From: Kuntz, Robert
Sent: Monday, October 26, 2020 1:27 PM
To: Gohdes, Peter D.
Cc: Scott, Sara
Subject: Monticello Request for Additional Information RE: TSTF-505 license amendment request
Attachments: Monticello 505 DRAIs.docx

Mr. Gohdes,

By letter dated December 16, 2019, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20090F820) Northern States Power Company, a Minnesota corporation doing business as Xcel Energy (NSPM), submitted a license amendment request (LAR) for the Monticello Nuclear Generating Plant (Monticello). The proposed amendment would modify the Monticello licensing basis to allow implementation of a traveler prepared by the Technical Specification (TS) Task Force (TSTF), Traveler 505 (TSTF-505), Revision 2, "Provide Risk-informed Extended Completion Times—RITSTF Initiative 4b" (ADAMS Package Accession No. ML18269A041). The Nuclear Regulatory Commission (NRC) staff has determined that additional information is required to complete the review. The attached is the NRC staff's Request for Additional Information (RAI). The NRC staff provided clarification on a previously transmitted draft RAI on October 20, 2020. During that call NSPM requested 60 days to provide a response to this RAI. Therefore the NRC staff expects a response by December 20, 2020. Additionally, the NRC staff determined that information sought in the draft RAI should be modified. That attached RAI contains the following modification from the draft RAI:

RAI 8: The draft RAI, RAI 8, included a request to explain how surrogates may be used programmatically. The NRC staff has determined the requested information is not required.
RAI 24: The draft RAI, RAI 24, included a request to justify that several proposed technical specification conditions do not result in the loss of function. The NRC staff has determined the requested information is not required.
RAI 26: The draft RAI, RAI 26, included a request to justify that LCO 3.4.3 in the proposed specification conditions does not result in the loss of function. The NRC staff has determined the requested information is not required.

The deletion of RAI 24 and 26 resulted in the renumbering of RAI 24 and 27 from the draft RAI.

Robert Kuntz
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NRC/NRR/DORL/LPL3

Hearing Identifier: NRR_DRMA
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Related to License Amendment Request

to Implement Technical Specification Task Force

Traveler TSTF-505, Revision 2,

"Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b"

Monticello Nuclear Generating Plant

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RAI 1 Probabilistic Risk Analysis (PRA) Upgrades Associated with PRA Model Updates

Regulatory Guide (RG) 1.200 "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," provides guidance for addressing PRA acceptability (Agencywide Documents Access and Management System (ADAMS) Accession No. ML090410014). It describes a peer review process using the ASME/ANS RA-Sa–2009, "Addenda to ASME/ANS RA-S–2008 Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications" (the PRA Standard), as one acceptable approach for determining the technical acceptability of the PRA.

The PRA Standard defines PRA upgrade as "the incorporation into a PRA model of a new methodology or significant changes in scope or capability that impact the significant accident sequences or the significant accident progression sequences." Section 1-5 of the PRA Standard states that upgrades of a PRA "shall receive a peer review in accordance with the requirements specified in the peer review section of each respective part of this standard."

Appendix 1-A of the PRA Standard identifies PRA upgrades as satisfying one of three criteria: (1) use of new methodology, (2) change in scope that impacts the significant accident sequences or the significant accident progression sequences, or (3) change in capability that impacts the significant accident sequences or the significant accident progression sequences.

Section 4 of Enclosure 2 to the LAR states that the internal events and internal flooding PRA was subject to a full-scope peer review in April 2013 against RG 1.200, Revision 2. The LAR further states a closure review of facts and observations (F&Os) was completed in October 2017 in accordance with the process documented in Appendix X to Nuclear Energy Institute (NEI) 05-04/07-12/12-06, "Close Out of Facts and Observations (F&Os)" (ADAMS Accession No. ML17086A431). Section 2 of Enclosure 2 of the LAR states that one model change constituted a PRA upgrade, which became the subject of a separate focused-scope peer review. Section 4 of Enclosure 2 of the LAR states that the internal events PRA model has since been updated. It is unclear to the NRC staff if any changes incorporated into the model, unrelated to F&O closures, were evaluated for potential PRA upgrades since the April 2013 peer review. In light of these observations:

a) Summarize the model changes performed for the internal events, including internal flooding, PRA since April 2013 that are not associated with the resolutions of closed F&Os. This description should be of sufficient detail to determine whether the changes are considered PRA maintenance or PRA upgrades as defined in the PRA Standard, Section 1-5.4, as qualified by RG 1.200. For each change, indicate whether the change was PRA maintenance or a PRA upgrade, along with justification for this determination.

b) For any of these changes that are determined to be a PRA upgrade, confirm that focused-scope peer review(s) have been conducted. Describe the peer review(s) and status of the resulting F&Os. Provide any of these F&Os that are not yet closed, along with their disposition with respect to this application.

RAI 2 Generic Fire PRA Questions

Relatively extensive and detailed reviews of fire PRAs were undertaken in support of each LAR to transition to National Fire Protection Association Standard 805 (NFPA-805) "Performance-Based Standard for Fire Protection for Light-Water Reactor Electric Generating Plants, 2001 Edition" which has not been completed for Monticello.

The NRC staff evaluates the acceptability of the PRA for each new risk-informed application. RG 1.200 states that “NRC reviewers... [will] focus their review on key assumptions and areas identified by peer reviewers as being of concern and relevant to the application.” As discussed in RG 1.174, Revision 3, “An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis,” (ADAMS Accession No. ML17317A256) the staff recognizes that the acceptable technical adequacy of risk analyses necessary to support regulatory decision making may vary with the relative weight given to the risk assessment element of the decision-making process. Using more defensible and less simplified assumptions could substantively affect the fire risk and fire risk profile of the plant. The NRC staff notes that the calculated results of the PRA are used to estimate a risk-informed completion time (RICT), which subsequently determines how long systems, structures, and components (SSCs) controlled by TSs (both individual SSCs and multiple, unrelated SSCs) can remain inoperable. Therefore, the PRA results are given a very high weight in an application for TSTF-505 “Provide Risk-Informed Extended Completion Times” (ADAMS Accession No. ML18183A493). The NRC staff requests additional information on the following issues that have been previously identified as potentially key fire PRA assumptions:

a) Use of unreviewed methods:
The LAR provides the history of the fire PRA peer review. Section 5 of LAR Enclosure 2 states that the March 2015 peer review determined that no unreviewed analysis methods were used. It is unclear to the NRC staff what criteria were used by the peer review team to determine what constitutes an unreviewed method. Methods may have been used in the fire PRA that deviate from NUREG/CR-6850, "EPRI/NRC-RES Fire PRA Methodology for Nuclear Power Facilities," (ADAMS Accession Nos. ML052580075 and ML052580118) or other acceptable guidance that may have been used, e.g., frequently asked questions, NUREGs, or interim guidance documents.

   i. Identify methods used in the fire PRA that deviate from guidance in NUREG/CR-6850 or other acceptable guidance.
   ii. If such deviations exist, then justify their use in the fire PRA and impact on the RICT.
   iii. As an alternative to item ii above, add an implementation item to replace those methods with a method acceptable to NRC prior to the implementation of the RICT program. If an implementation item is proposed, include a description of the replacement method along with justification that it is consistent with NRC-accepted guidance.

b) Reduced transient heat release rates
The key factors used to justify using transient fire reduced heat release rates (HRRs) below those prescribed in NUREG/CR-6850 are discussed in a letter from the NRC to NEI (ADAMS Package Accession No. ML 12172A406).

If any reduced transient HRRs below the bounding 98% HRR of 317 kW from NUREG/CR-6850 were used, discuss the key factors used to justify the reduced HRRs. Include in this discussion:

i. Identification of the fire areas where a reduced transient fire HRR is credited and what reduced HRR value was applied.
ii. A description for each location where a reduced HRR is credited, and a description of the administrative controls that justify the reduced HRR including how location-specific attributes and considerations are addressed. Include a discussion of the required controls for ignition sources in these locations and the types and quantities of combustible materials needed to perform maintenance. Also, include discussion of the personnel traffic that would be expected through each location.
iii. The results of a review of records related to compliance with the transient combustible and hot work controls.

c) Obstructed plume model:
NUREG-2178, "Refining and Characterizing Heat Release Rates from Electrical Enclosures During Fire (RACHELLE -FIRE), Volume 1: Peak Heat Release Rates and Effect of Obstructed Plume," (ADAMS Accession No. ML16110A140) contains refined peak HRRs, compared to those presented in NUREG/CR-6850, and guidance on modeling the effect of plume obstruction. Additionally, NUREG-2178 provides guidance that indicates that the obstructed plume model is not applicable to cabinets in which the fire is assumed to be located at elevations of less than one-half of the cabinet.

i. If obstructed plume modeling was used, then indicate whether the base of the fire was assumed to be located at an elevation of less than one-half of the cabinet.
ii. Justify any modeling in which the base of an obstructed plume is located at less than one-half of the cabinet's height.
iii. As an alternative to item ii above, add an implementation item to remove credit for the obstructed plume model in the fire PRA prior to the implementation of the RICT program.

d) Systems not credited in the fire PRA:
The NRC staff notes that some conservative PRA modeling could have a nonconservative impact on the RICT calculations. If an SSC is part of a system not credited in the fire PRA or it is supported by a system that is assumed to always fail, then the risk increases due to taking that SSC out of service is masked. Therefore, address the following:

i. Identify the systems or components that are assumed to be always failed in the PRA or not included in the PRA (due to lack of cable tracing or other reasons). Justify that this assumption has an inconsequential impact on the RICT calculations.
ii. As an alternative to item (i), above, propose a mechanism to ensure that a sensitivity study is performed for applicable SSCs which accounts for the impact on the RICT of the 1) nonconservative PRA assumption of failed SSCs or 2) SSCs not included in the PRA model. The proposed mechanism should also ensure that any additional risk from correcting the false assumption that the SSC is always failed is either accounted for in the RICT calculation or is compensated for by applying additional risk management actions (RMAs) during the RICT.

e) Well-sealed Motor Control Center (MCC) cabinets:
Guidance in Frequently Asked Question 08-0042, “Fire Propagation from Electrical Cabinets” (from Supplement 1 of NUREG/CR-6850) applies to electrical cabinets below 440 V. With respect to Bin 15 as discussed in Chapter 6, it clarifies the meaning of "robustly or well-sealed." Thus, for cabinets of 440 V or less, fires from well-sealed cabinets do not propagate outside the cabinet. For cabinets of 440 V and higher, the original guidance in Chapter 6 remains and recommends that Bin 15 panels which house circuit voltages of 440 V or greater are counted because an arcing fault could compromise panel integrity (an arcing fault could burn through the panel sides, but this should not be confused with the high energy arcing fault type fires)."

Fire PRA FAQ 14-0009, “Treatment of Well-Sealed MCC Electrical Panels Greater than 440V” (ADAMS Accession No. ML15119A176) provides the technique for evaluating fire damage from MCC cabinets having a voltage greater than 440 V. Therefore, propagation of fire outside the ignition source panel must be evaluated for all MCC cabinets that house circuits of 440 V or greater.

i. Describe how fire propagation outside of well-sealed MCC cabinets greater than 440 V is evaluated.
ii. If well-sealed cabinets less than 440 V are included in the Bin 15 count of ignition sources, provide justification for using this approach.

f) Fire PRA methods for outdated fire PRA and peer review:
LAR Enclosure 9, Section 3 states that the Monticello fire PRA was developed using consensus methods outlined in NUREG/CR-6850 and interpretations of technical approaches as required by the NRC. Part (e) of proposed TS 5.5.16 states that the approaches and methods used in the RICT program shall be acceptable to the NRC. Methods to assess risk must be those used to support the LAR or other methods approved by NRC for generic use.

There have been some changes to the fire PRA methodology since the development of the Monticello fire PRA that was peer reviewed. The integration of NRC-accepted fire PRA methods and studies described in NUREG-2180 “Determining the Effectiveness, Limitations, and Operator Response for Very Early Warning Fire Detection Systems in Nuclear Facilities (DELORES-VEWFIRE),” (ADAMS Accession No. ML16343A058) that are relevant to this submittal could potentially impact the TSTF-505 results, core damage frequency (CDF), or large early release fraction (LERF).

Section 2.5.5 of RG 1.174 provides guidance that indicates additional analysis is necessary to ensure that contributions from the above influences would not change the conclusions of the LAR.

i. Provide a detailed justification for why the integration of the above NRC-accepted fire PRA methods and studies would not significantly impact the RICT calculation. As part of this justification, identify potential fire PRA methodologies used in the fire PRA that are no longer accepted by the NRC staff. Provide technical justification for methods in your PRA that have not yet been accepted by the NRC staff and evaluate the significance of their use on the RICT estimates.
ii. Alternatively, if the above guidance has been implemented in your PRA, provide the following:
    1. Indicate whether the changes to the fire PRA are PRA maintenance or a PRA upgrade as defined in the PRA Standard, Section 1-5.4, as qualified by RG 1.200, along with justification for the determination.
    2. Discuss any focused- or full-scope peer review performed to evaluate the changes that were determined in item 1 above to constitute a PRA upgrade. Including when the peer review was performed and when the peer review report that evaluated the upgrade was approved.

RAI 3 Joint Human Error Probability Floor

NUREG-1921 "EPRI/NRC-RES Fire Human Reliability Analysis Guidelines- Final Report," (ADAMS Accession No. ML12216A104) discusses the need to consider a minimum value for the joint probability of multiple human failure events (HFEs) in human reliability analyses (HRAs). NUREG-1921 refers to Table 2-1 of NUREG-1792, "Good Practices for Implementing Human Reliability Analysis (HRA)," April 2005 (ADAMS Accession No. ML051160213), which recommends that joint human error probability (HEP) values should not be below 1E-5. Table 4-4 of EPRI 1021081 “Establishing Minimum Acceptable Values for Probabilities of Human Failure Events," provides a lower limiting value of 1E-6 for sequences with a very low level of dependence. Therefore, the guidance in NUREG-1921 allows for assigning joint HEPs that are less than 1E-5, but only through assigning proper levels of dependency.

TSTF-505 evaluations use the fire PRA and the internal events PRA. The LAR does not provide information about whether and, if so what, minimum joint HEP value is currently assumed. Also, even if the assumed minimum joint HEP values are shown to have no impact on the PRA risk estimates, it is not clear to the NRC staff how it will be ensured that the impact remains minimal for future PRA model revisions. In light of these observations:

a) For the internal events PRA

   i. Explain what minimum joint HEP value was assumed.
   ii. If a minimum joint HEP value less than 1E-06 was used, describe the sensitivity study that was performed and the quantitative results that justify that the minimum joint HEP value has no impact on the RICT application.
   iii. If the minimum joint HEP value evaluated in ii cannot be shown to have no impact on the application, confirm that it is justified by demonstrating that the EPRI 1021081 lower value guideline does not apply (e.g., using such criteria as the dependency factors identified in NUREG-1921 to assess level of dependence).

b) For the fire PRA

   i. Explain what minimum joint HEP value was assumed.
   ii. If a minimum joint HEP value less than 1E-05 was used, describe the sensitivity study that was performed and the quantitative results that justify that the minimum joint HEP value has no impact on the RICT application.
   iii. If the minimum joint HEP value evaluated in ii cannot be shown to have no impact on the application, confirm that it is justified by demonstrating that the EPRI 1021081 lower value guideline does not apply (e.g., using such criteria as the dependency factors identified in NUREG-1921 to assess level of dependence).

c) Estimate how many joint HEP values addressed in a and b fall below the guideline values. Discuss the range of values used. For each PRA, provide examples where this justification is applied (at least two if they exist).

RAI 4 PRA Model Update Process

Section 2.3.4 of NEI 06-09, "Risk-Managed Technical Specifications (RMTS) Guidelines" (ADAMS Accession No. ML12286A322), specifies that "[c]riteria shall exist in PRA configuration risk management to require PRA model updates concurrent with implementation of facility changes that significantly impact RICT calculations."

LAR Enclosure 7 states that if a plant change or a discovered condition is identified with potential significant impact on the RICT calculations then an unscheduled update of the PRA models will be implemented. More specifically, the LAR states that if the plant changes meet specific criteria defined in the plant PRA and update procedures, including criteria associated with consideration of the cumulative risk impact, then the change will be incorporated into applicable PRA models without waiting for the next periodic PRA update.

The LAR does not explain under what conditions an unscheduled update of the PRA model will be performed or the criteria defined in the plant procedures that will be used to initiate the update.

a) Describe the conditions under which an unscheduled PRA update (i.e., more than once every two refueling cycles) would be performed and the criteria that would be used to require an unscheduled PRA update.

b) Describe how the impact on the RICT program is considered when reviewing plant changes or conditions for implementation in the PRA. In the response define what is meant by “significant impact to the RICT Program calculations.”

RAI 5 Implementation Items

The NRC safety evaluation (ADAMS Accession No. ML071200238) approving NEI 06-09 states that “RG 1.174, Revision 1, and RG 1.200, Revision 1 define the quality of the PRA in terms of its scope, level of detail, and technical adequacy. The quality must be compatible with the safety implications of the proposed TS change and the role the PRA plays in justifying the change.” NEI 06-09 states that the “PRA shall be reviewed to the guidance of [RG 1.200,] Rev. 0 for a PRA which meets Capability Category (CC)-II for the supporting requirements of the ASME internal events at power PRA Standard. Deviations from these capability categories relative to the RMTS program shall be justified and documented.” NEI 06-09 further clarifies that the “PRA shall be maintained and updated in accordance with approved station procedures to ensure it accurately reflects the as-built, as-operated plant.”

LAR Attachment 5 lists three implementations items that must be complete prior to implementation of the program for RICT to satisfy the guidance that the PRA reflect the as-built, as-operated plant and that the PRA technical adequacy is acceptable prior to implementation of the RICT program. The three implementation items are:

- NSPM shall ensure that reactor protection system (RPS) instrumentation is modeled in the Monticello PRA with sufficient detail to accurately calculate a RICT.
- NPSM shall ensure that mechanical vacuum pump system (MVP) and isolation instrumentation are modeled in the MNGP PRA with sufficient detail to accurately calculate a RICT.
- NPSM shall ensure that the automatic depressurization system (ADS) and instrumentation is modeled in the Monticello PRA with sufficient detail to accurately calculate a RICT.

Attachment 5 also states that if implementation of any of these changes constitute a PRA upgrade as defined in the PRA Standard as endorsed by RG 1.200, then a focused-scope peer review will be completed and that any findings will be resolved and incorporated in the PRA prior to the implementation of the RICT program. However, it is unclear to the NRC staff how the addition of these system models will meet CC II of the PRA Standard for internal events and fire PRA.

Provide the details how each of the above systems will be adequately modeled and in accordance with the PRA Standard Capability Category II. Justify how the proposed modeling is sufficient for the RICT program. Include in this discussion how mechanical components, instrument channels, logic components, and other relevant system components will be modeled. For the RPS system, also address the items in RAI 7.a below.

RAI 6 Instrumentation and Controls

Concerning the quality of the PRA model, NEI 06-09 states, “RG 1.174, Revision 1, and RG 1.200, Revision 1 define the quality of the PRA in terms of its scope, level of detail, and technical adequacy. The quality must be compatible with the safety implications of the proposed TS change and the role the PRA plays in justifying the change.”

Based on documentation in the LAR, it is not clear to the NRC whether instrumentation and controls (I&C) are always modeled in sufficient detail to support implementation of TSTF-505. The following additional information is requested:

Explain how I&C is modeled in the PRA. Include the following:

a) the scope of the I&C equipment that is explicitly included (e.g., bistables, relays, sensors, integrated circuit cards)
b) description of the level of detail that is modeled (e.g., are all channels of an actuation circuit modeled?)
c) discussion of what data and whether plant-specific data is used
d) discussion of the associated TS functions for which a RICT can be applied.

RAI 7 Digital Instrumentation and Controls

Section 2.3.4 of NEI 06-09 states that PRA modeling uncertainties shall be considered in application of the PRA base model results to the RICT program. The NRC safety evaluation for NEI 06-09 states that this consideration is consistent with Section 2.3.5 of RG 1.177"An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications" (ADAMS Accession No. ML100910008). NEI 06-09 further states that sensitivity studies should be performed on the base model prior to initial implementation of the RICT program on uncertainties which could potentially impact the results of a RICT calculation and that sensitivity studies should be used to develop appropriate compensatory RMAs.

The NRC staff understands that Monticello has digital control systems. Regarding digital I&C, NRC staff notes the lack of consensus industry guidance for modeling these systems in plant PRAs to be used to support risk-informed applications. In addition, known modeling challenges exist such as the lack of industry data for digital I&C components, the difference between digital and analog system failure modes, and the complexities associated with modeling software failures including common-cause software failures. Though reliability data from vendor tests may be available, this source of data is not a substitute for in-the-field operational data. Given these challenges, the uncertainty associated with modeling a digital I&C system could impact the RICT program.

a) Provide the results of the sensitivity study performed for each digital system in the PRA model justifying that the uncertainty associated with modeling the system does not impact the RICT calculations. Also, present the baseline failure probability for the digital system (that is increased by a factor of 50 in the sensitivity case).
b) For any other digital systems that are credited in the PRA models, provide the results of a sensitivity study on the SSCs in the RICT program demonstrating that the uncertainty associated with modeling digital I&C systems has inconsequential impact on the RICT calculations.
c) As an alternative to item (b) above, identify which Limiting Conditions for Operation (LCOs) are determined to be impacted by digital I&C system modeling for which RMAs will be applied during a RICT. Explain and justify the criteria used to determine what level of impact to the RICT calculation require additional RMAs.

RAI 8 Surrogate Events in the PRA Models

The NRC safety evaluation for NEI 06-09 specifies that the LAR should provide a comparison of the TS functions to the functions modeled in the PRA. Justification should be provided to show that the scope of the PRA model is consistent with the licensing basis assumptions. Table E1-1 in Enclosure 1 to the LAR identifies each LCO proposed for inclusion in the RICT program. It describes how the systems and components covered in the TS LCO are implicitly or explicitly modeled in the PRA. For some TS LCO Conditions, the table explains that the associated SSCs are not modeled in the PRAs but will be conservatively represented using a surrogate event.

Note 6 to the table states "[low pressure coolant injection] LPCI loop select logic failure was used as a conservative surrogate. This basic event represents the probability that LPCI loop select fails in such a way that it causes LPCI injection to occur on the loop where the line break occurred." This note applies to several functions listed in Table E1-1:

LCO 3.3.5.1.B
  Function 2.h four Reactor Steam Dome Pressure – Low (Break Detection) channels
  Function 2.k two Reactor Steam Dome Pressure – Time Delay Relay (Break Detection) channels

LCO 3.3.5.1.C
  Function 2.i, eight Recirculation Pump Differential Pressure – High (Break Detection) channels
  Function 2.j, four Recirculation Riser Differential Pressure – High (Break Detection) channels
  Function 2.l, two Recirculation Pump Differential Pressure – Time Delay Relay (Break Detection) channels
  Function 2.m, two Recirculation Riser Differential Pressure – Time Delay Relay (Break Detection) channels

Explain why the proposed surrogate is conservative.

RAI 9 PRA Model Uncertainty Analysis Process

The NRC staff safety evaluation to NEI 06-09 specifies that the LAR should identify key assumptions and sources of uncertainty and licensees should assess and disposition each as to their impact on the RMTS application.

NUREG-1855, "Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decision Making, Main Report" (ADAMS Accession No. ML17062A466), presents guidance on the process of identifying, characterizing, and qualitative screening of model uncertainties.

LAR Enclosure 9 states that the process for identifying key assumptions and sources of uncertainties for the internal events and fire PRAs was performed using the guidance in NUREG-1855. The LAR explains that to identify key assumptions and sources of PRA modeling uncertainty (1) the internal events and fire PRA models and notebooks were reviewed for plant-specific issues and (2) generic sources of uncertainty identified in EPRI 1016737 “Treatment of Parameter and Modeling Uncertainty for Probabilistic Risk Assessments,” and 1026511 “Practical Guidance on the Use of Probabilistic Risk Assessment in Risk-Informed Applications with a Focus on the Treatment of Uncertainty,” were also reviewed for applicable issues. The LAR concludes for both the internal events and fire PRAs that “no specific uncertainty issues have been identified that would impact the RICT application,” and no candidate key assumption and sources of uncertainty were presented in the LAR.

Based on the discussion in the LAR, it is not clear to NRC staff what specific process and criteria were used to screen uncertainties from an initial comprehensive list of assumptions and sources of PRA modeling uncertainty (including those associated with plant-specific features, modeling choices, and generic industry concerns), in order to conclude that no uncertainty issues could impact the RICT calculations. It is also not clear whether certain key assumptions and sources of uncertainty were initially identified but found to be unimportant through use of sensitivity studies per guidance described in LAR Enclosure 9, Section 1.0.

Therefore, address the following:

a) Describe the specific Monticello process used to screen uncertainties from the initial comprehensive lists of PRA uncertainties (including those associated with plant-specific features, modeling choices, and generic industry concerns), in order to eventually conclude that the uncertainty issues could not impact the RICT calculations.
b) Include description of the criteria that was used to screen from a comprehensive listing of sources of uncertainty to a smaller set of key candidate assumptions and sources of uncertainty; and also describe the criteria used to justify that none of the key candidate assumptions and sources of uncertainty could have an impact on the RICT calculations. As part of this description, explain whether use of the results of sensitivity studies were included as part of the criteria that was used.

c) Include description of plant or PRA procedures, practices or processes that are used to support the identification and dispositioning PRA modeling uncertainty concerns (e.g., a PRA change database).
d) During the review of licensee's PRA uncertainty notebooks provided during the audit (see ADAMS Accession No. ML20154K763 for the NRC staff's audit plan), the staff noted three PRA assumptions that may impact the application but did not appear to be examined or dispositioned for the application. For two of the assumptions, results of sensitivity studies reported in the uncertainty notebook showed a significant impact on the base CDF (up to 200%). The first item regarded an assumption that the operators will vent containment to below 50 psig (for recator core isolation cooling (RCIC)) backpressure trip setpoint even though the Emergency Operating Procedures (EOPs) only direct the operators to vent below 56 psig. The second item was regarding the assumption that only rapidly evolving overpressure events lead to a rupture of containment and gradually evolving events, like the loss of containment heat removal (CHR), would create smaller leaks in containment to level off pressure so that a rupture would not occur. The third assumption was that RCIC is credited in the PRA model after battery depletion.

    i. To illustrate the process addressed in items a through c above, discuss how the three assumptions described were considered in the process for reviewing key assumptions and sources of uncertainties for the application.
    ii. Provide a disposition of the impact of these assumptions on the application.

RAI 10 Potential Loss of Function Condition (ECCS)

TSTF-505 Revision 2 does not allow for TS loss of function conditions (i.e., those conditions that represent a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE) in the RICT program.

LAR Enclosure 1, Table E1-1 appears to include an LCO that could represent TS loss of function because it allows a configuration that does not meet the design-basis success criteria:

> **TS LCO 3.5.1** (Emergency Core Cooling System). There are two LPCI subsystems and two Core Spray subsystems and that the design success criteria are "One LPCI subsystem and two Core Spray subsystems or Two LPCI subsystems and one Core Spray subsystem." Therefore, Condition D (two LPCI subsystems inoperable) and Condition E (One Core Spray Subsystem inoperable AND (One LPCI subsystem inoperable OR One or two LPCI pump(s) inoperable)) appear to be a loss of function.

Explain why this Condition does not represent a TS loss of function or remove the LCO Condition from the RICT program.

RAI 11 Credit for FLEX Equipment and Actions

The NRC staff assessed challenges to incorporating FLEX equipment and strategies into a PRA model (ADAMS Accession No. ML17031A269). With respect to equipment failure probability, the NRC staff drew the following conclusion:

> The uncertainty associated with failure rates of portable equipment should be considered in the PRA models consistent with the ASME/ANS PRA Standard as endorsed by RG 1.200. Risk-informed applications should address whether and how these uncertainties are evaluated.

With respect to HRA, NEI 16-06 Section 7.5 recognizes that the current HRA methods do not translate directly to human actions required for implementing mitigating strategies. Sections 7.5.4 and 7.5.5 of NEI 16-06 describe actions to which the current HRA methods cannot be directly applied, such as: debris removal, transportation of portable equipment, installation of equipment at a staging location, routing of cables and hoses; and those complex actions that require many steps over an extended period, multiple personnel and locations, evolving command and control, and extended time delays. In its assessment, the NRC staff drew the following conclusion:

> Until gaps in the human reliability analysis methodologies are addressed by improved industry guidance, [Human Error Probabilities] HEPs associated with actions for which the existing approaches are not explicitly applicable, such as actions described in Sections 7.5.4 and 7.5.5 of NEI 16-06, along with assumptions and assessments, should be submitted to NRC for review.

With regard to uncertainty, Section 2.3.4 of NEI 06-09 states that PRA modeling uncertainties shall be considered in application of the PRA base model results to the RICT program. It states that sensitivity studies should be performed on the base model prior to initial implementation of the RICT program on uncertainties which could potentially impact the results of a RICT calculation. It also states that the insights from the sensitivity studies should be used to develop appropriate RMAs, including highlighting risk significant operator actions, confirming availability and operability of important standby equipment, and assessing the presence of severe or unusual environmental conditions. Uncertainty exists in PRA modeling of FLEX, related to the equipment failure probabilities for FLEX equipment used in the model, the corresponding operator actions, and preinitiator failure probabilities. Therefore, FLEX modeling assumptions can be key assumptions and sources of uncertainty for RICTs proposed in this application.

Section 3 of Enclosure 2 of the LAR states that a limited amount of FLEX equipment is addressed in the PRA model in accordance with NEI 16-06. Specifically, two FLEX transfer cubes are credited to refill the diesel fire pump tank. Based on a sensitivity study, credit for this limited amount of FLEX equipment reduces CDF by ~1% and has no impact on LERF. Due to very small CDF and LERF impact, inclusion of the limited amount of FLEX equipment in the PRA model will have a minimal impact on the calculated RICT. However, no RICT-associated LCO sensitivity studies were provided to confirm the LAR statement.

Perform, justify, and provide results of LCO-specific sensitivity studies that assess impact on RICT due to FLEX failure probabilities and FLEX HEP. Part of the response include the following:

a) Justify values selected for the sensitivity studies, including justification of why the chosen values constitute bounding realistic estimates.
b) Provide numerical results on specific selected RICTs and discussion of the results;
c) If applicable, describe how the results of the sensitivity studies will be used to identify RMAs prior to the implementation of the RICT program, consistent with the guidance in Section 2.3.4 of NEI 06-09.

RAI 12 Real-Time Risk Model

Regulatory Position 2.3.3 of RG 1.174 states that the level of detail in the PRA should be sufficient to model the impact of the proposed licensing basis change. The characterization of the change should include establishing a cause-effect relationship to identify portions of the PRA affected by the change being evaluated. Full-scale applications of the PRA should reflect this cause-effect relationship in a quantification of the impact of the proposed licensing basis change on the PRA elements.

Section 4.2 of NEI 06-09 describes attributes of the tool used for configuration risk management (CRM) including:

- Model translation from the PRA to a separate CRM tool is appropriate; CRM fault trees are traceable to the PRA. Appropriate benchmarking of the CRM tool against the PRA model shall be performed to demonstrate consistency.
- CRM application tools and software are accepted and maintained by an appropriate quality program.

- The CRM tool shall be maintained and updated in accordance with approved station procedures to ensure it accurately reflects the as-built, as-operated plant.

Enclosure 8 of the LAR describes the attributes of the CRM tool for use in RICT calculations. The LAR explains that the internal events, internal flooding events, and fire events PRA models are maintained as separate models. The LAR also describes several changes made to the PRA models to support calculation of configuration-specific risk and mentions approaches for ensuring the fidelity of the real-time risk to the PRAs including real-time risk maintenance, documentation of changes, and testing.

Describe the benchmarking activities performed to confirm consistency of the real-time risk model results to the results of each PRA model of record (MOR), including periodicity of real-time risk updates compared to the MOR updates. Address each of the MORs (i.e., internal events, internal flooding events, and internal fire events) in the response.

RAI 13 Unspecified RICT Estimates

NEI 06-09 states the following with regard to high-risk configurations.

> RMTS evaluations shall evaluate the instantaneous core damage frequency (CDF), instantaneous large early release frequency (LERF). If the SSC inoperability will be due to preplanned work, the configuration shall not be entered if the CDF is evaluated to be greater or equal than 10-3 events/year or the LERF is evaluated to be greater or equal to 10-4 events/year. If the SSC inoperability is due to an emergent event, if these limits are exceeded, the plant shall implement appropriate risk management actions to limit the extent and duration of the high risk configuration.

NEI 06-09 prohibits voluntary entry into a high-risk configuration but it allows entry in such configurations due to emergent events with implementation of appropriate RMAs.

Table E1-2 of Enclosure 1 of the LAR provides RICT estimates for TS actions proposed to be in the scope of the RICT program. However, RICT estimates for several LCO actions (3.5.1.D and E, 3.8.4.B, 3.8.7.A and B) are not provided. In addition, Note 1 of Table E1 2 states:

> Several quantification results exceed the risk cap level of 1E-03 (CDF) or 1E-04 (LERF). Those LCOs are listed as “No Entry” given the quantified risk. However, it is possible that the LCO could be entered for a partial failure and would result in lower quantified risk. In a lower risk condition, entry into the RICT program would be allowed.

In light of these observations

a) Clarify the intent of your note and whether NEI 06-09 will be followed with regard to involuntary entries into high-risk configurations.
b) Explain what is meant by “LCO could be entered for a partial failure and would result in lower quantified risk.” Provide examples and associated RICT estimates.

RAI 14 PRA Modeling

Regulatory Position 2.3.3 of RG 1.174 states that the level of detail in the PRA should be sufficient to model the impact of the proposed licensing basis change. The characterization of the change should include establishing a cause-effect relationship to identify portions of the PRA affected by the change being evaluated. Full-scale applications of the PRA should reflect this cause-effect relationship in a quantification of the impact of the proposed licensing basis change on the PRA elements.

The NRC staff's safety evaluation for NEI 06-09 specifies that the LAR should provide a comparison of the TS functions to the PRA modeled functions and that justification be provided to show that the scope of the PRA model is consistent with the licensing basis assumptions. Regarding unmodeled SSCs, the evaluation states the following:

> NEI 06-09, Revision 0, specifically applies the RMTS only to those SSCs which mitigate core damage or large early releases. Where the SSC is not modeled in the PRA, and its impact cannot otherwise be quantified using conservative or bounding approaches, the RMTS are not applicable, and the existing frontstop CT would apply.

Further, Item 11 in Section 2.3 of TSTF-505, Revision 2, states:

> The traveler will not modify Required Actions for systems that do not affect core damage frequency (CDF) or large early release frequency (LERF) or for which a RICT cannot be quantitatively determined.

LAR Enclosure 1, Table E1-1, lists LCOs and corresponding PRA functions.

TS LCO 3.6.1.7.A: One required suppression chamber-to drywell vacuum breaker inoperable for opening. The design criterion is six out of eight suppression chamber-to-drywell vacuum breakers OPERABLE for Opening. The PRA success criteria is one suppression chamber-to drywell vacuum breaker OPERABLE for Opening.

a) Describe and justify the modeling of vacuum breakers in the PRA and the analysis performed to support the PRA success criteria.

TS LCO 3.7.2.A: One Emergency Service Water (ESW) subsystem inoperable. The comments state that "hydraulic analysis has been performed to show that ESW is not required to prevent CDF and LERF."

b) Justify inclusion of TS LCO 3.7.2.A in the scope of the RICT program if it does not impact CDF and LERF.

RAI 15 RICT Estimates

During the audit the NRC staff noted discrepancies in reported RICT estimates between LAR Table E1-2 and new revisions to the PRA documentation presented during the audit.

a) Confirm that the RICT estimates provided in the LAR are correct or provide updated RICT estimates. If updated estimates are provided, explain and justify any differences from the estimates provided in LAR Table E1-2.
b) For TS 3.5.1.D (Two LPCI subsystems inoperable for reasons other than Condition C or G) and TS 3.5.1.E (One Core Spray subsystem inoperable AND One LPCI subsystem inoperable OR One or two LPCI pump(s) inoperable) explain why LAR Table E1-2 specifies "No Entry," implying these conditions are high-risk configurations.

RAI 16 Fire Modeling

The LAR referred to risk evaluation and fire modeling analysis. The NRC staff was unable to fully evaluate the fire modeling performed as part of the fire probabilistic risk assessment (fire PRA). Regarding the acceptability of the fire PRA approach, methods, and data, describe the fire modeling calculational model or numerical methods (e.g., fire modeling tools and techniques) used in support of the fire PRA model.

RAI 17 Damage Thresholds

Part 4 of the PRA Standard (ASME/ANS RA-Sa–2009, "Addenda to ASME/ANS RA-S–2008 Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications") indicates that damage thresholds should be established to support the fire PRA. The standard further indicates that thermal impact(s) must be considered in determining the potential for thermal damage of structures, systems, and components and appropriate temperature and critical heat flux criteria must be used in the analysis.

Provide the following information:

a) Describe how the installed cabling in the fire areas was characterized, specifically with regard to the critical damage threshold temperatures and critical heat fluxes for thermoset and thermoplastic cables.
b) Explain how the damage thresholds for non-cable components (i.e., pumps, valves, electrical cabinets, etc.) were determined. Identify any non-cable components that were assigned damage thresholds different from those for thermoset and thermoplastic cables and provide a technical justification for these damage thresholds.
c) Describe the damage criteria that were used for exposed temperature-sensitive electronic equipment. Explain how temperature-sensitive equipment inside an enclosure was treated and provide a technical justification for these damage criteria.

RAI 18 Heat Soak Method

The LAR states that in Revision 4.0 of the Monticello fire PRA model, enhanced fire modeling methods (heat soak) were added. Describe the heat soak method that was used to convert the damage times in Appendix H of NUREG/CR-6850 to a percent of damage function for targets exposed to a time-varying heat flux.

RAI 19 Bounding Seismic LERF Estimate

Section 2.3.1, Item 7, of NEI 06-09 states that the "impact of other external events risk shall be addressed in the Risk-Managed Technical Specifications (RMTS) program." It explains that one method to do this is by "performing a reasonable bounding analysis and applying it along with the internal events risk contribution in calculating the configuration risk and the associated Risk-Informed Completion Time (RICT)." The NRC staff's safety evaluation for NEI 06-09 states that "[w]here PRA models are not available, conservative or bounding analyses may be performed to quantify the risk impact and support the calculation of the RICT."

A seismic PRA model is not available for Monticello and the seismic hazard cannot be screened out for the RICT application. Section 3 of Enclosure 4 to the LAR stated that a seismic CDF and seismic LERF "penalty" was determined for this application using the current Monticello seismic hazard curve developed and reported in response to Recommendation 2.1 of the Near-Term Task Force (NTTF 2.1) provided by letter dated May 14, 2014 (ADAMS Accession No. ML14136A288). Section 3.1 of Enclosure 4 to the LAR stated that the total Monticello seismic CDF (SCDF) is estimated to be 3.0E-05 per year using Monticello value for high confidence in low probability of failure (HCLPF), the spectral ratios in the safety assessment for GI-199 "Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants: Safety/Risk Assessment" (ADAMS Accession No. ML100270639), and the hazard curves developed in response to NTTF 2.1. It is unclear to the staff why the licensee used the spectral ratios determined from the Individual Plant Examination of External Evevents submittals in GI-199 instead of developing them from the more recent hazard curves developed in response to NTTF 2.1 to determine the SCDF estimate.

Details of the approach for determining the seismic LERF "penalty" are provided in LAR Enclosure 4, Section 3.3 using the conditional large early release probability (CLERP) for internally initiated events with some adjustment (i.e., the contribution of certain containment bypass events that would not be expected from a seismic event were not included in the CLERP). The LAR states that the CLERP determined using this approach was chosen as an “adequately conservative” estimate. In addition, NRC staff notes that LERF-to-CDF ratio for seismic events can be significantly higher than the same ratio for internal events due to the unique nature of seismically induced failures. It is unclear that the selected CLERP of 5% represents a conservative or bounding estimate for use as the seismic LERF “penalty” in the proposed RICT calculations.

a) Justify the use of the GI-199 spectral ratios instead of spectral ratios developed from the Monticello seismic hazard curve in the response to NTTF 2.1 or update the Monticello SCDF “penalty” for the proposed RICTs using the spectral ratios from the recent seismic hazard curves.
b) Justify that the seismic LERF “penalty” provided in the submittal to support RICT calculations for the Monticello is conservative for this application. Include rationale that deriving seismic LERF-to-CDF ratio using the internal events LERF-to-CDF ratio is conservative or bounding for seismically induced events, given that internal events random failures do not capture seismically induced failures that may uniquely contribute to LERF.
c) If the approach to estimating the seismic LERF penalty cannot be justified as bounding for this application in response to item (b) above, then provide, with justification, the bounding seismic LERF “penalty” for use in RICT calculations.

RAI 20 Screening of Snow

Section 2.3.1, Item 7, of NEI 06-09 states that the “impact of other external events risk shall be addressed in the RMTS program,” and explains that one method to do this is by documenting prior to the RMTS program that external events that are not modeled in the PRA are not significant contributors to configuration risk. The safety evaluation for NEI 06-09 states, “Other external events are also treated quantitatively, unless it is demonstrated that these risk sources are insignificant contributors to configuration-specific risk.”

LAR Enclosure 4, Section 4 concludes that external hazards other than seismic events can be screened from consideration in the RICT program including snow. The LAR also states that hazards are evaluated for plant configurations allowed under the RICT program. LAR Enclosure 4, Table E4-2, indicates that criterion “C1” (event damage potential is less than events for which plant is designed) and criterion “C4” (event is included in the definition of another event) was used to screen the snow hazard. The LAR further states that the design-basis roof live load is 50 pounds per square foot (psf), the average snowfall per year in Monticello, Minnesota is 46.3 inches, and the maximum recorded snowfall from a single storm in Minnesota occurred near Finland, Minnesota and measured 46.5 inches with an estimated weight of 46.5 psf, which is within the design basis. However, considering the small margin between the design-basis roof live load and the average and maximum recorded snowfalls, it is unclear to the NRC staff how the assumptions that resulted in the screening based on criterion C1 and C4 will continue to remain valid during the proposed RICTs.

Discuss how existing procedures or RMAs will ensure that the assumptions for screening the risk from snowfall will be maintained during the proposed RICTs.

RAI 21 Operating Electrical Systems

The LAR includes proposed changes to TS 3.8.1, “AC Sources – Operating,” TS 3.8.4, “DC Sources – Operating,” and TS 3.8.7, “Distribution Systems – Operating.”

The LAR proposed to add the alternate RICT to the completion times of TS 3.8.7, “Distribution Systems – Operating,” Conditions A and B. The changed portion is indicated in italics.

Condition A: One or more AC electrical power distribution subsystems inoperable
Required Action A.1: Restore AC electrical power distribution subsystem(s) to OPERABLE status
Completion Time: 8 hours

OR
In accordance with the Risk-Informed Completion Time Program
Condition B: One or more DC electrical power distribution subsystems inoperable
Required Action B.1: Restore DC electrical power distribution subsystem(s) to OPERABLE status
Completion Time: 2 hours
OR
In accordance with the Risk-Informed Completion Time Program

The TS LCO 3.8.7 requires Division 1 and Division 2 AC and DC electrical power distribution subsystems to be operable.

However, TSTF-505 excludes conditions for loss of function from the RICT program. Specifically, it recommends adding a note to certain RICTs in the TS to exclude the case for a loss of function if the TS Condition is applicable to "one or more" inoperable channels, subsystems, or trains.

The NRC staff notes that in some cases, the Monticello TS 3.8.7 Condition A or Condition B would be a loss of function condition. For example, if both 125/250-Volt DC distribution panels in the Division 1 and Division 2 electrical power distribution subsystems were inoperable, the LAR Table E1-1 design success criterion (i.e., one AC electrical power distribution subsystem capable of supporting minimum safety functions) for Condition A would be defeated resulting in a loss of function. Also, if both 4.16-Kilovolt essential buses in Division 1 and Division 2 electrical power distribution subsystems were inoperable, the LAR Table E1-1 design success criterion (i.e., one DC electrical power distribution subsystem capable of supporting minimum safety functions) for Condition B would be defeated resulting in a loss of function. However, the proposed alternate RICTs do not include the note, as recommended by TSTF-505, to exclude the cases for loss of function of TS 3.8.7 Condition A or Condition B from the RICT program.

The staff requests the following information to address this discrepancy:

a) Discuss with supporting documentation how the Monticello design-basis functions are met without loss of safety function of the AC and DC electrical power distribution systems in Monticello TS 3.8.7 Condition A and Condition B, respectively.
b) If in the response to item a. above, any of the plant configurations of TS 3.8.7 Conditions A and B result in a TS loss of function condition, explain this apparent inconsistency with TSTF-505 or provide an updated TS markup that excludes the TS loss of function conditions from the proposed RICT program, as recommended.

RAI 22 ECCS Success Criteria

Item 7 in Section 2.4 of the Monticello LAR indicates that TS LCO 3.5.1, Emergency Core Cooling System (ECCS) – Operating, requires each ECCS injection/spray subsystem and the ADS function of three safety/relief valves be OPERABLE, and that the remaining OPERABLE ECCS subsystems would provide adequate core cooling during a loss-of-coolant accident (LOCA) for the following conditions:

1. Condition B: One Low Pressure Coolant Injection (LPCI) subsystem inoperable for reasons other than Condition A, or, one Core Spray subsystem inoperable;
2. Condition C: One LPCI pump in both LPCI subsystems inoperable;
3. Condition D: Two LPCI subsystems inoperable for reasons other than Condition C or G;
4. Condition E: One Core Spray subsystem inoperable and one LPCI subsystem inoperable; or one Core Spray subsystem inoperable and one or two LPCI pump(s) inoperable.

LAR Table E1-1, "In-scope TS/LCO Conditions to Corresponding PRA Functions," lists the remaining OPERABLE ECCS subsystems in the column of Design Success Criteria for TS 3.5.1 Conditions B, C, D, and E in the columns of MNGP TS 3.5.1.B, 3.5.1.C, 3.5.1.D, and 3.5.1.E, respectively.

Discuss the analysis of record (AOR) that demonstrates that the remaining OPERABLE ECCS subsystems could provide adequate core cooling during a LOCA for TS 3.5.1 Conditions B, C, D, and E. Reference the NRC documents approving the AOR relevant to this concern or address the acceptability of the AOR if not previously approved by the NRC.

RAI 23 ADS Success Criteria

TSTF-505 excludes loss of function conditions from the RICT program. LAR Table E1-1, "In-scope TS/LCO Conditions to Corresponding PRA Functions," lists TS LCO 3.5.1.K, a condition with one ADS valve inoperable, and indicates that three ADS valves are required to be OPERABLE. The column of "Design Success Criteria" indicates that three ADS valves are available.

Clarify for TS 3.5.1.K Condition with one of three required ADS valves inoperable, that the design success criteria need two or three available ADS valves. Discuss the AOR that demonstrated adequacy of two or three ADS valves for reactor pressure vessel rapid depressurization to mitigate the LOCA consequences and reference the NRC documents approving the AOR of the concern or address the acceptability of the AOR if it was not previously approved by the NRC.

RAI 24 Diversity and Manual Actuation

Attachment 5 Enclosure 1 Section 3 of the LAR provides descriptions of the I&C system design features including its redundancy. This section, however, does not provide adequate information to demonstrate sufficient diversity is maintained. This diversity position was established in the TSTF-505, Revision 2. In addition, the RG1.174 Revision 2 states the licensee should "assess whether the proposed LB [licensing basis] change meets the defense-in-depth principle" by not "over-relying on programmatic activities as compensatory measures associated with the change in the LB". The RG1.174, Revision 3, further elaborates that human actions (e.g., manual system actuation) are considered as one type of compensatory measure.

a) Please provide additional information to demonstrate that at least one redundant or diverse means (e.g., other automatic features or manual action) to accomplish the safety functions (e.g., reactor trip, safety injection, or containment isolation) remain available during the use of the RICT for all Design Basis Accidents analyzed in Updated Safety Analysis Report Chapter 15. An example of the diversity justification that has been previously accepted by staff can be found in the precedent LAR at ADAMS Accession No. ML19280C844, or RAI at ADAMS accession No. ML19224B705.
b) If the diverse means the licensee identified are manual actuations, confirm that these "manual actuations" are modeled in the plant PRA, defined in plant operation procedures to which operators are trained, and confirm the completion times associated with these actions are evaluated as adequate.

RAI 25 Differences Between TSTF-505 and the LAR

The LAR proposed to modify TS requirements to permit the use of Risk-Informed Completion Times in accordance with TSTF-505, Revision 2, "Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b." The amendment requests to make changes to TS 3.6.1.3 "Primary Containment Isolation Valves (PCIVs)"

TSTF-505, Revision 2 TS 3.6.1.3 "Primary Containment Isolation Valves (PCIVs)" pertaining to BWR/4 STS (page 591 of 850) contains the following:

Condition E requires additional justification. RAs A.2, C.2, E.2 and E.3 to specify the periodic performance of an action and Conditions F, G, and H are default Conditions. Therefore, they are excluded. Conditions B, C, and D are excluded.

The following differences were noted by the NRC staff between TSTF-505, Revision 2 and the LAR:

- The LAR “Completion Time” for C.2 has an AND statement that reads in entirety “Prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if performed within the previous 92 days, for isolation devices inside primary containment.” This AND statement does not appear in the corresponding TSTF-505 Revision 2.

- Conversely, TSTF-505 Revision 2 Condition E.2 contains a similar (not identical) AND statement that is not replicated for the “Completion Time” of LAR D.2.

- The LAR “Completion Time” for the “Required Action” of D.1 proposes to invoke “INSERT RICT 2.” TSTF-505. Revision 2 for the “Required Action” of E.1 of the counterpart “Completion Time” proposes to invoke the equivalent of LAR “INSERT RICT 1.” The difference between “INSERT RICT 2” versus “INSERT RICT 1” consists of the former including a NOTE to the effect “Not applicable when a loss of function occurs.”

- TSTF-505, Revision 2 has an E.3 “Required Action” of “Perform SR 3.6.1.3.7 for resilient seal purge valves closed to comply with Required Action E.1” with a “Completion Time” of “Once per [92] days [following isolation].” The staff notes that in the LAR there is no corresponding D.3 invoking SR 3.6.1.3.11.

The LAR does not address the above identified differences between the proposed changes of the LAR and TSTF-505, Revision 2.

Provide justification of the noted differences between the LAR and TSTF-505, Rev 2. Include justification for the conclusion that the proposed change to TS 3.6.1.3 does not represent a loss of function.