September 28, 2006

MEMORANDUM TO: Richard J. Laufer, Chief
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Timothy J. Kobetz, Chief **/RA/**
Technical Specifications Branch
Division of Inspections and Regional Support
Office of Nuclear Reactor Regulation

SUBJECT: INDIAN POINT NUCLEAR GENERATING STATION UNITS 2 AND 3 - STAFF'S REVIEW OF THE STEAM GENERATOR TUBE INTEGRITY TECHNICAL SPECIFICATION AMENDMENT (TAC NOS. MD2178 AND MD2179)

By letter dated May 31, 2006 (ML061590405) as supplemented by letter dated August 30, 2006 (ML062560048), Entergy Nuclear Operations, Inc. (the licensee) submitted a license amendment request (LAR) regarding Indian Point Nuclear Generating Station Units 2 and 3 (IP2 and IP3) steam generator (SG) tube integrity technical specifications (TSs). The proposed amendment would revise the existing SG tube surveillance program to be consistent with the U.S. Nuclear Regulatory Commission's approved Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-449, "Steam Generator Tube Integrity," Revision 4. TSTF-449 is part of the consolidated line item improvement process (CLIIP).

The staff of the Technical Specifications Branch (ITSB) of the Division of Inspections and Regional Support (DIRS) has completed its review of the LAR. The staff's review is enclosed.

Docket No.: 50-247, 50-286

Enclosure:
Staff Safety Evaluation

CONTACTS: Trent l. Wertz, ITSB/DIRS
301-415-1568

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DATE	09/14/2006	09/25/2006	09/28/2006

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. TO

FACILITY OPERATING LICENSE NOS. DPR-26 and 64

ENTERGY NUCLEAR OPERATION, INC.

INDIAN POINT NUCLEAR GENERATING STATION

UNITS 2 AND 3

DOCKET

NOS. 50- 247 and 50-286

1.0 INTRODUCTION

By application dated May 31, 2006 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML061590405), as supplemented by letter dated August 30, 2006 (ADAMS Accession No. ML06xxxx), Entergy Nuclear Northeast (the licensee), requested changes to the Technical Specifications (TSs) for the Indian Point Units 2 and 3 (IP2 and IP3). The supplement dated August 30, 2006, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the Nuclear Regulatory Commission (NRC) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on xxxxxx.

The proposed changes would revise the existing steam generator (SG) tube surveillance program. The changes are modeled after TS Task Force (TSTF) traveler TSTF-449, Revision 4, "Steam Generator Tube Integrity," and the model safety evaluation prepared by the Nuclear Regulatory Commission (NRC) that was published in the *Federal Register* on March 2, 2005 (70 FR 10298) under the consolidated line item improvement process (CLIIP). In this regard, the scope of the application includes changes to the definition of leakage, changes to the primary-to-secondary leakage requirements, changes to the SG tube surveillance program (SG tube integrity), and changes to the SG reporting requirements.

2.0 REGULATORY EVALUATION

The background, description, and applicability of the proposed changes associated with the steam generator (SG) tube integrity issue and the applicable regulatory requirements were included in the NRC staff's model safety evaluation (SE) published in the *Federal Register* on March 2, 2005 (70 FR 10298). The "Notice of Availability of Model Application Concerning Technical Specification; Improvement To Modify Requirements Regarding Steam Generator Tube Integrity; Using the Consolidated Line Item Improvement Process," was published in the *Federal Register* on May 6, 2005 (70 FR 24126), which made the model SE available for licensees to reference.

3.0 TECHNICAL EVALUATION

In its May 31, 2006, application, and August 30, 2006, supplement, the licensee proposed changes to the TSs that are modeled after Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-449, "Steam Generator Tube Integrity." There were minor differences between TSTF-449 and the licensee's application. These included differences in the facility licensing basis (than that discussed in TSTF-449) and differences in TS numbering, since the licensee has a different TS numbering scheme (than that assumed in TSTF-449).

With respect to the differences in the facility licensing basis, the differences did not invalidate the technical evaluation on TSTF-449; rather they resulted in the licensee having to slightly deviate from some of the modifications discussed in TSTF-449. For example, in the Bases section for Steam Generator Tube Integrity, TSTF-449 indicated that the accident analysis for a steam generator tube rupture assumed the contaminated secondary fluid was only briefly released to the atmosphere via safety valves and the majority is discharged to the main condenser. Since the licensee has a different licensing basis than the one described in the standard technical specifications (i.e., TSTF-449), they modified the TSTF-449 wording to reflect their existing licensing Bases. Another example is that the licensee has significantly more detail concerning their accident analyses in the Bases section on operational leakage than that assumed in TSTF-449. As a result, some of the changes to the Bases section in TSTF-449 were not applicable. Since these differences were minor in nature, they were consistent with the plant's licensing basis (the level of detail incorporated into the TS Bases), or they were consistent with the intent of TSTF-449, the NRC staff determined they were acceptable.

Similarly, since the differences in numbering of the technical specifications is administrative in nature and did not affect the technical adequacy of the submittal, the NRC staff determined they were acceptable.

The remainder of the application was consistent with, or more limiting than, TSTF-449 with one exception, as discussed below. In TSTF-449, the limit on normal operating primary-to-secondary leakage rate through any one SG was less than the leakage used in the safety analysis. However, for Indian Point 2, the normal operating primary-to-secondary leakage limit (150 gallons-per-day (gpd) per SG) is identical to the accident-induced primary-to-secondary leakage limit for design-basis accidents (DBAs) other than an SG tube rupture. Even though the normal operating primary-to-secondary leakage limit and the accident-induced leakage limit have a different technical basis, it is not uncommon that the two limits are the same (note, the normal operating primary-to-secondary leakage limit can not be greater than the accident-induced leakage limit). The normal operating primary-to-secondary leakage limit is intended to limit the frequency of steam generator tube ruptures (i.e., it is an early indicator of a potential loss of the structural integrity of a steam generator tube); whereas the accident-induced leakage limit ensures that the dose consequences associated with this leakage are acceptable. The NRC staff evaluated the acceptability of this difference in leakage limits between TSTF-449 and the licensee's submittal. During a DBA, the leak rate may increase above what was present during normal operation. Therefore, it may be necessary to ensure that the operational leak rate is kept below its limit in order to meet the accident limit. An increase in leakage during a DBA can be a result of either: (1) the higher differential pressure between the primary coolant system and the secondary system associated with a DBA thus causing the leak rate from flaws

that leak during normal operation to leak at higher rates; or (2) the higher stress loadings associated with a DBA causing a flaw that was not leaking during normal operation to leak during the DBA.

The licensee indicated that they would administratively limit the amount of primary-to-secondary leakage to 75 gallons per day. This administrative limit is intended to provide margin between the operating and accident induced leakage limit consistent with TSTF-449. The NRC staff notes that although there may be margin between these limits, the staff's approval of TSTF-449 (and this amendment) was not intended to ensure that satisfying the operating leakage limit would result in the accident induced leakage limit being met. Rather, the NRC staff reviewed the adequacy of the proposed TS criteria for operational and accident-induced leakage based on the technical basis associated with each limit. Namely, that the operating leakage limit is effective at limiting the frequency of tube ruptures and the accident induced leakage limit is consistent with the plant's design and licensing basis. Since the TS criteria on operational leakage at IP2 is consistent with TSTF-449 and the accident-induced leakage limit is consistent with the licensee's accident analysis, the NRC staff finds the licensee's proposed TS criteria on these values acceptable.

The proposed TS changes establish a programmatic, largely performance-based regulatory framework for ensuring SG tube integrity is maintained. The NRC staff finds that it addresses key shortcomings of the current framework by ensuring that SG programs are focused on accomplishing the overall objective of maintaining tube integrity. It incorporates performance criteria for evaluating tube integrity that the NRC staff finds consistent with the structural margins and the degree of leak tightness assumed in the current plant licensing basis. The NRC staff finds that maintaining these performance criteria provides reasonable assurance that the SGs can be operated safely without increase in risk.

The revised TSs will contain limited specific details concerning how the SG Program is to achieve the required objective of maintaining tube integrity; the intent being that the licensee will have the flexibility to determine the specific strategy for meeting this objective. The NRC staff finds that the revised TSs include sufficient regulatory constraints on the establishment and implementation of the SG Program such as to provide reasonable assurance that tube integrity will be maintained.

Failure to meet the performance criteria will be reportable pursuant to the requirements in 10 CFR Parts 50.72 and 50.73. The NRC reactor oversight process provides a process by which the NRC staff can verify that the licensee has identified any SG Program deficiencies that may have contributed to such an occurrence and that appropriate corrective actions have been implemented.

The NRC staff finds that the TS changes proposed by the licensee in its May 31, 2006, application and August 30, 2006 supplement conform to the requirements of 10 CFR 50.36 and establish a TS framework that will provide reasonable assurance that SG tube integrity is maintained without undue risk to public health and safety.

The licensee included in its application the revised TS Bases to be implemented with the TS change. The NRC staff finds that the TS Bases Control Program is the appropriate process for updating the affected TS Bases pages and has, therefore, not included the affected Bases pages with this amendment.

In summary, the staff determined that the model SE is applicable to this review (with the exceptions as discussed above) and finds the proposed changes acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the [STATE] State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment[s] change 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[s] involve 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 amendments involve no significant hazards consideration, and there has been no public comment on such finding ([ ] FR [ ]). Accordingly, the amendment[s] meet 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 amendments.

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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

7.0 REFERENCES

A complete list of references used to complete this review can be found in the NRC's model SE published in the *Federal Register* on March 2, 2005 (70 FR 10298) and made available May 6, 2005 (70 FR 24126).

Principal Contributor: Trent L. Wertz

Date: September 14, 2006