representative, in many cases, of the BWR/5 design.

Plants of BWR/4 and BWR/6 design have differing names for the secondary containment. As a result, the BWR/4 STS uses the convention, "[secondary] containment;" BWR/6 STS uses the convention "[secondary containment]." In the STS, brackets indicate plant-specific information. In this SE, the phrase "[secondary] containment" applies to both BWR/4 and BWR/6 plants.

The proposed changes would allow the [secondary] containment vacuum limit to not be met provided the standby gas treatment (SGT) system remains capable of establishing the required [secondary] containment vacuum and revises NUREG-1433 to permit [secondary] containment access opening to be open to permit entry and exit similar to the corresponding statements in NUREG-1434.

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[1] U.S. Nuclear Regulatory Commission, "Standard Technical Specifications, General Electric BWR/4 Plants," NUREG-1433, Vol. 1, "Specifications," Revision 4.0, April 2012, ADAMS Accession No. ML12104A192.

U.S. Nuclear Regulatory Commission, "Standard Technical Specifications, General Electric BWR/4 Plants," NUREG-1433, Vol. 2, "Bases," Revision 4.0, April 2012, ADAMS Accession No. ML12104A193.

U.S. Nuclear Regulatory Commission, "Standard Technical Specifications, General Electric BWR/6 Plants," NUREG-1434, Vol. 1, "Specifications," Revision 4.0, April 2012, ADAMS Accession No. ML12104A195.

U.S. Nuclear Regulatory Commission, "Standard Technical Specifications, General Electric BWR/6 Plants," NUREG-1434, Vol. 2, "Bases," Revision 4.0, April 2012, ADAMS Accession No. ML12104A196.

2.0 REGULATORY EVALUATION

2.1 SYSTEM DESCRIPTION

The [secondary] containment is a structure that encloses the primary containment, including components that may contain primary system fluid. The safety function of the [secondary] containment is to contain, dilute, and hold up fission products that may leak from primary containment following a design basis accident (DBA) to ensure the control room operator and offsite doses are within the regulatory limits. There is no redundant train or system that can perform the [secondary] containment function should the [secondary] containment be inoperable.

The [secondary] containment boundary is the combination of walls, floor, roof, ducting, doors, hatches, penetrations and equipment that physically form the [secondary] containment. A routinely used [secondary] containment access opening contains at least one inner and one outer door in an airlock configuration. In some cases, [secondary] containment access openings are shared such that there are multiple inner or outer doors. All [secondary] containment access doors are normally kept closed, except when the access opening is being used for entry and exit of personnel, equipment, or material.

[Secondary] containment operability is based on its ability to contain, dilute, and hold up fission products that may leak from primary containment following a DBA. To prevent ground level exfiltration of radioactive material while allowing the [secondary] containment to be designed as a mostly conventional structure, the [secondary] containment requires support systems to maintain the pressure at less than atmospheric pressure. During normal operation, non-safety related systems are used to maintain the [secondary] containment at a slight negative pressure to ensure any leakage is into the building and that any [secondary] containment atmosphere exiting is via a pathway monitored for radioactive material. However, during normal operation it is possible for the [secondary] containment vacuum to be momentarily less than the required vacuum for a number of reasons, such as during wind gusts or swapping of the normal ventilation subsystems.

During emergency conditions, the SGT system is designed to be capable of drawing down the [secondary] containment to a required vacuum within a prescribed time and continue to maintain the negative pressure as assumed in the accident analysis. The leak tightness of the [secondary] containment together with the SGT system ensure that radioactive material is either contained in the [secondary] containment or filtered through the SGT system filter trains before being discharged to the outside environment via the elevated release point.

2.2 CHANGES TO THE STS

The proposed changes would allow the [secondary] containment vacuum limit to not be met provided the SGT system remains capable of establishing the required [secondary] containment vacuum and revises NUREG-1433 to permit [secondary] containment access opening to be open to permit entry and exit similar to the corresponding statements in NUREG-1434.

Corresponding changes are proposed to the STS Bases. A summary of the revised STS Bases and the NRC staff's evaluation of the revised Bases are provided in an attachment to this SE.

2.2.1 Revision to Surveillance Requirement 3.6.4.1.1

Surveillance requirement (SR) 3.6.4.1.1 requires verification that [secondary] containment vacuum is ≥ [0.25] inch of vacuum water gauge. This SR would be modified by a note that states:

> Not required to be met for 4 hours if analysis demonstrates one standby gas treatment (SGT) subsystem is capable of establishing the required [secondary] containment vacuum.

This change is applicable to NUREGs-1433 and -1434.

2.2.2 Revision to Surveillance Requirement 3.6.4.1.3

SR 3.6.4.1.3 requires verification that one [secondary] containment access door in each access opening is closed. This SR would be modified by adding the following phrase to the end of the SR statement, "…except when the access opening is being used for entry and exit."

This change is applicable to NUREG-1433 only. This provision already exists in NUREG-1434, Revision 4.

2.2.3 Revision to Surveillance Requirement 3.6.4.1.4

An editorial change is made to SR 3.6.4.1.4 in which the words "standby gas treatment" are replaced with the initialism "SGT."

2.3 APPLICABLE REGULATORY REQUIREMENTS AND GUIDANCE

Section IV, "The Commission Policy," of the Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors (58 *Federal Register* 39132), dated July 22, 1993, states in part:

> The purpose of Technical Specifications is to impose those conditions or limitations upon reactor operation necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety by identifying those features that are of controlling importance to safety and establishing on them certain conditions of operation which cannot be changed without prior Commission approval.
>
> [T]he Commission will also entertain requests to adopt portions of the improved STS [(e.g., TSTF-551)], even if the licensee does not adopt all STS improvements…
>
> The Commission encourages all licensees who submit Technical Specification related submittals based on this Policy Statement to emphasize human factors principles…

> In accordance with this Policy Statement, improved STS have been developed and will be maintained for [BWR designs]. The Commission encourages licensees to use the STS as the basis for plant-specific Technical Specifications…
>
> [I]t is the Commission intent that the wording and Bases of the improved STS be used [] to the extent practicable.

As described in the Commission's Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors, recommendations were made by NRC and industry task groups for new STS that include greater emphasis on human factors principles in order to add clarity and understanding to the text of the STS, and provide improvements to the Bases of STS, which provides the purpose for each requirement in the specification. Subsequently, improved vendor-specific STS were developed and issued by the NRC in September 1992.

The regulation at Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36(a)(1) requires an applicant for an operating license to include in the application proposed TS in accordance with the requirements of 10 CFR 50.36. The applicant must include in the application, a "summary statement of the bases or reasons for such specifications, other than those covering administrative controls." However, per 10 CFR 50.36(a)(1), these technical specification bases "shall not become part of the technical specifications."

Additionally, 10 CFR 50.36(b) requires:

> Each license authorizing operation of a … utilization facility … will include technical specifications. The technical specifications will be derived from the analyses and evaluation included in the safety analysis report, and amendments thereto, submitted pursuant to 10 CFR 50.34 ["Contents of applications; technical information"]. The Commission may include such additional technical specifications as the Commission finds appropriate.

The categories of items required to be in the TSs are provided in 10 CFR 50.36(c). As required by 10 CFR 50.36(c)(2)(i), the TSs 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. Per 10 CFR 50.36(c)(2)(i), when an LCO of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the TSs until the condition can be met.

The regulation at 10 CFR 50.36(c)(3) requires TSs to include items in the category of SRs, which 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.

Per 10 CFR 50.90, whenever a holder of a license desires to amend the license, application for an amendment must be filed with the Commission, fully describing the changes desired, and following as far as applicable, the form prescribed for original applications.

Per 10 CFR 50.92(a), in determining whether an amendment to a license will be issued to the applicant, the Commission will be guided by the considerations which govern the issuance of initial licenses to the extent applicable and appropriate.

The NRC staff's guidance for review of TSs is in Chapter 16, *Technical Specifications*, of NUREG-0800, Revision 3, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants" (SRP), dated March 2010 (ADAMS Accession No. ML100351425). As described therein, as part of the regulatory standardization effort, the NRC staff has prepared STS for each of the light-water reactor nuclear designs.

NUREG-0800, Chapter 15, "Transient and Accident Analysis," provides guidance to the NRC staff for the review of radiological consequence analyses for postulated design basis accidents.

Regulatory Guide (RG) 1.195, "Methods and Assumptions for Evaluating Radiological Consequences of Design Basis Accidents at Light-Water Nuclear Power Reactors," dated May 2003 (ADAMS Accession No. ML031490640), provides acceptable methodology for analyzing the radiological consequences of several design basis accidents to show compliance with 10 CFR Section 100.11. RG 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," dated July 2000, provides acceptable methodology for analyzing the radiological consequences of several design basis accidents to show compliance with 10 CFR 50.67.

10 CFR Section 100.11, "Determination of exclusion area, low population zone, and population center distance," requires that the licensee determine:

> (1) An exclusion area of such size that an individual located at any point on its boundary for two hours immediately following onset of the postulated fission product release would not receive a total radiation dose to the whole body in excess of 25 rem or a total radiation dose in excess of 300 rem to the thyroid from iodine exposure.
>
> (2) A low population zone of such size that an individual located at any point on its outer boundary who is exposed to the radioactive cloud resulting from the postulated fission product release (during the entire period of its passage) would not receive a total radiation dose to the whole body in excess of 25 rem or a total radiation dose in excess of 300 rem to the thyroid from iodine exposure.

Appendix A to 10 CFR Part 50, "General Design Criteria for Nuclear Power Plants," Criterion 19, "Control room," which states:

> A control room shall be provided from which actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain it in a safe condition under accident conditions, including loss-of-coolant accidents. Adequate radiation protection shall be provided to permit access and occupancy of the control room under accident conditions without personnel receiving

> radiation exposures in excess of 5 rem whole body, or its equivalent to any part of the body, for the duration of the accident.

10 CFR 50.67, "Accident source term," states that:

> (i) An individual located at any point on the boundary of the exclusion area for any 2-hour period following the onset of the postulated fission product release, would not receive a radiation dose in excess of 0.25 Sv (25 rem) total effective dose equivalent (TEDE),
>
> (ii) An individual located at any point on the outer boundary of the low population zone, who is exposed to the radioactive cloud resulting from the postulated fission product release (during the entire period of its passage), would not receive a radiation dose in excess of 0.25 Sv (25 rem) total effective dose equivalent (TEDE), and
>
> (iii) Adequate radiation protection is provided to permit access to and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 0.05 Sv (5 rem) total effective dose equivalent (TEDE) for the duration of the accident.

In the evaluation of plant-specific LARs that adopt TSTF-551 changes, the NRC staff will confirm there are no changes to the radiological consequence analyses in the current licensing basis. The NRC staff will also consider relevant information in the updated Final Safety Analysis Report (FSAR), which describes the DBAs and evaluation of their radiological consequences for a specific licensee.

3.0 TECHNICAL EVALUATION

3.1 PROPOSED CHANGE TO SURVEILLANCE REQUIREMENT 3.6.4.1.1

A note is being added to SR 3.6.4.1.1. The note allows the SR to not be met for up to 4 hours if an analysis demonstrates that one SGT subsystem is capable of establishing the required [secondary] containment vacuum. During normal operation, conditions may occur that result in SR 3.6.4.1.1 not being met for short durations. For example, wind gusts that lower external pressure or loss of the normal ventilation system that maintains [secondary] containment vacuum may affect [secondary] containment vacuum. These conditions may not be indicative of degradations of the [secondary] containment boundary or of the ability of the SGT system to perform its specified safety function.

The note provides an allowance for the licensee to confirm [secondary] containment operability by confirming that one SGT subsystem is capable of performing its specified safety function. This confirmation is necessary to apply the exception to meeting the SR acceptance criterion. While the duration of these occurrences is anticipated to be very brief, the allowance is permitted for a maximum of 4 hours, which is consistent with the time permitted for [secondary] containment to be inoperable per Condition A of LCO 3.6.4.1.

The NRC staff intends to evaluate the impact of this note on the licensee's design basis radiological consequence dose analyses to ensure that the proposed change will not result in an increase in the dose consequences and that the resulting calculated doses remain within the current radiological consequence analyses.

The proposed addition of the note to SR 3.6.4.1.1 does not change the STS requirement to meet SR 3.6.4.1.4 and SR 3.6.4.1.5. SR 3.6.4.1.4 requires verification that the [secondary] containment can be drawn down to ≥ [0.25] inch of vacuum water gauge in ≤ [120] seconds using one SGT subsystem. SR 3.6.4.1.5 requires verification that the [secondary] containment can be maintained ≥ [0.25] inch of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate ≤ [4000] cubic feet per minute. In addition, TS LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," must be met; otherwise a licensee shall shut down the reactor or follow any remedial action permitted by the STS until the condition can be met.

As discussed above, [secondary] containment operability is based on its ability to contain, dilute, and hold up fission products that may leak from primary containment following a DBA. To prevent ground level exfiltration of radioactive material the [secondary] containment pressure must be maintained at a pressure that is less than atmospheric pressure. The [secondary] containment requires support systems to maintain the control volume pressure less than atmospheric pressure. Following an accident, the SGT system ensures the [secondary] containment pressure is less than the external atmospheric pressure. During normal operation, non-safety related systems are used to maintain the [secondary] containment at a negative pressure. However, during normal operation it is possible for the [secondary] containment vacuum to be momentarily less than the required vacuum for a number of reasons. These conditions are not indicative of degradations of the [secondary] containment boundary or of the ability of the SGT system to perform its specified safety function. Since the licensee meets the requirements of SR 3.6.4.1.4, SR 3.6.4.1.5, meets the LCO or is following the Actions of TS LCO 3.6.4.3, and the licensee's analysis confirms [secondary] containment operability by confirming that one SGT subsystem is capable of performing its specified safety function, then there is reasonable assurance that the [secondary] containment and SGT subsystem will maintain the vacuum requirements during a DBA.

Therefore, the NRC staff has determined that: if the conditions do not affect (1) the ability to maintain the [secondary] containment pressure during an accident, at a vacuum that is consistent with the accident analyses, and (2) the time assumed in the accident analyses to draw down the [secondary] containment pressure, then the [secondary] containment can perform its safety function and may be considered TS operable. This is evident by being able to successfully perform and meet SR 3.6.4.1.4 and SR 3.6.4.1.5. These SRs require the SGT system to establish and maintain the required vacuum in the [secondary] containment as assumed in the accident analyses.

If the specified safety functions of the [secondary] containment and SGT subsystem can be performed in the time assumed in the accident analysis, then the fission products that bypass or leak from primary containment, or are released from the reactor coolant pressure boundary components located in [secondary] containment prior to release to the environment, will be contained and processed as assumed in the design basis radiological consequence dose analyses. If the above statement is true for a plant-specific amendment, then the NRC staff finds that the proposed change does not affect the current radiological consequence analyses.

Therefore, the NRC staff concludes this change is acceptable with respect to the radiological consequences of DBAs.

3.2 PROPOSED CHANGE TO SURVEILLANCE REQUIREMENT 3.6.4.1.3

[NOTE: The proposed change is not applicable if the radiological dose consequence analysis assumes the [secondary] containment pressure is below atmospheric pressure prior to or coincident with the time at which the accident or event occurs. Such an analysis assumption would require a revised radiological dose consequence analysis considering the new release point (the open [secondary] containment doors), with appropriate atmospheric dispersion factors, and any other necessary revisions to the accident or event analysis.]

The NRC staff review of SR 3.6.4.1.3 was limited to the request to provide an allowance for the brief, inadvertent, simultaneous opening of redundant [secondary] containment access doors during normal entry and exit conditions. Planned activities that could result in the simultaneous opening of redundant [secondary] containment access openings, such as maintenance of a [secondary] containment personnel access door or movement of large equipment through the openings that would take longer than the normal transit time, will be considered outside the scope of the NRC staff's review.

The NRC staff reviewed the changes to SR 3.6.4.1.3. The NRC staff determined that the SR continues to provide appropriate confirmation that [secondary] containment boundary doors are properly positioned and capable of performing their function in preserving the [secondary] containment boundary. The NRC staff determined that the SRs continue to appropriately verify the operability of the [secondary] containment and provide assurance that the necessary quality of systems and components are maintained in accordance with 10 CFR 50.36(c)(3).

Additionally, the NRC staff evaluated the impact of modifying the STS to allow [secondary] containment access openings to be open for entry and exit on the design basis radiological consequence dose analyses to ensure that the modification will not result in an increase in the radiation dose consequences and that the resulting calculated radiation doses will remain within the current radiological consequence analyses. The NRC staff review of these DBAs determined that there are two DBAs that take credit for the [secondary] containment, and are possibly impacted by the brief, inadvertent, simultaneous opening of both an inner and outer access door during normal entry and exit conditions, the loss-of-coolant accident (LOCA) and the fuel handling accident (FHA) in [secondary] containment.

3.2.1 LOCA

Following a LOCA, the [secondary] containment structure is maintained at a negative pressure ensuring that leakage from primary containment to [secondary] containment can be collected and filtered prior to release to the environment. The SGT system performs the function of maintaining a negative pressure within the [secondary] containment, as well as collecting and filtering the leakage from primary containment. The SGT system is credited for mitigation of the radiological releases from the [secondary] containment. In the LOCA analysis, the [secondary] containment draw down analysis assumes that SGT system can draw down the [secondary] containment within [5 minutes]. The STS SR 3.6.4.1.4 requires one SGT subsystem to draw down the [secondary] containment, to greater than or equal to [0.25] inches of vacuum water gauge in a maximum allowable time of [120] seconds.

Conservatively, the DBA LOCA radiological consequence analysis in [UFSAR Chapter 15] assumes that following the start of a DBA LOCA the [secondary] containment pressure of [0.25] inches of vacuum water gauge is achieved at approximately [10] minutes. It is assumed that releases into the [secondary] containment prior to the [10]-minute draw down time leak directly to the environment as a ground level release with no filtration. After the assumed [10]-minute draw down these releases are filtered by the SGT system and released via the SGT system exhaust vent.

Based on this information, the NRC staff concludes that the DBA LOCA analysis has sufficient conservatism by assuming a draw down time of [10] minutes from the start of the DBA LOCA. Margin exists to ensure that the [secondary] containment can be reestablished during a brief, inadvertent, simultaneous opening of the inner and outer doors, and there is reasonable assurance that a failure of a safety system needed to control the release of radioactive material to the environment will not result. The brief, inadvertent, simultaneous opening of the secondary containment access doors does not impact the design bases and will not result in an increase in any on-site or off-site dose.

Based on the above discussion, the NRC staff finds that the proposed change to the STS does not impact the design basis LOCA radiological consequence analysis, will not result in an increase in any onsite or offsite dose, and is consistent with regulatory requirements and guidance identified in Section 2.3 of this safety evaluation. The NRC staff finds, that the proposed change to the STS will continue to comply with these criteria and that that the estimates of the dose consequences of the postulated DBAs will comply with the current radiological consequence analyses. Therefore, the proposed changes are acceptable with regard to the radiological consequences of the postulated DBAs.

3.2.2 <u>FHA in [Secondary] Containment</u>

During normal operation, non-safety related systems are used to maintain the [secondary] containment at [0.25] inches of vacuum water gauge to ensure that any leakage is into the building and that any [secondary] containment atmosphere exiting the building is via a monitored pathway. The refueling floor, which is inside the [secondary] containment, is maintained at a negative [0.25] inches of vacuum water gauge by normal operating ventilation systems. The refueling floor exhaust ductwork in the [secondary] containment is equipped with radiation monitors to detect a fuel handling accident. When a radiological release is sensed by the radiation monitors, a [secondary] containment isolation signal is generated. This initiates the SGT system and the normal ventilation system isolates. The radiation monitor is positioned such that it will detect the release and send a closure signal to the [secondary] containment isolation dampers.

Following a FHA, the [secondary] containment structure is maintained at a negative pressure by the SGT system ensuring that fission products released from the spent fuel pool to [secondary] containment can be collected and filtered prior to release to the environment. In the FHA analysis, the [secondary] containment draw down analysis demonstrates that SGT system can draw down the [secondary] containment within [5 minutes]. The SGT system is credited for mitigation of the radiological releases from the [secondary] containment. The STS SR 3.6.4.1.4 requires one SGT subsystem to draw down the [secondary] containment, to greater than or equal to [0.25] inches of vacuum water gauge in a maximum allowable time of [120] seconds.

Conservatively, the DBA FHA radiological consequence analysis in [UFSAR Chapter 15] assumes that following the start of a DBA FHA the [secondary] containment pressure of [0.25] inches of vacuum water gauge is achieved at approximately [10] minutes. It is assumed that releases into the [secondary] containment prior to the [10]-minute draw down time leak directly to the environment as a ground level release with no filtration. After the assumed [10]-minute draw down these releases are filtered by the SGT system and released via the SGT system exhaust vent.

Based on this information, the NRC staff concludes that the DBA FHA analysis has sufficient conservatism by assuming a draw down time of [10] minutes from the start of the DBA FHA. Margin exists to ensure that the [secondary] containment can be reestablished during brief, inadvertent, simultaneous opening of the inner and outer doors, and there is reasonable assurance that a failure of a safety system needed to control the release of radioactive material to the environment will not result. The brief, inadvertent, simultaneous opening of the [secondary] containment access doors does not impact the design bases and will not result in an increase in any on-site or off-site dose.

Based on the above discussion, the NRC staff finds that the proposed change to the STS does not impact the design basis FHA radiological consequence analysis, will not result in an increase in any onsite or offsite dose, and is consistent with regulatory requirements and guidance identified in Section 2.3 of this safety evaluation. The NRC staff finds, that the proposed change to the STS will continue to comply with these criteria and that that the estimates of the dose consequences of the postulated DBAs will comply with the current radiological consequence analyses. Therefore, the proposed changes are acceptable with regard to the radiological consequences of the postulated DBAs.

3.3 PROPOSED CHANGE TO SURVEILLANCE REQUIREMENT 3.6.4.1.4

The changes to SR 3.6.4.1.4 are editorial only and do not change any technical aspects of SR 3.6.4.1.4. The NRC staff determined that the change is acceptable.

4.0 CONCLUSION

The NRC staff reviewed traveler TSTF-551, Revision 3, which proposed changes to NUREG-1433, Volumes 1 (STS) and 2 (Bases) and NUREG-1434 Volumes 1 (STS) and 2 (Bases). The NRC staff determined that the proposed changes to the STS met the standards for TS in 10 CFR 50.36(b). The proposed SRs 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, and satisfy 10 CFR 50.36(c)(3). Additionally, the changes to the STS were reviewed for technical clarity and consistency with customary terminology and format in accordance with SRP Chapter 16.

The proposed bases, which will be added to future revisions to NUREG-1433, Volume 2, and NUREG-1434, Volume 2, satisfy the Commission's Policy Statement by addressing the questions specified in the policy statement, and cite references to appropriate licensing documentation to support the Bases.

Additionally, the NRC staff has evaluated the impact of the proposed changes on the design basis radiological consequence analyses against the regulatory requirements and guidance identified in Section 2.3 of this SE. The NRC staff finds, with reasonable assurance that the changes to the STS will continue to comply with the current radiological consequence analyses. Therefore, the proposed changes are acceptable with regard to the radiological consequences of the postulated DBAs.

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Attachment: Basis for Accepting the Proposed Changes to the Standard Technical Specification Bases, Volume 2 of NUREGs-1433 and -1434

Date: September 21, 2017

ATTACHMENT

BASIS FOR ACCEPTING THE PROPOSED CHANGES TO THE STANDARD TECHNICAL SPECIFICATION BASES, VOLUME 2 OF NUREGS-1433 AND -1434

1.0 INTRODUCTION

Traveler TSTF-551 proposes changes to "Standard Technical Specifications, General Electric BWR/4 Plants, BWR/4" NUREG-1433, Volume 2, "Bases," Revision 4.0, April 2012, ADAMS Accession No. ML12104A193 and "Standard Technical Specifications, General Electric BWR/6 Plants, BWR/6" NUREG-1434, Volume 2, "Bases," Revision 4.0, April 2012, ADAMS Accession No. ML12104A196. The changes would be incorporated into future revisions of NUREG-1433, Volume 2, and NUREG-1434, Volume 2. A summary of the changes and the NRC staff's evaluation of those changes are presented in this attachment.

2.0 REGULATORY EVALUATION

2.1 APPLICABLE REGULATIONS AND GUIDANCE

The regulation at 10 CFR 50.36(a)(1) states that each applicant for a license authorizing operation of a production or utilization facility shall include in his application proposed technical specifications in accordance with the requirements of this section. A summary statement of the bases or reasons for such specifications, other than those covering administrative controls, shall also be included in the application, but shall not become part of the technical specifications.

In its Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors, the Commission presented its policy on the scope and purpose of the Technical Specifications. The Commission explained how implementation of the policy statement through implementation of the improved STS is expected to produce an improvement in the safety of nuclear power plants through the use of more operator-oriented TS, improved TS Bases, reduced action-statement-induced plant transients, and more efficient use of NRC and industry resources.

The Final Policy Statement provides the following description of the scope and the purpose of the Technical Specification Bases:

> Appropriate Surveillance Requirements and Actions should be retained for each LCO which remains or is included in the Technical Specifications. Each LCO, Action, and Surveillance Requirement should have supporting Bases. The Bases should at a minimum address the following questions and cite references to appropriate licensing documentation (e.g., FSAR, Topical Report) to support the Bases.
>
> 1. What is the justification for the Technical Specification, i.e., which Policy Statement criterion requires it to be in the Technical Specifications?

2. What are the Bases for each LCO, i.e., why was it determined to be the lowest functional capability or performance level for the system or component in question necessary for safe operation of the facility and, what are the reasons for the Applicability of the LCO?

3. What are the Bases for each Action, i.e., why should this remedial action be taken if the associated LCO cannot be met; how does this Action relate to other Actions associated with the LCO; and what justifies continued operation of the system or component at the reduced state from the state specified in the LCO for the allowed time period?

4. What are the Bases for each Safety Limit?

5. What are the Bases for each Surveillance Requirement and Surveillance Frequency; i.e., what specific functional requirement is the surveillance designed to verify? Why is this surveillance necessary at the specified frequency to assure that the system or component function is maintained, that facility operation will be within the Safety Limits, and that the LCO will be met?

   Note: In answering these questions the Bases for each number (e.g., Allowable Value, Response Time, Completion Time, Surveillance Frequency, etc.), state, condition, and definition (e.g., operability) should be clearly specified. As an example, a number might be based on engineering judgment, past experience, or PSA insights; but this should be clearly stated.

The NRC staff used the guidance contained in the Final Policy Statement during its review of the proposed changes to the Bases.

2.2 DESCRIPTION OF CHANGES

Volume 2 of NUREGs-1433 and -1434 contain the Bases for each Safety Limit and each LCO contained in Volume 1. The Bases for each LCO is organized into sections:

Background
Applicable Safety Analyses, LCO, and Applicability
Actions
Surveillance Requirements
References

The Bases for SR 3.6.4.1.1 in NUREGs-1433 and -1434 is being revised, and the Bases for SR 3.6.4.1.3 in NUREG-1433 is being revised. The following discussion provides a summary of the revised Bases, followed by the NRC staff's evaluation of the revised Bases.

3.0 TECHNICAL EVALUATION

3.1 REVISION TO SR 3.6.4.1.1 BASES

The Bases for SR 3.6.4.1.1 is revised by the addition of a description of the modification to the applicability of the SR acceptance criterion. The revised Bases describe conditions that could lead to the required vacuum not being met and provides a discussion of why these conditions do not indicate a change in the leaktightness of the [secondary] containment boundary. It also provides a description of the analysis needed to determine whether one train of SGT could establish the assumed [secondary] containment vacuum in the unlikely event of an accident occurring.

The NRC staff reviewed the revised Bases and determined that it adequately provides the basis for the SR, and provides an appropriate description of the note which modifies the SR.

3.2 REVISION TO SR 3.6.4.1.3 BASES

The Bases for SR 3.6.4.1.3 are revised in their entirety to describe that the verification of one door being closed is necessary to provide assurance that exfiltration from the [secondary] containment does not occur. The revised bases also provide an explanation that the intent is not to breach the [secondary] containment boundary, but the access openings may be used for entry and exit.

The NRC staff reviewed the revised Bases and determined that it adequately provides the purpose and the basis for the SR.

4.0 CONCLUSION

The NRC staff determined that TS Bases changes are consistent with the proposed TS changes and provide an explanation and supporting information for each of the SRs. Therefore, the NRC staff determined that the revised Bases are consistent with the Commission's Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors, dated July 2, 1993 (58 *Federal Register* 39132).