Inclusion of Regulatory Guide 1.177 Tier 2 Considerations in TSTF-423-A and in Technical Specification Required Actions

Context

TSTF-423-A, Revision 0, "Technical Specifications End States, NEDC-32988-A," was approved by the NRC and published in the Federal Register on March 23, 2006. TSTF-423-A modifies the Required Actions of twenty-two Specifications to allow the plant to remain in Mode 3 instead of proceeding to Mode 4 when inoperable equipment is not restored. The technical justification for TSTF-423-A is NEDC-32988-A, "Technical Justification to Support Risk-Informed Modification to Selected Required Action End States for BWR Plants." The Topical Report was approved by the NRC on September 27, 2002.

The NRC's approval of NEDC-32988-A noted that for primary containment, "the staffs approval relies upon the secondary containment and the standby gas treatment system for maintaining defense-in-depth while in this reduced end state." For secondary containment, the Safety Evaluation stated, "that the staff's approval relies upon the primary containment, and all other primary and secondary containment-related functions to still be operable, including the standby gas treatment system, for maintaining defense-in-depth while in this reduced end state." In Section 4.6, "Conclusions for Risk Assessment," under Tier 2, it states, "When multiple LCOs occur, which affect trains in several systems, the plant's risk-informed CRMP, implemented in response to the Maintenance Rule [I0 CFR 50.65(a)(4)], will ensure that high risk configurations are avoided."

Based on this last statement, the industry treated the assumptions on primary and secondary containment and the standby gas treatment system as Regulatory Guide 1.177, Tier 2, conditions. The industry created an Implementation Guide which discussed the assumptions and implementation issues for adopting TSTF-423-A. The NRC reviewed the Implementation Guide and made adoption of TSTF-423-A contingent on the licensee making a regulatory commitment to implement and follow the Implementation Guide. In practice, licensees implement the regulatory commitment by plant procedures and incorporation into their program to implement the Maintenance Rule.

Two plants applied to adopt TSTF-423-A, and were approved: LaSalle (9/27/07) and Peach Bottom (7/12/07). Exelon submitted license amendment requests to adopt TSTF-423-A at Quad Cities and Clinton. Subsequently, the NRC questioned whether the primary and secondary containment and the standby gas treatment system assumptions should have been implemented in Technical Specifications.

Specific Question

Should the NRC withdraw their approval of TSTF-423-A and require it's modification to include the assumptions on primary and secondary containment and the standby gas treatment system to be included in the Required Actions of the Technical Specifications?

Industry Response

No.

- TSTF-423-A is consistent with the NRC's published guidance (Regulatory Guide 1.177), the NRC's Safety Evaluations for TSTF-423-A and the supporting Topical Report (NEDC-32988-A), and the NRC's practice as demonstrated in 10 risk-informed Travelers and almost 300 plant-specific license amendments.

- There is no evidence that the NRC reviewers of TSTF-423-A or NEDC-32988-A made an error. Regulatory Guide 1.177 provides the option to address Tier 2 considerations in the Technical Specifications or in plant procedures. NRC's consistent practice - without known exception - has been to address Tier 2 considerations as regulatory commitments to include the considerations in the licensee's Maintenance Rule program. The TSTF-423-A reviewer clearly considered this and acted in a manner consistent with the Regulator Guide and NRC practice by reviewing the regulatory commitment, confirming that it was adequate, and including it in the Safety Evaluation and model application for TSTF-423-A.

- There is no evidence that the two plant that have adopted TSTF-423-A have failed to follow the regulatory commitments made to implement the Tier 2 considerations as part of their Maintenance Rule programs.

Therefore, there is no basis for the NRC to withdraw their approval of TSTF-423-A.

Generic Question

When implementing risk-informed license amendments, should actions identified as meeting Regulatory Guide 1.177 Tier 2 be included in the Technical Specifications as Required Actions?

Industry Response

No.

- Regulatory Guide 1.177 provides the option to address Tier 2 considerations in the Technical Specifications or in plant procedures. NRC practice has been to address Tier 2 considerations as regulatory commitments to include the considerations in the licensee's Maintenance Rule program.

- There is no evidence that the NRC's practice regarding Tier 2 considerations is inadequate or that licensees are not following the regulatory commitments made to implement the Tier 2 considerations as part of their Maintenance Rule programs. There is no evidence that a more prescriptive approach is needed.

- The Tier 2 considerations of many license amendments are too numerous and too broad to implement as Required Actions with fixed Completion Times. These commitments range from tightened switchyard and safety-related pump room access controls, weather monitoring, fire and flood watches, alternate AC power controls, training, etc., that are not amenable –or appropriate – for inclusion in the TS.

- The NRC's practice regarding Tier 2 requirements is consistent with the ISTS format, content, and usage rules. Any change to the NRC's approach must be considered generically, resulting in a standard rule of usage that will be applied to all risk informed changes to the Technical Specifications. It is inconsistent with the principles of the Improved Standard Technical Specifications to decide whether requirements should be included in the Technical Specification on an ad-hoc basis. That was precisely the approach abandoned by the NRC when the Technical Specification Improvement Process was initiated.

Therefore, there is no basis for the NRC to reverse the current practice and to incorporate Tier 2 considerations in the Technical Specifications as Required Actions.

Supporting Information

Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaklng: Technical Specifications," defines a three-tiered approach to implementing risk-informed Technical Specification changes. The following statements are taken directly from Regulatory Guide 1.177:

- Tier 1, "PRA Capability and Insights," requires the licensee to assess the impact of the proposed TS change on CDF, ICCDP, and, when appropriate, LERF and ICLERP. This assessment includes the validity of the PRA and the PRA insights and findings.

- Tier 2, "Avoidance of Risk-Significant Plant Configurations," requires the licensee to provide reasonable assurance that risk-significant plant equipment outage configurations will not occur when specific plant equipment is out of service consistent with the proposed TS change. Once an assessment of risk-significant plant equipment outage configurations is evaluated, an assessment can be made as to whether certain enhancements to the TS or procedures are needed to avoid risk-significant plant configurations. In addition, compensatory actions that can mitigate any corresponding increase in risk (e.g., backup equipment, increased surveillance frequency, or upgrading procedures and training) should be identified and evaluated. Any changes made to the plant design or operating procedures as a result of such a risk evaluation (e.g., required backup equipment, increased surveillance frequency, or upgraded procedures and training required before certain plant system configurations can be entered) should be incorporated into the

analyses utilized for TS changes as described under Tier 1. Tier 2 commitments apply only for planned maintenance, but should be evaluated as part of the Tier 3 assessment for unplanned occurrences.

- Tier 3, "Risk-Informed Configuration Risk Management," requires the license to develop a program that ensures that the risk impact of out-of-service equipment is appropriately evaluated prior to performing any maintenance activity. The need for this third tier stems from the difficulty of identifying all possible risk-significant configurations under Tier 2 that will ever be encountered over extended periods of plant operation. Tier 3 is normally satisfied by the presence of the plant's program to meet the Maintenance Rule.

The NRC's Safety Evaluation for TSTF-423-A, under the discussion of Tier 2 states, "When multiple LCOs occur, which affect trains in several systems, the plant's risk-informed configuration risk management program (CRMP), or the risk assessment and management program implemented in response to the Maintenance Rule 10 CFR 50.65(a)(4), shall ensure that high risk configurations are avoided. As part of the implementation of TSTF–423, the licensee has committed to follow Section 11 of NUMARC 93–01, Revision 3, and include guidance in appropriate plant procedures and/or administrative controls to preclude high-risk plant configurations when the plant is at the proposed end state. The staff finds that such guidance is adequate for preventing risk-significant plant configurations." (Emphasis added.) In Section 3.0, the Safety Evaluation states, " The changes proposed in TSTF-423 are consistent with the changes proposed and justified in Topical Report GE NEDC-32988-A, Revision 2, (Reference 1) and approved by the associated NRC SE (Reference 6). … In its application the licensee commits to TSTF-IG-05-02, Implementation Guidance for TSTF-423, Revision 0, 'Technical Specifications End States, NEDC-32988-A,' (Reference 8), which addresses a variety of issues such as considerations and compensatory actions for risk-significant plant configurations." (Emphasis added)

A search reveals approximately 300 NRC-approved license amendments that are based on Regulatory Guide 1.177 and that reference Tier 2 considerations. A review of a representative sample of these amendments and a survey of all licensees did not reveal any license amendments that required Tier 2 considerations to be in the Technical Specifications.

The industry is not aware of any instances in which plant risk was increased due to a licensee utilizing a risk-informed Technical Specification allowance without following any regulatory commitments that were made as part of the amendment.

Analysis

1. Regulatory Guide 1.177 provides the option to assess whether certain enhancements to the TS or procedures are needed to avoid risk-significant plant configurations.

2. From statements in the two Safety Evaluations, it is clear that the NRC reviewers of NEDC-32988-A and TSTF-423-A made a conscious decision that managing potential high-risk configurations such as primary and secondary containment and standby gas control would be accomplished by a regulatory commitment to include the considerations in the licensee's Maintenance Rule program and would not be specified in the Technical Specifications.

3. The decision to not include these requirements in the Technical Specifications is consistent with years of NRC practice and approximately 300 license amendments.

4. There is no evidence that making these requirements Technical Specification Required Actions instead of regulatory commitments is needed to ensure compliance.

5. While the regulatory commitments in TSTF-423-A are straightforward, many Tier 2 considerations are too numerous or too broad to implement as Required Actions with fixed Completion Times. For example, the May 30, 2007 approval of the Prairie Island emergency diesel generator Completion Time extension contained 12 regulatory commitments that addressed Tier 2 considerations, such as "the condition of the offsite power supply

and switchyard will be evaluated," "assure operating crews are briefed on the EDG work plan," and "weather conditions will be evaluated."

6. Most of the 10 Risk Informed Technical Specification Travelers approved by the NRC and published in the Federal Register under the Consolidated Line Item Improvement Process (CLIIP) contain Tier 2 considerations imposed as regulatory commitments.

7. Consistency and standardization are the founding principles of the NRC's Technical Specification Improvement Process (TSIP) that culminated in the Improved Standard Technical Specifications. Any reconsideration of the NRC's traditional approach to Tier 2 considerations must consider the generic implications, lead to a clear rule of usage that may be consistently applied, and with plans to make the ISTS and all proposed changes consistent with that usage rule, including the impact on the other NRC-approved risk informed Travelers and the several hundred approved license amendments. The ISTS were developed in a methodical manner to re-engineer the format and content of the Technical Specifications with the consistent application by the end user – the control room operating staff – in mind. Extraneous requirements not related to the proper operation and control of plant systems were relocated from the ISTS consistent with the Final Policy Statement on Technical Specification improvement. The ISTS should not be a repository for licensee commitments unrelated to that mission.