

October 8, 2013

Technical Specifications Task Force
11921 Rockville Pike, Suite 100
Rockville, MD 20852

SUBJECT: NON-ACCEPTANCE OF TRAVELER TSTF-538, REVISION 0, "ADD ACTIONS TO PRECLUDE ENTRY INTO LIMITING CONDITION FOR OPERATION 3.0.3-RISK-INFORMED TECHNICAL SPECIFICATIONS TASK FORCE INITIATIVES 6B & 6C" (TAC NO. ME8312)

Dear Members of the Technical Specifications Task Force:

By letter dated March 27, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12087A202), you submitted Traveler TSTF-538, Revision 0, "Add Actions to Preclude Entry into Limiting Condition Operation 3.0.3 – Risk-Informed Technical Specifications Task Force Initiatives 6b & 6c," to the U.S. Nuclear Regulatory Commission (NRC) staff for review and approval. The purpose of this letter is to provide the results of the NRC staff's acceptance review of this Technical Specifications Task Force Traveler. The acceptance review was performed to determine if there is sufficient technical information in scope and depth to allow the NRC staff to complete its detailed technical review. The acceptance review is also intended to identify whether the application has any readily apparent information insufficiencies.

The NRC staff has reviewed your submittal and concluded that it is insufficient to begin our review. The enclosure provides the basis for this conclusion as it pertains to the Technical Specification changes requested.

Your letter requested that review of this Traveler be exempt from review fees under Title 10 of the *Code of Federal Regulations* Part 170. In accordance with the January 10, 2003, letter (ADAMS Accession No. ML030100090) to A. Pietrangelo, the acceptance review of Traveler TSTF-538 was fee exempt.

Technical Specifications Task Force

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If you have any questions, please contact me at (301) 415-1774 or
Michelle.Honcharik@nrc.gov.

Sincerely,

/RA/

Michelle C. Honcharik, Sr. Project Manager
Licensing Processes Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Project No. 753

Enclosure:
NRC Staff Basis for Non-Acceptance
of TSTF-538

cc: See next page

If you have any questions, please contact me at (301) 415-1774 or Michelle.Honcharik@nrc.gov.

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Michelle C. Honcharik, Sr. Project Manager
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ADAMS Accession No: ML12209A288;

*from memo to JJolicoeur at ML121720341; ** concurred via e-mail

NRR-106

OFFICE	PLPB/PM	PLPB/LA	STSB/BC**	AADB/BC**
NAME	MHoncharik	DBaxley	RElliott	TTate
DATE	8/13/2012	8/7/2012	5/10/2013	5/13/2013
OFFICE	SCVB/ABC*	APLA/BC	PLPB/BC	PLPB/PM
NAME	HWalker	HHamzehee	AMendiola	MHoncharik
DATE	6/27/2012	10/1/2013	10/4/2013	10/8/2013

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NRC Staff Basis for Non-Acceptance of TSTF-538

By letter dated March 27, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12087A202), the Technical Specifications Task Force (TSTF) submitted Traveler TSTF-538, Revision 0, "Add Actions to Preclude Entry into LCO [Limiting Condition for Operation] 3.0.3 – RITSTF [Risk-Informed TSTF] Initiatives 6b & 6c."

The proposed change provides risk-informed Technical Specifications (TS) modifications which the TSTF stated would "improve plant safety by precluding certain unnecessary, exigent plant shutdowns." It revises the current Required Actions of three TS LCOs in NUREG-1430, "Standard Technical Specifications [(STS)] Babcock and Wilcox [(B&W)] Plants," when both system trains are inoperable from a LCO 3.0.3 entry to an action to restore inoperable systems with a Completion Time (CT) of 24 hours.

To support the proposed change, the TSTF performed a conservative analysis using the Alternative Source Term (AST) methodology that is intended to bound any differences that may exist between the B&W-designed pressurized water reactors (PWR) for which these changes are intended.

The three TS modified by the proposed change are:

- 3.6.6, Containment Spray and Cooling Systems;
- 3.7.10, Control Room Emergency Ventilation System (CREVS); and
- 3.7.12, Emergency Ventilation System (EVS).

REGULATORY BASIS

The Commission's 1995 final probabilistic risk assessment (PRA) policy statement emphasizes that PRA methods and data should be supported in a manner that complements NRC's deterministic approach and traditional defense-in-depth philosophy. Regulatory Guides (RGs) 1.174 and 1.177 provide applicable guidance for risk-informed submittals for proposed changes to TS. RG 1.174 identifies five key principles which proposed changes are expected to meet and RG 1.177 provides additional guidance for these key principles applicable to proposed changes to TS. Three of the five key principles are related to: (1) meeting current regulations, (2) consistency with the defense-in-depth philosophy, and (3) maintenance of sufficient safety margins. These deterministic principles are intended to be supplemented with risk insights (key principle 4) and performance measurement strategies (key principle 5) of RG 1.174.

Since the submittal cites RGs 1.174 and 1.177, the acceptability of operating with these systems inoperable should consider all the five key principles. For example, key principles 1 and 3, 4, and 5 are either not discussed or should be discussed in more detail. Specifically, the submittal needs clarification on how it is addressing key principle 4. The "occurrence frequency" is related to defense-in-depth (DID) considerations rather than for evaluating a length of a CT for systems with no impact of core damage frequency (CDF) or large early release frequency (LERF).

The Traveler does not provide a risk assessment since risk considers beyond design basis accidents and the submittal limits analyses to specific types of design basis events. For those

ENCLOSURE

systems credited in a probabilistic risk assessment (PRA), an appropriate PRA should be performed and discussed in the submittal.

In addition, the proposed DID measures need further justification. There is very little discussion as to the acceptability of the proposed DID measures. This should be discussed fully for all three systems being considered in the submittal.

SUFFICIENCY OF INFORMATION

The NRC staff has reviewed the application and concluded that it did not provide technical information in sufficient detail to enable the NRC staff to complete its detailed review and make an independent assessment regarding the acceptability of the proposed changes in terms of regulatory requirements and the protection of public health and safety and the environment.

Because of the extensive nature of additional information needed to support the review (detailed below), the NRC staff finds the application unacceptable for NRC review.

TS 3.6.6, "Containment Spray and Cooling Systems," for the condition of two containment spray trains inoperable.

In Section 3.5.1 of TSTF-538, the TSTF states:

The design basis analysis assumes the worst case single failure as the loss of one ESF [engineering safety feature] bus, resulting in one train of containment spray and one train of containment cooling being inoperable. For the design basis accident (Large Break Loss of Coolant Accident, LBLOCA), one Operable containment spray train and one Operable containment cooling train maintain the resulting containment pressure and temperature to within design limits.

Additionally, in Section 3.5.1, the TSTF states:

The containment air coolers are designed such that they alone can maintain containment temperature and pressure within design limits. To ensure adequate defense in depth, all trains of the containment air coolers must be Operable when both trains of CS [containment spray] are inoperable. This provision is implemented by the existing Technical Specification Condition which requires immediate entry into LCO 3.0.3 should any combination of three or more trains become inoperable.

As reaffirmed in the proposed model application for TSTF-538 (Attachment 1 of the submittal), the proposed 24-hour CT is acceptable based on the redundant heat removal capabilities afforded by the containment cooling trains, the infrequent use of the Required Action, and the small incremental effect on plant risk.

The NRC staff finds that the information is unacceptable for the following reasons:

1. The TSTF technical evaluation basis is that 24-hour CT is assumed to be entered once every 3 years. The proposed change does not provide details on what is meant by the phrase “infrequent use of the Required Action,” and does not provide any references to operational experience in support of the 3-year frequency of occurrence. Thus the NRC staff cannot make the determination that the 3-year frequency of occurrence assumed for the analysis is representative of actual plant conditions.
2. The proposed change would allow both containment spray system (CSS) trains to be in an out-of-service condition for a period of 24 hours, for which the containment coolers would be used as the sole source of containment atmosphere cooling and pressure control if needed. The conditions for which the containment coolers are depended upon for temperature and pressure control should be analyzed in a range of different accidents resulting in a range of containment heat-up rates. Variations in heat-up rate determine the time available to recover one of the containment spray trains. The technical analysis in the Traveler did not identify a maximum heat load or minimum available time for recovery of the containment spray train in the event that containment cooling was lost.
3. The TSTF concluded that that the recommended CTs for inoperability of both trains of any of the different systems, are acceptable based on a risk perspective. Additional analysis of several at-power accident cases has not been provided; therefore safety margin change during the 24-hour period cannot be properly identified.

TS 3.7.10. “Control Room Emergency Ventilation Systems (CREVS)” for the condition of two CREVS trains inoperable in Modes 1, 2, 3, and 4, for reasons other than an inoperable control room boundary

The Traveler TSTF-538 did not provide detail on what is meant by the phrase “Initiate action to implement mitigating actions.” The Traveler TSTF-538 implies that mitigating actions for the control room will be identified and those actions that can be performed in the available time before dose limits are challenged, rather than managing the conditions to provide a minimum time for recovery actions.

The TSTF did not provide a detailed discussion regarding additional analyses for the NRC staff to conclude that the TSTF had appropriately identified the most limiting cases, or that the cases were analyzed in a sufficiently conservative manner to ensure a bounding result. In particular, the analyses are not supported by discussion identifying the following:

1. Available time for recovery for the CSS and CREVS trains.
2. Whether the cases identified are actual limiting results, or whether an accident spectrum requires analysis.
3. In the event of an accident and the containment temperature and pressure exceed the existing limits, the different containment cooling systems could not be returned to

service. In this event there would be no active containment cooling available until the required systems could be returned to service.

4. The TSTF did not provide the basis for the proposed limit (24 hours) on the amount of time that either CSS or CREVS would be out of service.
5. The TSTF did not provide compensatory measures during the requested 24-hour allowed outage time.

COMPLETENESS OF SCOPE

Offsite and control room radiological consequences are site specific due to a wide range of design and siting issues. The representative radiological assessment in TSTF-538 does not address or justify why it is appropriate or limiting for all sites. Furthermore, the TSTF did not sufficiently address the following:

1. The magnitude of the doses used to calculate the ratios provided in Tables 3-2 and 3-3.
2. The sensitivity evaluations used in the radiological consequences in Section 3.3.2.
3. The bases for eliminating the need to specify the exposure pathway variables (e.g., atmospheric dispersion factors, breathing rates, occupancy factors, and dose conversion factors) in Section 3.2.2. The assumed atmospheric dispersion factors have not been adequately identified nor discussed with respect to the basis for their selection and justification for their implicit use for all plants adopting TSTF-538.

Additionally, for the defense-in-depth consideration of CREVS it is stated that "Licensees desiring to adopt the proposed change to TS 3.7.11 that have not adopted TSTF-448-A must implement mitigating actions equivalent to those described in TSTF-448-A." TSTF-538 does not contain a proposed change to TS 3.7.11. The statement "mitigating actions equivalent to those described in TSTF-448-A" should be explained.

ADDITIONAL COMMENTS

TS 3.7.12, "Emergency Ventilation System (EVS)," for the condition of two EVS trains inoperable in Modes 1, 2, 3, and 4, for reasons other than an inoperable auxiliary building negative pressure area boundary.

The Traveler TSTF-538 states and the NRC staff agrees that all B&W plants have relocated the EVS specification except for Davis-Besse. The proposed change will revise NUREG-1430 and appeared to request a plant-specific change for Davis-Besse adoption of the proposed change to TS 3.7.12. The TSTF members clarified to the NRC project manager that this was not the case and the TSTF-538 was not intended to provide plant-specific information, but is meant to be a generic submittal. The NRC staff recommends that if this Traveler is revised and resubmitted at a future date, this clarification should be made in the Traveler.

CONCLUSION

The NRC staff recognizes that the approach taken in TSTF-538 is similar to that taken in previously-approved topical report for RITSTF Initiative 6 application to Combustion Engineering-designed PWRs (WCAP-16125; NRC staff SE of WCAP-16125 dated May 24, 2010 (ADAMS Accession No. ML093350670)). However, as noted previously, since the submittal uses RG 1.174 and RG 1.177 guidelines, it should address the key principles of risk-informed decision-making. For example, the evaluation of "occurrence frequency" should be part of DID for systems with no impact on CDF or LERF. In addition, the submittal should include a PRA for systems that are in the PRA models, rather than the approach described in the submittal.

The NRC staff concludes that there is not sufficient information to proceed with reviewing the proposed Traveler with respect to the CSS, CREVS, or EVS. Additionally, the information provided in the Traveler TSTF-538 does not provide assurance that the proposed CT is either conservative or reasonable.

Technical Specifications Task Force
cc:

Project No. 753

Technical Specifications Task Force
11921 Rockville Pike
Suite 100
Rockville, MD 20852
Attention: Brian Mann
E-mail: brian.mann@excelservices.com

Robert A. Slough
Comanche Peak Nuclear Power Plant
P. O. Box 1002, Mail Code A08
Glen Rose, Texas 76043
E-mail: robert.slough@luminant.com

Richard A. Loeffler
Monticello Nuclear Generating Plant
2807 West County Road 75
Monticello, MN 55362-9637
E-mail: richard.loeffler@xenuclear.com

Wendy E. Croft
Exelon Nuclear
200 Exelon Way, Suite 340
Kennett Square, PA 19348
E-mail: wendi.croft@exeloncorp.com

Otto W. Gustafson
Entergy Nuclear Operations, Inc.
Palisades Nuclear Power Plant
27780 Blue Star Memorial Highway
Covert, MI 49043
E-mail: ogustaf@entergy.com