

Submitted: August 10, 2015



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

ENTERGY NUCLEAR INDIAN POINT 2, LLC  
AND ENTERGY NUCLEAR OPERATIONS, INC.

DOCKET NO. 50-247

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2  
AMENDED FACILITY OPERATING LICENSE

License No. DPR-26  
Amendment No. 220

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

- A. The application for amendment by the Consolidated Edison Company of New York, Inc. (Con Edison), Entergy Nuclear Indian Point 2, LLC (ENIP2), and Entergy Nuclear Operations, Inc. (ENO) submitted under cover letter dated December 12, 2000, as supplemented by letters dated April 12, 2001, from Con Edison and dated April 16, May 24, June 6, and June 8, 2001, from ENIP2 and ENO complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
- B. Construction of the Indian Point Nuclear Generating Unit No. 2 (IP2 or facility) has been substantially completed in conformity with provisional Construction Permit No. CPPR-21, as amended, and the application, as amended, the provisions of the Act and the rules and regulations of the Commission;
- C. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
- D. There is reasonable assurance: (i) that the activities authorized by this operating license can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the rules and regulations of the Commission;
- E. ENO is technically and financially qualified and ENIP2 is financially qualified to engage in the activities authorized by this amended license in accordance with the rules and regulations of the Commission;
- F. ENIP2 and ENO have satisfied the applicable provisions of 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements," of the Commission's regulations;

Amendment No. 220

- G. The issuance of this amended license will not be inimical to the common defense and security or to the health and safety of the public;
  - H. After weighing the environmental, economic, technical, and other benefits of the facility against environmental costs and considering available alternatives, the issuance of this amendment to Facility Operating License No. DPR-26, subject to the conditions for the protection of the environment set forth herein, is in accordance with 10 CFR Part 50, Appendix D, of the Commission's regulations and all applicable requirements of said Appendix D have been satisfied; and
  - I. The receipt, possession, and use of source, byproduct and special nuclear material as authorized by this amended license will be in accordance with the Commission's regulations in 10 CFR Part 30, 40 and 70, including 10 CFR Section 30.33, 40.32, 70.23, and 70.31.
2. Facility Operating License No. DPR-26, as amended, (previously issued to Con Edison) issued to ENIP2 and ENO, is hereby amended in its entirety to read as follows:
- A. This amended license applies to the Indian Point Nuclear Generating Unit No. 2, a pressurized water nuclear reactor and associated equipment (the facility), which is owned by ENIP2 and operated by ENO. The facility is located in Westchester County, New York, and is described in the "Final Facility Description and Safety Analysis Report", as supplemented and amended.
  - B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses:
    - (1) Pursuant to Section 104b of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities", (a) ENIP2 to possess and use, and (b) ENO to possess, use and operate, the facility at the designated location in Westchester County, New York, in accordance with the procedures and limitations set forth in this amended license;
    - (2) ENO pursuant to the Act and 10 CFR Part 70, to receive, possess, and use, at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Facility Description and Safety Analysis Report, as supplemented and amended and as described in the Commission's authorization through Amendment No. 75 to this license. Amdt. 75  
1-11-82
    - (3) ENO pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess and use, at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor Amdt. 42  
10-17-78

instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

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| (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. 42<br>10-17-78  |
| (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. 220<br>09-06-01 |

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; 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.	Amdt. 241 10-27-04
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(2) Technical Specifications

The Technical Specifications contained in Appendices A, B, and C, as revised through Amendment No. 281, are hereby incorporated in the license. ENO shall operate the facility in accordance with the Technical Specifications.

(3) The following conditions relate to the amendment approving the conversion to Improved Standard Technical Specifications:

1. This amendment authorizes the relocation of certain Technical Specification requirements and detailed information to licensee controlled documents as described in Table R, "Relocated Technical Specifications from the CTS," and Table LA, "Removed Details and Less Restrictive Administrative Changes to the CTS" attached to the NRC staff's Safety Evaluation enclosed with this amendment. The relocation of requirements and detailed information shall be completed on or before the implementation of this amendment.

APPENDIX A

TO

FACILITY OPERATING LICENSE DPR-26

FOR

ENTERGY NUCLEAR INDIAN POINT 2, LLC  
AND ENTERGY NUCLEAR OPERATIONS, INC.

INDIAN POINT NUCLEAR GENERATING PLANT UNIT NO. 2

DOCKET NO. 50-247

TECHNICAL SPECIFICATIONS AND BASES

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.17 Steam Generator (SG) Tube Integrity

LCO 3.4.17 SG tube integrity shall be maintained.

AND

All SG tubes satisfying the tube plugging criteria shall be plugged in accordance with the Steam Generator Program.

APPLICABILITY: MODES 1, 2, 3, and 4.

#### ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each SG tube.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more SG tubes satisfying the tube plugging criteria and not plugged in accordance with the Steam Generator Program.	A.1	Verify tube integrity of the affected tube(s) is maintained until the next refueling outage or SG tube inspection.	7 days
	<u>AND</u>		
	A.2	Plug the affected tube(s) in accordance with the Steam Generator Program.	Prior to entering MODE 4 following the next refueling outage or SG tube inspection
B. Required Action and associated Completion Time of Condition A not met.  <u>OR</u> SG tube integrity not maintained.	B.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	B.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.17.1	Verify SG tube integrity in accordance with the Steam Generator Program.	In accordance with the Steam Generator Program
SR 3.4.17.2	Verify that each inspected SG tube that satisfies the tube plugging criteria is plugged in accordance with the Steam Generator Program.	Prior to entering MODE 4 following a SG tube inspection

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5.5.6 Inservice Testing Program (continued)

- b. The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Testing Program for performing inservice testing activities,
- c. The provisions of SR 3.0.3 are applicable to inservice testing activities, and
- d. Nothing in the ASME OM Code shall be construed to supersede the requirements of any TS.

5.5.7 Steam Generator (SG) Program

A Steam Generator Program shall be established and implemented to ensure that SG tube integrity is maintained. In addition, the Steam Generator Program shall include the following:

- a. Provisions for condition monitoring assessments. Condition monitoring assessment means an evaluation of the "as found" condition of the tubing with respect to the performance criteria for structural integrity and accident induced leakage. The "as found" condition refers to the condition of the tubing during an SG inspection outage, as determined from the inservice inspection results or by other means, prior to the plugging of tubes. Condition monitoring assessments shall be conducted during each outage during which the SG tubes are inspected or plugged, to confirm that the performance criteria are being met.
- b. Performance criteria for SG tube integrity. SG tube integrity shall be maintained by meeting the performance criteria for tube structural integrity, accident induced leakage, and operational LEAKAGE.
  - 1. Structural integrity performance criterion: All in-service steam generator tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, and cool down), all anticipated transients included in the design specification and design basis accidents. This includes retaining a safety factor of 3.0 against burst under normal steady state full power operation primary-to-secondary pressure differential and a safety factor of 1.4 against burst applied to the design basis accident primary-to-secondary pressure differentials. Apart from the above requirements, additional loading conditions associated with the design basis accidents, or combination of accidents in accordance with the design and licensing basis, shall also be evaluated to determine if the associated loads

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5.5.7 Steam Generator (SG) Program (continued)

contribute significantly to burst or collapse. In the assessment of tube integrity, those loads that do significantly affect burst or collapse shall be determined and assessed in combination with the loads due to pressure with a safety factor of 1.2 on the combined primary loads and 1.0 on axial secondary loads.

2. Accident induced leakage performance criterion: The primary to secondary accident induced leakage rate for any design basis accident, other than a SG tube rupture, shall not exceed the leakage rate assumed in the accident analysis in terms of total leakage rate for all SGs and leakage rate for an individual SG. Leakage is not to exceed 150 gpd per SG.
  3. The operational LEAKAGE performance criterion is specified in LCO 3.4.13, "RCS Operational LEAKAGE."
- c. Provisions for SG tube plugging criteria. Tubes found by inservice inspection to contain flaws with a depth equal to or exceeding 40% of the nominal tube wall thickness shall be plugged.

The following SG tube alternate plugging criteria shall be applied as an alternative to the preceding criteria.

Tubes with service-induced flaws located greater than 18.9 inches below the top of the tubesheet do not require plugging. Tubes with service-induced flaws located in the portion of the tube from the top of the tubesheet to 18.9 inches below the top of the tubesheet shall be plugged upon detection.

- d. Provisions for SG tube inspections. Periodic SG tube inspections shall be performed. The number and portions of the tubes inspected and methods of inspection shall be performed with the objective of detecting flaws of any type (e.g., volumetric flaws, axial and circumferential cracks) that may be present along the length of the tube, from 18.9 inches below the top of the tubesheet on the hot leg side to 18.9 inches below the top of the tubesheet on the cold leg side, and that may satisfy the applicable tube plugging criteria. The tube-to-tubesheet weld is not part of the tube. In addition to meeting the requirements of d.1, d.2, and d.3 below, the inspection scope, inspection methods, and inspection intervals shall be such as to ensure that SG tube integrity is maintained until the next SG inspection. A degradation assessment shall be performed to determine the type and



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### 5.5.7 Steam Generator (SG) Program (continued)

location of flaws to which the tubes may be susceptible and, based on this assessment, to determine which inspection methods need to be employed and at what locations.

1. Inspect 100% of the tubes in each SG during the first refueling outage following SG installation.
2. After the first refueling outage following SG installation, inspect each SG at least every 48 effective full power months or at least every other refueling outage (whichever results in more frequent inspections). In addition, the minimum number of tubes inspected at each scheduled inspection shall be the number of tubes in all SGs divided by the number of SG inspection outages scheduled in each inspection period as defined in a, b, and c below. If a degradation assessment indicates the potential for a type of degradation to occur at a location not previously inspected with a technique capable of detecting this type of degradation at this location and that may satisfy the applicable tube plugging criteria, the minimum number of locations inspected with such a capable inspection technique during the remainder of the inspection period may be prorated. The fraction of locations to be inspected for this potential type of degradation at this location at the end of the inspection period shall be no less than the ratio of the number of times the SG is scheduled to be inspected in the inspection period after the determination that a new form of degradation could potentially be occurring at this location divided by the total number of times the SG is scheduled to be inspected in the inspection period. Each inspection period defined below may be extended up to 3 effective full power months to include a SG inspection outage in an inspection period and the subsequent inspection period begins at the conclusion of the included SG inspection outage.
  - a) After the first refueling outage following SG installation, inspect 100% of the tubes during the next 120 effective full power months. This constitutes the first inspection period;
  - b) During the next 96 effective full power months, inspect 100% of the tubes. This constitutes the second inspection period; and
  - c) During the remaining life of the SGs, inspect 100% of the tubes every 72 effective full power months. This constitutes the third and subsequent inspection periods.

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5.5.7 Steam Generator (SG) Program (continued)

3. If crack indications are found in any SG tube, then the next inspection for each affected and potentially affected SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever results in more frequent inspections). If definitive information, such as from examination of a pulled tube, diagnostic non-destructive testing, or engineering evaluation indicates that a crack-line indication is not associated with a crack(s), then the indication need not be treated as a crack.
- e. Provisions for monitoring operational primary to secondary LEAKAGE.