

**NRC Staff Disposition of Comments to October 9, 2009, *Federal Register* Notice, “Notice of Opportunity for Public Comment on the Proposed Model Safety Evaluation for Plant-Specific Adoption of Technical Specification[s] Task Force Traveler [TSTF]-513, Revision 2, ‘Revise PWR Operability Requirements and Actions for RCS Leakage Instrumentation’”**

Original comment submittals can be found by searching on docket ID NRC-2009-0444 at [www.Regulations.gov](http://www.Regulations.gov).

**Comments received from the Technical Specifications Task Force (TSTF)**

1. In multiple locations, The Notice refers to “Traveler-513” or TSTF Traveler-513.” The correct reference is “TSTF-513” or “Traveler TSTF-513.” The numerical designation is hyphenated with the prefix “TSTF,” not the document type “Traveler.”

**Response:** The references have been corrected.

2. The word “Traveler” is misspelled in the subject line in the model application.

**Response:** The misspelled word has been removed from the subject line in the model application

3. The cover letter for a license amendment request contains a general description of the proposed change. The second paragraph of the model application states, “[Discuss any differences with Traveler-513, Revision 2.]” The third paragraph of the model application states, “The proposed amendment contains a less restrictive TS change. The less restrictive change is justified because alternate RCS leakage monitoring methods are required to be performed when no required monitoring methods are Operable. Further detailed justification is contained in Attachment 1.” In both cases, this level of detail is unnecessary for the license amendment request cover letter. We recommend that the bracketed sentence and the third paragraph be deleted.

**Response:** The bracketed sentence and third paragraph has been deleted from the Model LAR.

4. The model application includes an Attachment 6, which provides the regulatory commitments. There are no regulatory commitments discussed in the model Safety Evaluation. References to Attachment 6 should be deleted.

**Response:** An administrative error deleted Attachment 6 from the model. The commitment that should have been part of the proposed model is that the licensee’s RCS mass balance is capable of identifying a one gpm RCS leak rate and uses instrumentation readily available to control room operators. Upon further review, the Staff has determined that the licensee commitment is unnecessary because Section 4.0 of the model LAR states that the licensee’s RCS mass balance is capable of identifying

a one gpm RCS leak rate and uses instrumentation readily available to control room operators.

5. Attachment 3 of the model application provides the existing TS Bases pages marked up to show the proposed change. Attachment 5 of the model application provides the proposed TS Bases changes in final typed format. The Bases revisions in TSTF-513 are material to the changes being proposed and are discussed in the model Safety Evaluation. Therefore, we agree that licensees should provide the Bases revisions, even though the Bases are controlled under the Technical Specification Bases Control Program and do not require NRC approval. However, licensees should not be required to provide "proposed TS Bases changes in final typed format." Requiring submittal of Bases changes in final typed format goes beyond the NRC's interest in the proposed Bases changes and is not relevant to the NRC Staffs finding in the Safety Evaluation. It imposes unnecessary burden on the licensee and implies that the NRC Staff is approving the final Bases, which are actually approved by the licensee under the licensee's Technical Specifications Bases Control Program. Attachment 5 should be deleted.

**Response:** The NRC staff does not believe that TS Bases changes in final typed format are necessary to support its review of TSTF-513 license amendment requests. Accordingly, the model license amendment application has been updated to remove references to licensees providing this information.

6. Section 1.0, "Description," of the model application, first paragraph, contains the sentence, "[Minor differences between the proposed plant-specific TS changes, and the changes proposed by Traveler-513 are listed in Section 2.0.]" We recommend that this sentence be deleted. The sentence is not optional (as indicated by the brackets) and adds no value. Section 2.0 describes all differences (minor or otherwise) or states that there are no differences.

**Response:** The Staff agrees with this comment, the sentence has been deleted from the Model LAR

7. Section 5.1 of the model application is titled "No Significant Hazards Determination." In order to be consistent with the terminology used in Regulatory Issue Summary 2001-22, "Attributes of a Proposed No Significant Hazards Consideration Determination," and industry practice, we recommend using the title, "No Significant Hazards Consideration Determination" (NSHCD) in the model application.

**Response:** The Staff agrees with this comment, the title of section 5.1 has been change in the Model LAR

8. Section 5.1 of the model application, "No Significant Hazards Determination," (NSHD) [sic] contains two conflicting statements. It first states that the licensee has reviewed the NSHCD published in the Federal Register and concluded that it is applicable. It then states that the licensee has performed an NSHCD evaluation and requires that the licensee provide their analysis.

This is a significant departure from the Consolidated Line Item Improvement Process (CLIIP). (Note that TSTF-513 is proposed to be made available under the CLIIP.)

Regulatory Issue Summary 2000-06, "Consolidated Line Item Improvement Process for Adopting Standard Technical Specifications Changes for Power Reactors," states (emphasis added):

*In an effort to make the NRC work processes more visible, the NRC staff will solicit stakeholder comments on the associated change to the STS, the staff's safety evaluation (SE), and the proposed no significant hazards consideration determination (PNSHCD) before finalizing its acceptance of a TSTF change. Following NRC acceptance of a TSTF change, licensees, as well as the NRC staff will be able to use the relevant documentation from the NRC-accepted TSTF change in the preparation and processing of license amendment applications.*

*The licensees desiring to adopt a specific TSTF change using the CLIP will need to verify that the proposed change is applicable to their facilities. The NRC announcement and the staff's SE will specify any plant-specific verification or other information required in licensees' applications. The licensees may apply for license amendments by citing the applicability of the PNSHCD and the SE for the accepted TSTF change and addressing any plant-specific information needed to support the staff's review.*

*Finally, with the licensee's adoption of the uniform description of the proposed change, the PNSHCD, and the SE for a TSTF change request, the CLIP would provide more disciplined and consistent adoption of the STS by way of a streamlined amendment process.*

Referencing the NSHCD published in the Federal Register has been used in the 35 model applications published by the NRC to date under the CLIP.

Requiring each licensee to submit a NSHCD reduces public involvement in the CLIP by rendering the NSHCD published in the Federal Register essentially irrelevant and undermines the "disciplined and consistent adoption" of the Traveler under a streamlined amendment process. The proposed model amendment also places the licensee in the position of either deviating from the model application or submitting an NRC developed NSHCD as if it were their own.

The TSTF has considered the legal requirements regarding the submittal of a NSHCD. 10 CFR 50.91, "Notice for public comment; State consultation," states, "(a) Notice for public comment. (1) At the time a licensee requests an amendment, it must provide to the Commission, in accordance with the distribution requirements specified in § 50.4, its analysis about the issue of no significant hazards consideration using the standards in § 50.92." There is no prohibition from referencing a NSHCD in a publically available source, such as the Federal Register. Licensees frequently reference other sources in their license amendment requests, such as NRC-approved Topical Reports, Regulatory Guides, and Codes and Standards. There is no basis for requiring that the NSHCD be repeated in the licensee's amendment request when doing so undermines the public involvement in the CLIP.

The TSTF recommends that Section 5.1 be revised to reference the NSHCD published in the Federal Register, consistent with the process described in RIS 2000-06.

**Response:** The Staff disagrees with this comment. The Staff is aware of the practice outlined in RIS 2000-06, and used in the past by which a licensee incorporated a previously published proposed NSHCD into its License Amendment Request (LAR) by reference. However, upon further review, the staff determined that licensees must submit their own NSHCD as part of their plant-specific LAR in order to comply with 10 CFR 50.91(a)(1). The Staff has provided a Model PNSHCD in the Model LAR for TSTF-513 as an example that the licensee may consider in preparing its plant-specific NSHCD to support adoption of TSTF-513. As stated in 10 CFR 50.91(a)(1), a licensee must “*provide* to the Commission, in accordance with the distribution requirements specified in § 50.4, *its* analysis about the issue of no significant hazards consideration.” It is clear from this requirement that referencing the Staff-provided Model PNSHCD does not meet the intent of the regulation. Therefore, the staff believes that incorporation of the staff’s Model PNSHCD into an LAR by reference would be insufficient to meet the requirement to provide the licensee’s own analysis to the commission. Accordingly, the model application has been revised by deleting the reference the NSHCD published in the Federal Register. The NSHCD generic analysis was retained as a model for adoption by licensees.

9. Section 6.0, “Environmental Consideration,” contains two conflicting statements. It first states that the licensee has reviewed the environmental evaluation published in the Federal Register and concluded that it is applicable. It then restates the environmental consideration. The environmental considerations section of the model application satisfies 10 CFR 51.22, “Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review.” Paragraph 10 CFR 51.22(b) states, “Except in special circumstances, as determined by the Commission upon its own initiative or upon request of any interested person, an environmental assessment or an environmental impact statement is not required for any action within a category of actions included in the list of categorical exclusions set out in paragraph (c) of this section.” The purpose of the “Environmental Consideration” section is to demonstrate that a categorical exclusion applies and an environmental review is not required. Referencing the Environmental Consideration section of the Federal Register Notice satisfies the requirement and increases public involvement in the determination through the CLIP Notice for Comment.

The TSTF recommends that Section 6.0 be revised to reference the Environmental Consideration published in the Federal Register.

**Response:** The Staff disagrees with this comment for reasons similar to those in the response to comment 8. 10 CFR 50.32, “Elimination of repetition,” allows licensees to incorporate by reference information contained in previous applications, statements or reports filed with the Commission: *Provided, That such references are clear and specific* (emphasis added). 50.32 cannot be applied for the Environmental consideration for two reasons. First, The staff’s model is not a licensee’s previous application, statement or report. Second, incorporation by reference would not meet the 50.32 provisions for clarity and specificity of such references. The model application has been revised by deleting the reference to the Environmental Consideration section of the model Safety Evaluation in the Federal Register Notice. The Environmental Consideration analysis was retained in the model application for adoption by licensees.

## **Comments Received from Michael Peck**

1. NRC approval of the proposed changes to Standard Technical Specification (STS) Bases 3.4.15, "Reactor Coolant System (RCS)," is not only contrary to reactor safety but would also set a dangerous precedent by allowing reactor license holders to credit non-functional equipment as OPERABLE for the purposes of Technical Specification compliance.

Contrary to Reactor Safety:

The proposed TSTF included changes to the TS Bases to "more accurately reflect the contents of the facility design basis related to operability of the RCS leakage detection instrumentation (ADAMS Accession No. ML091810158)." For most Westinghouse plants, RCS leakage is determined every 72 hours by a water inventory balance in accordance with STS 3.4.13, "RCS Operational Leakage." STS 3.4.15 requires RCS leakage detection systems to alert plant operations personal to an increase in RCS leakage that may occur during the interval between water inventory balances. The licensing/design basis for most Westinghouse leakage detection systems is provided in Regulatory Guide (RG) 1.45 "Guidance on Monitoring and Responding to Reactor Coolant System Leakage." RG 1.45 provides for the use of gaseous and particulate radiation detectors for use as RCS leakage detection provided they have the capability to detect a one gallon per minute leak rate within one hour. Also, STS 3.4.15 leakage detection systems preserves the integrity of key assumptions used in the resolution to Generic Letter 84-04, "Safety Evaluation of Westinghouse Topical Reports Dealing with Elimination of Postulated Pipe Breaks in PWR Primary Main Loops." The analysis described in Generic Letter 84-04 assumed that plant operators would identify a one gallon per minute RCS leak within 4 hours and take action to shutdown the reactor under the "leak before break" analysis.

Most Westinghouse FSARs describe the capability of the gaseous and particulate radiation leakage detectors assuming a RCS source term equivalent to 0.1 percent failed reactor fuel. However, PWRs operated in the US have a RCS source term several orders of magnitude lower than assumed in the design basis calculations. Because of the lower source term, some gaseous and particulate radiation detectors are not capable of alerting plant operators to a one gallon per minute RCS leak within a reasonable response time. For example, at Wolf Creek (ADAMS Accession No. ML043140279) and Callaway (ADAMS Accession No. ML032890577) the NRC estimated that greater than 500 hours was required before the gaseous monitor could detect a RCS leak using a realistic RCS source term. In addition the NRC has identified other examples, McGuire Nuclear Station (ADAMS Accession No. ML051190141), Diablo Canyon (ADAMS Accession No. ML083080113), Licensee Event Report 50-369/2005-01 (ADAMS Accession No. ML051310167), and NRC Information Notice 2005-24, "Non-Conservatism In Leakage Detection Sensitivity," where gaseous or particulate radiation leakage detectors were not cable of detecting a RCS leak within a reasonable time period due to low RCS activity. In addition, the assumed 0.1 percent failed reactor fuel used by Westinghouse describe the capability of the gaseous and particulate radiation leakage detectors is close to the RCS source term limit established in STS 3.4.16, "RCS Specific Activity," for reactor operation. As such, most, if not all, US PWR would not operate with source term equivalent to 0.1 percent failed fuel.

The proposed change to STS Bases 3.5.15 would allow power reactor licensee's to inappropriately credit operability of the gaseous and particulate radiation detectors for meeting TS 3.4.15 requirements while these systems are not capable of performing the

RCS leakage detection function. This change would permit licensee's to continue to assume a 0.1percent failed fuel source term in the system design while operating the reactor outside the bounds of this assumption. The end result is that the functional requirements and limits for RCS leakage detection, as discussed in RG 1.45, will not be met.

#### Changed to NRC Policy on Operability

The proposed amendment would create a significant change to previous NRC positions related to OPERABILITY of TS equipment. Attachment to RIS 2005-20, "Revision to NRC Inspection Manual Part 9900 Technical Guidance, "Operability Determinations & Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety," Revision 1, defined operable as:

"A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety functions, and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its function(s) are also capable of performing their related support function(s)."

If approved, the proposed STS Bases would allow licensee's to consider the gaseous and particulate radiation leakage detectors OPERABLE when this equipment is not capable of perform the specified safety functions. In this case, the function to alert plant operators of a one gallon per minute RCS leak within one hour. Based on the leakage detector response times determined by the NRC at Wolf Creek and Callaway, gaseous leakage detection systems would not alarm before the next 72 hour RCS water inventory balance is performed as required by STS 3.4.13.

Since the primary water corrosion event, involving the Davis-Besse reactor head, RCS leakage detection capability has become an increasingly sensitivity industry issue. The proposed change to clarify operability requirements of the gaseous and particulate radiation detectors is inconsistent with reactor safety objectives to alert reactor operators to increasing RCS leakage. This change would reduce confidence that reactor operators could identify and take action to shutdown a reactor consistent with the RCS leak before break assumptions. Also, this change is inconsistent with previous definitions of "operable" provided by the NRC. For these reasons, I recommend that the NRC not approve TFT-513.

**Response:** The Staff disagrees with this comment. The staff believes that TSTF-513 enhances safety by requiring licensees to monitor other indications of RCS leakage more frequently when the containment atmosphere gaseous radioactivity monitor is the only operable RCS leakage detection instrument. Furthermore, TSTF-513 makes changes to the TSs Bases for RCS leakage detection instrumentation to clarify the specified safety function for each required instrument. The attachment to RIS 2005-20, "Revision to NRC Inspection Manual Part 9900 Technical Guidance, 'Operability Determinations & Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety,'" Revision 1, expands on the definition of operability provided above with the following statement:

In order to be considered operable, an SSC must be capable of performing the safety functions specified by its design, within the required range of design physical conditions, initiation times, and mission times.

The proposed Bases changes capture the range of design physical conditions considered in the licensing basis to provide clear operability requirements. In addition, discussions that provide conflicting guidance on operability requirements in the Bases are removed. The changes do not allow licensees to credit non-functional equipment as operable.

The staff believes these changes are necessary due to confusion arising out of the design assumptions used for determining the sensitivity of the gaseous radiation monitors. The original design of these instruments was based on an assumed value of activity in the reactor coolant. Typically, the assumed value was the same as was specified in the licensee's Environmental Report (e.g., on the order of 0.1 to 0.2% fuel failure in the core). This assumption was specifically stated as being acceptable to the staff in RG 1.45. Given that initial condition, the gaseous radiation monitors would be able to detect a one gallon per minute (gpm) reactor coolant system leak within one hour. Nothing has changed in this regard. Given an activity level in the reactor coolant equivalent to 0.1 to 0.2% fuel failure, the gaseous radiation monitors are still able to detect a one gpm leak within one hour. However, the staff concluded that the intent of this design requirement was neither to cause licensees to operate with failed fuel nor provide an implausible capability to detect a one gpm leak within one hour with installed containment radioactivity monitors regardless of the activity level in the reactor coolant and the background radioactivity. This could serve as a disincentive to minimize damage to fuel cladding and reduce activity levels in the reactor coolant system (RCS). Rather, the staff intent is to encourage licensees to continue to minimize operation with failed fuel, keep activity levels in the RCS to a minimum, and maintain a variety of reasonably sensitive leakage detection systems because this enhances safety. Therefore, the staff feels that TSTF-513 changes to the TS are the best way to improve safety and address a long standing issue created by licensees lowering their RCS activity concentrations. The staff has considered alternatives to address the issue, such as lowering gaseous activity detector alarm setpoints or removing the detectors from TS. The licensing basis for many facilities includes measures to maintain the alarm setpoint at the lowest practicable setpoint that avoids potential distractions to the operators due to false alarms caused by background radiation levels, and the staff intends this information to be captured in the TS Bases. Deletion of the monitors from the TS would remove a tool that both the operators and the NRC staff find valuable in monitoring RCS leakage.

With regard to the need to detect a one gpm leak within one hour, the staff notes that this requirement is a level of sensitivity that is not needed to minimize the probability of a large pipe failure as demonstrated by experimental data and fracture mechanics analysis of piping material. In a July 18, 2002, letter to a member of the public regarding the leakage detection capability of RCS leakage detection systems, the staff acknowledged that it is not necessary to detect a one gpm leak rate within one hour in order to achieve the goal of reasonable assurance that such leaks will be detected in time to prevent large piping failures (ADAMS Accession No. ML021750003). Furthermore, the NRC's most recent revision to RG 1.45, published in May 2008 (ADAMS Accession No. ML073200271), no longer states that containment atmosphere gaseous radioactivity monitors should be capable of detecting a one gpm RCS leak within one hour.

With regard to the comment that the TSTF-513 changes would "reduce confidence that reactor operators could identify and take action to shutdown a reactor consistent with the RCS leak before break assumptions," the staff notes that an important consideration is that the gaseous radiation monitors is just one instrument of three in the RCS leakage detection system. The staff believes that it is the combination of all three diverse leakage detection

sensors that provides the maximum potential for early detection of a leak. Some licensees in response to the gaseous radiation monitor concerns have obtained license amendments to remove the gaseous radiation monitors from their TS, reducing their leakage detection systems to two instruments. The staff does not believe this is the best way to address this problem. In addition, as previously stated, the changes require more frequent monitoring of other leakage detection methods when the containment atmosphere gaseous radioactivity monitor is the only operable RCS leakage detection instrument. The staff feels that the appropriate approach to address the issue is requiring operators to monitor other leakage detection methods more frequently to ensure early identification and detection of an RCS leak such that leak before break assumptions are maintained.

With regard to the comment stating that "TSTF-513 is a change to NRC Policy on operability," the staff notes that the TSTF-513 changes do not change the definition of the term operable. The changes revise the licensing basis to provide clarity to the specified safety function for each required instrument in the TS Bases. The changes also revise the conditions, required actions, and completion times for inoperable RCS leakage detection instrumentation. However, after review of the comments, the staff determined that the language in the Models describing the revision of RCS leakage detection instrumentation operability requirements is somewhat inaccurate. Among other things, TSTF-513 changes revise the TS Bases by clarifying the specified safety function for each TS-required instrument, not the operability requirements. The language in the Models has been modified to clarify this point. The proposed changes to the TS Bases are acceptable because they describe, consistent with the design basis of the facility, the minimum set of diverse instruments that must be operable, the plant parameters monitored by the instrumentation, the design sensitivity of the leakage detection instruments, and factors that affect the operational sensitivity of the instrument.