UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 19, 2011

Vice President, Operations
Entergy Nuclear Operations, Inc.
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT NO. 3 - ISSUANCE OF AMENDMENT RE: TECHNICAL SPECIFICATION CHANGE IN SURVEILLANCE REQUIREMENT FOR WATER TEMPERATURE IN REFUELING WATER STORAGE TANK (TAC NO. ME4913)

Dear Sir or Madam:

The Commission has issued the enclosed Amendment No. 244 to Facility Operating License No. DPR-64 for the Indian Point Nuclear Generating Unit No. 3. The amendment consists of changes to the Technical Specifications (TS) in response to your application dated October 6, 2010.

The amendment revised the note in TS Surveillance Requirement 3.5.4.1 for the Refueling Water Storage Tank (RWST). Specifically, the amendment will require monitoring of the RWST temperature every 24 hours when the RWST heating steam supply isolation valves are not locked closed.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular biweekly *Federal Register* notice.

Sincerely,

John P. Boska

John P. Boska, Senior Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-286

Enclosures:
1. Amendment No. 244 to DPR-64
2. Safety Evaluation

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
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ENTERGY NUCLEAR INDIAN POINT 3, LLC

ENTERGY NUCLEAR OPERATIONS, INC.

DOCKET NO. 50-286

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 244
License No. DPR-64

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Entergy Nuclear Operations, Inc. (the licensee) dated October 6, 2010, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-64 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 244, are hereby incorporated in the license. ENO shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Nancy L. Salgado, Chief
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the License and
Technical Specifications

Date of Issuance: September 19, 2011

ATTACHMENT TO LICENSE AMENDMENT NO. 244

FACILITY OPERATING LICENSE NO. DPR-64

DOCKET NO. 50-286

Replace the following page of the License with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove Page	Insert Page
3	3

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contain marginal lines indicating the areas of change.

Remove Page	Insert Page
3.5.4.-2	3.5.4-2

(4) ENO pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; Amdt. 203 11/27/00

(5) ENO pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility. Amdt. 203 11/27/00

C. This amended license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

ENO is authorized to operate the facility at steady state reactor core power levels not in excess of 3216 megawatts thermal (100% of rated power).

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 244, are hereby incorporated in the License. ENO shall operate the facility in accordance with the Technical Specifications. |

(3) (DELETED) Amdt. 205 2-27-01

(4) (DELETED) Amdt. 205 2-27-01

D. (DELETED) Amdt.46 2-16-83

E. (DELETED) Amdt.37 5-14-81

F. This amended license is also subject to appropriate conditions by the New York State Department of Environmental Conservation in its letter of May 2, 1975, to Consolidated Edison Company of New York, Inc., granting a Section 401 certification under the Federal Water Pollution Control Act Amendments of 1972.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.4.1	----------NOTE---------- Not required to be performed when ambient air temperature is ≥ 35°F and ≤ 110°F if heating steam supply isolation valves are locked closed. ---------- Verify RWST borated water temperature is ≥ 35°F and ≤ 110°F.	24 hours
SR 3.5.4.2	Verify RWST borated water level is ≥ 35.4 feet.	7 days
SR 3.5.4.3	Verify RWST boron concentration is ≥ 2400 ppm and ≤ 2600 ppm.	31 days
SR 3.5.4.4	Perform CHANNEL CHECK of RWST level	7 days
SR 3.5.4.5	Perform CHANNEL CALIBRATION of RWST level switch and ensure the low level alarm setpoint is ≥10.5 ft and ≤12.5 ft.	184 days
SR 3.5.4.6	Perform CHANNEL CALIBRATION of RWST level transmitter and ensure the low level alarm setpoint is ≥10.5 ft and ≤12.5 ft.	18 months

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 244 TO FACILITY OPERATING LICENSE NO. DPR-64

ENTERGY NUCLEAR OPERATIONS, INC.

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

DOCKET NO. 50-286

1.0 INTRODUCTION

By letter dated October 6, 2010, Agencywide Documents Access and Management System (ADAMS) Accession No. ML102920294, Entergy Nuclear Operations, Inc. (Entergy or the licensee) submitted a request for changes to the Indian Point Nuclear Generating Unit No. 3 (IP3) Technical Specifications (TS) to the Nuclear Regulatory Commission (NRC or Commission).

The proposed change will revise the note in TS Surveillance Requirement 3.5.4.1 for the Refueling Water Storage Tank (RWST). Specifically, the amendment will require monitoring of the RWST temperature every 24 hours when the RWST heating steam supply isolation valves are not locked closed.

2.0 REGULATORY EVALUATION

2.1 Applicability of General Design Criteria

The following explains the applicability of General Design Criteria (GDC) for IP3. The construction permit for IP3 was issued by the Atomic Energy Commission (AEC) on August 13, 1969, and the operating license was issued on December 12, 1975. The plant GDC are discussed in the Updated Final Safety Analysis Report (UFSAR) Chapter 1.3, "General Design Criteria," with more details given in the applicable UFSAR sections. The AEC published the final rule that added Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants," in the *Federal Register* (36 FR 3255) on February 20, 1971, with the rule effective on May 21, 1971. In accordance with an NRC Staff Requirements Memorandum from S. J. Chilk to J. M. Taylor, "SECY-92-223 - Resolution of Deviations Identified During the Systematic Evaluation Program," dated September 18, 1992 (ADAMS Accession No. ML003763736), the Commission decided not to apply the Appendix A GDC to plants with construction permits issued prior to May 21, 1971. Therefore, the GDC which constitute the licensing bases for IP3 are those in the UFSAR.

As discussed in the UFSAR, the licensee for IP3 has made some changes to the facility over the life of the unit in which it committed to some of the GDCs from 10 CFR Part 50, Appendix A.

The extent to which the Appendix A GDC have been invoked can be found in specific sections of the UFSAR and in other IP3 licensing basis documentation, such as license amendments.

2.2 Specific Regulatory Criteria

The basis for NRC staff review and acceptance included the requirements in the following documents:

UFSAR GDC 43, dated July 11, 1967, requires "Protection against any action of the engineered safety features which would accentuate significantly the adverse after-effects of a loss of normal cooling shall be provided." The IP3 UFSAR, in Section 6.1, discusses compliance with the GDC. Section 6.1 notes that the delivery of safety injection water limits the potential for significant metal-water reaction and does not cause further loss of integrity. The RWST is the source of the injection water for the Emergency Core Cooling System (ECCS). UFSAR Section 14.3 discusses loss-of-coolant accident (LOCA) analyses and concludes that the acceptance criteria described in 10 CFR 50.46 for LOCAs are met.

Section 50.46 of 10 CFR Part 50 is titled "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors." This section requires that the design of the ECCS must meet certain criteria, and an acceptable evaluation model must be used to analyze the performance of the ECCS. Because the temperature of the ECCS injection water is used in the evaluation model, allowing the water temperature to be higher or lower than the evaluated temperatures could affect the acceptability of the model. Therefore, the licensee must ensure that the temperature of the injection water (RWST water) is within the analyzed temperature range.

2.2 Regulatory Evaluation for TS Changes

Section 182a of the Atomic Energy Act (Act) requires applicants for nuclear power plant operating licenses to include TSs as part of the license. The licensee provides TSs in order to maintain the operational capability of structures, systems, and components that are required to protect the health and safety of the public. The Commission's regulatory requirements that are related to the content of the TS are contained in 10 CFR 50.36. The TS requirements in 10 CFR 50.36 include the following categories: (1) safety limits, limiting safety systems settings and limiting control settings; (2) limiting conditions for operation (LCOs); (3) surveillance requirements (SRs); (4) design features; and (5) administrative controls.

On July 22, 1993 (58 FR 39132), the Commission published a "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors" (Final Policy Statement) which discussed the criteria to determine which items are required to be included in the TSs as LCOs. The criteria were subsequently incorporated into the regulations on July 19, 1995, by an amendment to 10 CFR 50.36 (60 FR 36953). Specifically, 10 CFR 50.36(c)(2)(ii) requires that a TS LCO be established for each item meeting one or more of the following criteria:

Criterion 1 Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

Criterion 2 A process variable, design feature, or operating restriction that is an initial condition for a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of the fission product barrier.

Criterion 3 A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of the fission product barrier.

Criterion 4 A structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.

In addition to the above criteria in 10 CFR 50.36, the NRC staff reviewed the proposed changes using other applicable regulatory guidance and docketed information including the description of LCO in 10 CFR 50.36(c)(2).

In general, there are two classes of changes to TSs: (1) changes needed to reflect modifications to the design basis (TSs are derived from the design basis), and (2) changes to take advantage of the evolution in policy and guidance as to the required content and preferred format of TSs over time. In determining the acceptability of such changes, the NRC staff interprets the requirements of 10 CFR 50.36, using as a model the accumulation of generically approved guidance in the improved Standard Technical Specifications (STS). For this review, the NRC staff used NUREG-1431, Revision 3, "Standard Technical Specifications, Westinghouse Plants."

Also, licensees may revise the TSs to adopt current improved STS format and content provided that a plant-specific review supports a finding of continued adequate safety because: (1) the change is editorial, administrative, or provides clarification (i.e., no requirements are materially altered); (2) the change is more restrictive than the licensee's current requirement; or (3) the change is less restrictive than the licensee's current requirement, but nonetheless still affords adequate assurance of safety when judged against current regulatory standards.

3.0 TECHNICAL EVALUATION

3.1 Background

SR 3.5.4.1 is based on NUREG-1431, "Standard Technical Specifications - Westinghouse Plants," (Reference 1) which contained a bracketed note "[Only required to be performed when ambient air temperature is < [35]° F or > [100]°F.]." The licensee is instructed to replace the temperature limits in brackets with the plant-specific temperature limits from the accident analyses. The TS Bases explained the note: "The SR is modified by a Note that eliminates the requirement to perform this Surveillance when ambient air temperatures are within the operating limits of the RWST. With ambient air temperatures within the band, the temperature should not exceed the limits."

The optional note was adopted by IP3 in 2001 during the conversion to the STS from the previous TS. The note was added as part of IP3's original submittal to convert to STS and was regarded as a more restrictive change since there was no existing requirement in the previous TSs for verifying RWST water temperature. The potential for single failure of the RWST heating system was not identified at the time. The heat is supplied by auxiliary steam which is isolated during warm weather and reopened during preparations for cold weather. When not isolated, the failure of the steam heat supply in the open position creates the potential for higher than allowable RWST temperatures. The licensee in its submittal stated that the administrative controls are in place to assure daily surveillances to eliminate the potential for overheating when the steam heat supply isolation is not locked closed.

3.2 Technical Evaluation

The RWST supplies the ECCS and the Containment Spray System through separate supply lines during the injection phase of a LOCA. In the ECCS analysis, the containment spray temperature is assumed to be equal to the RWST lower temperature limit of 35 °F. This analysis minimizes the containment building pressure in accordance with 10 CFR Part 50 Appendix K by assuming 35 °F RWST water. This is conservative, because a lower containment pressure allows a higher rate of leakage from the reactor coolant system. This establishes the lower temperature limit. The upper temperature limit of 110 °F is used in the containment integrity analysis since this maximizes pressure. Exceeding this temperature will result in higher containment building pressures due to reduced containment spray cooling capacity.

The contents of the RWST are kept above 35 °F during the cold weather months by a steam heated, austenitic stainless steel pipe coil near the bottom of the tank. Steam is supplied to this coil through a single supply header. In the remote case of loss of steam to this tank, there would be a time period of at least 24 hours available for repair or connection to another steam source before freezing problems would arise, even under the most severe weather conditions. If the electrical heat tracing on the tank discharge line remains operable it is very probable that a freezing problem would not arise.

The steam flow to the heating-coil is automatically controlled. In response to low RWST temperature, the steam is admitted by a temperature control valve TCV-1116, and the pressure is controlled automatically by pressure control valve PCV-1250 to maintain a nominal 7 psig steam pressure in the coil.

The current TS SR 3.5.4.1 requirement is to verify that the water temperature of the RWST is within the required temperature band every 24 hours. The SR contains a note that eliminates the requirement for the SR to be performed per SR 3.0.1 when the ambient air temperature is within the RWST operating temperature band. However, the RWST must remain within the temperature limits in order to be operable, in accordance with SR 3.0.1. This note does not recognize that a single failure of the steam heating supply to the RWST could potentially cause the RWST temperature to rise above the upper temperature limit of 110 °F, if the temperature were not monitored (a failure of the steam supply to open would be detected by the surveillances required when the ambient temperature is below 35 °F). The single failure could be a failed open TCV-1116 or an inadvertently opened TCV-1116 bypass line isolation valve. When the steam heating line is isolated, during warm weather, the single failure of the steam heating line

TCV does not have to be postulated. By locking the isolation valve on the steam heating line and the bypass line, no inadvertent actuation needs to be postulated. Locking a valve closed also eliminates the need for periodic surveillance (e.g., containment isolation valves are not subject to surveillance when locked in the required position). The 1-¼ inch steam trap on the RWST heating line return and the 3/4 inch steam trap at the outlet of TVC-1 116 are not considered to be a credible means of overheating the RWST. Each line has a check valve in the line and no steam supply.

The revision of the note in SR 3.5.4.1 means that monitoring of the RWST temperature every 24 hours will not be required when the RWST heating steam supply isolation valves are locked closed and the ambient air temperature is 35 °F to 110 °F, which is the operating temperature band. The locked valves will assure no credible single failure can allow heating steam to raise the RWST temperature above the allowable value. The TS SR will require the RWST temperature to be verified every 24 hours whenever the heating steam supply isolation valves are not locked closed as well as when the ambient air temperature limits are exceeded.

Therefore, the proposed revision of the note in SR 3.5.4.1

1. Would not require any plant modifications which affect the performance capability of the structures, systems, and components relied upon to mitigate the consequences of postulated accidents.
2. Does not alter accident analysis assumptions, add any initiators, or affect the function of plant systems or the manner in which systems are operated, maintained, modified, tested, or inspected.
3. Does not reduce the plant margin since it increases the surveillances whenever a single failure could overheat the RWST.

Additionally, as noted in the above discussion, the proposed revision of the note in TS SR 3.5.4.1 maintains compliance with the requirements of UFSAR GDC 43 and 10 CFR 50.46 as discussed in Sections 2.1 and 2.2 of this safety evaluation and adequately addresses the possibility of the single failure of the RWST heating system that could raise the water temperature beyond the allowable value without timely surveillance.

Since this change will increase the SRs for RWST temperature in order to ensure that the assumptions of the accident analyses are met, and complies with regulatory requirements, the NRC staff finds the proposed revision to TS SR 3.5.4.1 is acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New York State official was notified of the proposed issuance of the amendment. The State official had no comments.

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 and changes a surveillance requirement. 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 (75 FR 81669). 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-1431, Standard Technical Specifications for Westinghouse Plants, Revision 3,dated June 2004.

Principal Contributors: B. Vaidya, J. Boska

Date: September 19, 2011

September 19, 2011

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SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT NO. 3 - ISSUANCE OF AMENDMENT RE: TECHNICAL SPECIFICATION CHANGE IN SURVEILLANCE REQUIREMENT FOR WATER TEMPERATURE IN REFUELING WATER STORAGE TANK (TAC NO. ME4913)

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Sincerely,
/RA/

John P. Boska, Senior Project Manager
Plant Licensing Branch I-1
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