

NUCLEAR REGULATORY COMMISSION
Notice of Availability of Model Safety Evaluation on
Technical Specification Improvement to Modify Requirements Regarding
LCO 3.10.1, Inservice Leak and Hydrostatic Testing Operation
Using the Consolidated Line Item Improvement Process

AGENCY: Nuclear Regulatory Commission

ACTION: Notice of Availability

SUMMARY: Notice is hereby given that the staff of the Nuclear Regulatory Commission (NRC) has prepared a model safety evaluation (SE) relating to the modification of shutdown testing requirements in technical specifications (TS) for Boiling Water Reactors (BWR). The NRC staff has also prepared a model no-significant-hazards-consideration (NSHC) determination relating to this matter. The purpose of these models is to permit the NRC to efficiently process amendments that propose to modify LCO 3.10.1. The proposed changes would revise LCO 3.10.1, and the associated Bases, to expand its scope to include provisions for temperature excursions greater than [200]°F as a consequence of inservice leak and hydrostatic testing, and as a consequence of scram time testing initiated in conjunction with an inservice leak or hydrostatic test, while considering operational conditions to be in Mode 4. Licensees of nuclear power reactors to which the models apply could then request amendments, confirming the applicability of the SE and NSHC determination to their reactors.

DATES: The NRC staff issued a Federal Register Notice on August 21, 2006 (71 FR 48561) that provided a model safety evaluation (SE) and a model no significant hazards consideration

(NSHC) determination relating to modification of requirements regarding LCO 3.10.1, "Inservice Leak and Hydrostatic Testing Operation." The NRC staff hereby announces that the model SE and NSHC determination may be referenced in plant-specific applications to adopt the changes. The staff will post a model application on the NRC web site to assist licensees in using the consolidated line item improvement process (CLIP) to revise the TS on LCO 3.10.1, "Inservice Leak and Hydrostatic Testing Operation."

FOR FURTHER INFORMATION CONTACT: Tim Kobetz, Mail Stop: O-12H2, Division of Inspections and Regional Support, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone 301-415-1932.

SUPPLEMENTARY INFORMATION:

Background

Regulatory Issue Summary 2000-06, "Consolidated Line Item Improvement Process for Adopting Standard Technical Specification Changes for Power Reactors," was issued on March 20, 2000. The consolidated line item improvement process (CLIP) is intended to improve the efficiency of NRC licensing processes by processing proposed changes to the standard technical specifications (STS) in a manner that supports subsequent license amendment applications. The CLIP includes an opportunity for the public to comment on a proposed change to the STS after a preliminary assessment by the NRC staff and a finding that the change will likely be offered for adoption by licensees. The CLIP directs the NRC staff to evaluate any comments received for a proposed change to the STS and to either reconsider the change or announce the availability of the change for adoption by licensees.

This notice involves the modification of LCO 3.10.1. The proposed changes would revise LCO 3.10.1, and the associated Bases, to expand its scope to include provisions for temperature excursions greater than [200]°F as a consequence of inservice leak and hydrostatic testing, and as a consequence of scram time testing initiated in conjunction with an inservice leak or hydrostatic test, while considering operational conditions to be in Mode 4. This change was proposed for incorporation into the standard technical specifications by the owners groups participants in the Technical Specification Task Force (TSTF) and is designated TSTF-484. TSTF-484 can be viewed on the NRC's web page utilizing the Agencywide Documents Access and Management System (ADAMS). ADAMS accession numbers are ML052930102 (TSTF-484 Submittal), ML060970568 (NRC Request for Additional Information, RAI), ML061560523 (TSTF Response to NRC RAIs), and ML062650171 (TSTF Response to NRC Notice for Comment).

Applicability

Licensees opting to apply for this TS change are responsible for reviewing the staff's evaluation, referencing the applicable technical justifications, and providing any necessary plant-specific information. Each amendment application made in response to the notice of availability will be processed and noticed in accordance with applicable rules and NRC procedures.

Public Notices

In a notice in the Federal Register dated August 21, 2006 (71 FR 48561), the staff requested comment on the use of the CLIIP to process requests to revise the TS regarding LCO 3.10.1, "Inservice Leak and Hydrostatic Testing Operation." In addition, there have been several plant-specific amendment requests to adopt changes similar to those described in TSTF-484 and notices have been published for these applications. TSTF-484, as well as the NRC staff's safety evaluation and model application, may be examined, and/or copied for a fee, at the NRC's Public Document Room, located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records are accessible electronically from the ADAMS Public Library component on the NRC Web site, (the Electronic Reading Room).

The staff received one response with seven comments following the notice published August 21, 2006 (71 FR 48561), soliciting comments on the model SE and NSHC determination related to TSTF-484, Revision 0. The comments were offered by the TSTF in a letter dated September 20, 2006 (ADAMS# ML062650171). The comments are administrative in nature in that they provide clarification and do not have a material impact on the model SE and NSHC determination published August 21, 2006 (71 FR 48561). TSTF comments that were incorporated include the comment on the Federal Register Notice for Comment and comments 1, 3, 4, and 5 on the Model Safety Evaluation. The TSTF has been informed of NRC staff decision not to incorporate comments 2 and 6. Comment 2 provides for additional information about TSTF-484 regarding scram time testing to be included in paragraph one of section 3.0. In the original Model Safety Evaluation published for comment on August 21, 2006 (71 FR 48561), the first half of section 3.0 discusses hydrostatic and leakage testing, while the second half of section 3.0 discusses scram time testing. NRC staff believe that there may be confusion if the comment is incorporated into the first section of 3.0 while scram time testing is not discussed until the second half of section 3.0. The information provided in the comment is

captured in the second half of section 3.0. Comment 6 was not incorporated due to possible confusion regarding the term “conservatively”. In reviewing the TSTF-484, Revision 0 submittal, the NRC has concluded that there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, such activities will be conducted in compliance with the Commission’s regulations, and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public. Therefore, it was decided that comment 6 was not needed in order to justify TSTF-484, Revision 0 approval. The revised model SE is included in this notice for use by licensees. As described in the model application prepared by the staff, licensees may reference in their plant-specific applications to adopt TSTF-484, the SE and NSHC determination.

Model Safety Evaluation

U.S. Nuclear Regulatory Commission

Office of Nuclear Reactor Regulation

Consolidated Line Item Improvement

Technical Specification Task Force Change TSTF-484, Revision 0

Use of TS 3.10.1 for Scram Time Testing Activities

1.0 INTRODUCTION

By application dated [Date], [Name of Licensee] (the licensee) requested changes to the Technical Specifications (TS) for the [Name of Facility].

The proposed changes would revise Limiting Condition for Operation (LCO) 3.10.1, and the associated Bases, to expand its scope to include provisions for temperature excursions greater than [200]°F as a consequence of inservice leak and hydrostatic testing, and as a consequence of scram time testing initiated in conjunction with an inservice leak or hydrostatic test, while considering operational conditions to be in Mode 4.

2.0 REGULATORY EVALUATION

2.1 Inservice Leak and Hydrostatic Testing

The Reactor Coolant System (RCS) serves as a pressure boundary and also serves to provide a flow path for the circulation of coolant past the fuel. In order to maintain RCS integrity, Section XI of the American Society of Mechanical Engineers (ASME) Pressure Vessel Code requires periodic hydrostatic and leakage testing. Hydrostatic tests are required to be performed once every ten years and leakage tests are required to be performed each refueling outage. Appendix G to 10 CFR Part 50 states that pressure tests and leak tests of the reactor vessel that are required by Section XI of the American Society of Mechanical Engineers (ASME) Pressure Vessel Code must be completed before the core is critical.

NUREG-1433, General Electric Plants, BWR/4, Revision 3, Standard Technical Specifications (STS) and NUREG-1434, General Electric Plants, BWR/6, Revision 3, STS both currently contain LCO 3.10.1, "Inservice Leak and Hydrostatic Testing Operation." LCO 3.10.1 was created to allow for hydrostatic and leakage testing to be conducted while in Mode 4 with average reactor coolant temperature greater than [200]°F provided certain secondary containment LCOs are met.

TSTF-484, Revision 0, Use of TS 3.10.1 for Scram Time Testing Activities, modifies LCO 3.10.1 to allow a licensee to implement LCO 3.10.1, while hydrostatic and leakage testing is being conducted, should average reactor coolant temperature exceed [200]°F during testing. This modification does not alter current requirements for hydrostatic and leakage testing as required by Appendix G to 10 CFR Part 50.

2.2 Control Rod Scram Time Testing

Control rods function to control reactor power level and to provide adequate excess

negative reactivity to shut down the reactor from any normal operating or accident condition at any time during core life. The control rods are scrammed by using hydraulic pressure exerted by the control rod drive (CRD) system. Criterion 10 of Appendix A to 10 CFR Part 50 states that the reactor core and associated coolant, control, and protection systems shall be designed with appropriate margin to assure that specified acceptable fuel limits are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences. The scram reactivity used in design basis accidents (DBA) and transient analyses is based on an assumed control rod scram time.

NUREG-1433, General Electric Plants, BWR/4, Revision 3, STS and NUREG-1434, General Electric Plants, BWR/6, Revision 3, STS both currently contain surveillance requirements (SR) to conduct scram time testing when certain conditions are met in order to ensure that Criterion 10 of Appendix A to 10 CFR Part 50 is satisfied. SR 3.1.4.1 requires scram time testing to be conducted following a shutdown greater than 120 days while SR 3.1.4.4 requires scram time testing to be conducted following work on the CRD system or following fuel movement within the affected core cell. Both SRs must be performed at reactor steam dome pressure greater than or equal to [800] psig and prior to exceeding 40 percent rated thermal power (RTP).

TSTF-484, Revision 0, Use of TS 3.10.1 for Scram Time Testing Activities, would modify LCO 3.10.1 to allow SR 3.1.4.1 and SR 3.1.4.4 to be conducted in Mode 4 with average reactor coolant temperature greater than [200]°F. Scram time testing would be performed in accordance with LCO 3.10.4, "Single Control Rod Withdrawal - Cold Shutdown." This modification to LCO 3.10.1 does not alter the means of compliance with Criterion 10 of Appendix A to 10 CFR Part 50.

3.0 TECHNICAL EVALUATION

The existing provisions of LCO 3.10.1 allow for hydrostatic and leakage testing to be conducted while in Mode 4 with average reactor coolant temperature greater than [200]°F, while imposing Mode 3 secondary containment requirements. Under the existing provision, LCO 3.10.1 would have to be implemented prior to hydrostatic and leakage testing. As a result, if LCO 3.10.1 was not implemented prior to hydrostatic and leakage testing, hydrostatic and leakage testing would have to be terminated if average reactor coolant temperature exceeded [200]°F during the conduct of the hydrostatic and leakage test. TSTF-484, Revision 0, Use of TS 3.10.1 for Scram Time Testing Activities, modifies LCO 3.10.1 to allow a licensee to implement LCO 3.10.1, while hydrostatic and leakage testing is being conducted, should average reactor coolant temperature exceed [200]°F during testing. The modification will allow completion of testing without the potential for interrupting the test in order to reduce reactor vessel pressure, cool the RCS, and restart the test below [200]°F. Since the current LCO 3.10.1 allows testing to be conducted while in Mode 4 with average reactor coolant temperature greater than [200]°F, the proposed change does not introduce any new operational conditions beyond those currently allowed.

SR 3.1.4.1 and SR 3.1.4.4 require that control rod scram time be tested at reactor steam dome pressure greater than or equal to [800] psig and before exceeding 40 percent rated thermal power (RTP). Performance of control rod scram time testing is typically scheduled concurrent with inservice leak or hydrostatic testing while the RCS is pressurized. Because of the number of control rods that must be tested, it is possible for the inservice leak or hydrostatic test to be completed prior to completing the scram time test. Under existing provisions, if scram time testing can not be completed during the LCO 3.10.1 inservice leak or

hydrostatic test, scram time testing must be suspended. Additionally, if LCO 3.10.1 is not implemented and average reactor coolant temperature exceeds [200]°F while performing the scram time test, scram time testing must also be suspended. In both situations, scram time testing is resumed during startup and is completed prior to exceeding 40 percent RTP. TSTF-484, Revision 0, Use of TS 3.10.1 for Scram Time Testing Activities, modifies LCO 3.10.1 to allow a licensee to complete scram time testing initiated during inservice leak or hydrostatic testing. As stated earlier, since the current LCO 3.10.1 allows testing to be conducted while in Mode 4 with average reactor coolant temperature greater than [200]°F, the proposed change does not introduce any new operational conditions beyond those currently allowed. Completion of scram time testing prior to reactor criticality and power operations results in a more conservative operating philosophy with attendant potential safety benefits.

It is acceptable to perform other testing concurrent with the inservice leak or hydrostatic test provided that this testing can be performed safely and does not interfere with the leak or hydrostatic test. However, it is not permissible to remain in TS 3.10.1 solely to complete such testing following the completion of inservice leak or hydrostatic testing and scram time testing.

Since the tests are performed with the reactor pressure vessel (RPV) nearly water solid, at low decay heat values, and near Mode 4 conditions, the stored energy in the reactor core will be very low. Small leaks from the RCS would be detected by inspections before a significant loss of inventory occurred. In addition, two low-pressure emergency core cooling systems (ECCS) injection/spray subsystems are required to be operable in Mode 4 by TS 3.5.2, ECCS-Shutdown. In the event of a large RCS leak, the RPV would rapidly depressurize and allow operation of the low pressure ECCS. The capability of the low pressure ECCS would be adequate to maintain the fuel covered under the low decay heat conditions during these tests.

Also, LCO 3.10.1 requires that secondary containment and standby gas treatment system be operable and capable of handling any airborne radioactivity or steam leaks that may occur during performance of testing.

The protection provided by the normally required Mode 4 applicable LCOs, in addition to the secondary containment requirements required to be met by LCO 3.10.1, minimizes potential consequences in the event of any postulated abnormal event during testing. In addition, the requested modification to LCO 3.10.1 does not create any new modes of operation or operating conditions that are not currently allowed. Therefore, the staff finds the proposed change acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the [Name of State] State official was notified of the proposed issuance of the amendment. The State official had [no] comments. [If comments were provided, they should be addressed here].

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no

significant hazards consideration, and there has been no public comment on such finding issued on [Date] ([] FR []). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

7.0 REFERENCES

1. NUREG-1433, "General Electric Plants, BWR/4, Revision 3, Standard Technical Specifications (STS)", August 31, 2003
2. NUREG-1434, General Electric Plants, BWR/6, Revision 3, Standard Technical Specifications (STS)", August 31, 2003
3. Request for Additional Information (RAI) Regarding TSTF-484, April, 7, 2006, ADAMS accession number ML060970568
4. Response to NRC RAIs Regarding TSTF-484, June 5, 2006, ADAMS accession number ML061560523
5. TSTF-484 Revision 0, "Use of TS 3.10.1 for Scram Times Testing Activities", May 5, 2005, ADAMS accession number ML052930102

6. TSTF Response to NRC Notice for Comment, September 20, 2006, ADAMS accession number ML062650171

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Dated at Rockville, Maryland this 12 of October 2006.

FOR THE NUCLEAR REGULATORY COMMISSION

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6. TSTF Response to NRC Notice for Comment, September 20, 2006, ADAMS accession number ML062650171

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