



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

April 15, 2020

A. Christopher Bakken, III
President and Chief Executive Officer
Entergy Nuclear Operations, Inc.
1340 Echelon Pkwy
Jackson, MS 39213-1995

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT NOS. 1, 2, AND 3 – ISSUANCE
OF AMENDMENT NOS. 62, 293, AND 268 RE: CHANGES TO EMERGENCY
PLAN FOR POST-SHUTDOWN AND PERMANENTLY DEFUELED CONDITION
(EPID L-2019-LLA-0080)

Dear Mr. Bakken:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 62 to Provisional Operating License No. DPR-5 for Indian Point Nuclear Generating Unit No. 1, Amendment No. 293 to Renewed Facility Operating License No. DPR-26 for Indian Point Nuclear Generating Unit No. 2, and Amendment No. 268 to Renewed Facility Operating License No. DPR-64 for Indian Point Nuclear Generating Unit No. 3 in response to your application dated April 15, 2019.

The amendments revise the on-shift staffing and emergency response organization in the site emergency plan for the post-shutdown and permanently defueled condition.

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

Sincerely,

/RA/

Richard V. Guzman, Senior Project Manager
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-003, 50-247, and 50-286

Enclosures:

1. Amendment No. 62 to DPR-5
2. Amendment No. 293 to DPR-26
3. Amendment No. 268 to DPR-64
4. Safety Evaluation

cc: Listserv

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT NOS. 1, 2, AND 3 – ISSUANCE OF AMENDMENT NOS. 62, 293, AND 268 RE: CHANGES TO EMERGENCY PLAN FOR POST-SHUTDOWN AND PERMANENTLY DEFUELED CONDITION (EPID L-2019-LLA-0080) DATED APRIL 15, 2020

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*by e-mail

**by memorandum

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

ENTERGY NUCLEAR INDIAN POINT 2, LLC

ENTERGY NUCLEAR OPERATIONS, INC.

DOCKET NO. 50-003

INDIAN POINT NUCLEAR GENERATING UNIT NO. 1

AMENDMENT TO PROVISIONAL OPERATING LICENSE

Amendment No. 62
License No. DPR-5

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Entergy Nuclear Operations, Inc. (the licensee) dated April 15, 2019, 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, by the Amendment No. 62, Provisional Operating License No. DPR-5 is hereby amended to authorize revision to the Indian Point Nuclear Generating Unit No. 1 Emergency Plan as set forth in the licensee's application dated April 15, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.
3. This license amendment is effective following the docketing of the certifications required by 10 CFR 50.82(a)(1)(i) and (ii) that Indian Point Nuclear Generating Unit No. 2 has been permanently shut down and defueled, and shall be implemented within 90 days of the effective date of the amendment, but will not exceed December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Bruce A. Watson, CHP, Chief
Reactor Decommissioning Branch
Division of Decommissioning, Uranium Recovery
and Waste Program
Office of Nuclear Material Safety and Safeguards

Date of Issuance: April 15, 2020



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

ENTERGY NUCLEAR INDIAN POINT 2, LLC

ENTERGY NUCLEAR OPERATIONS, INC.

DOCKET NO. 50-247

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 293
License No. DPR-26

1. The U.S. Nuclear Regulatory Commission (NRC or the Commission) has found that:
 - A. The application for amendment by Entergy Nuclear Operations, Inc. (the licensee) dated April 15, 2019, 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, by the Amendment No. 293, Renewed Facility Operating License No. DPR-26 is hereby amended to authorize revision to the Indian Point Nuclear Generating Unit No. 2 Emergency Plan as set forth in the licensee's application dated April 15, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.
3. This license amendment is effective following the docketing of the certifications required by 10 CFR 50.82(a)(1)(i) and (ii) that Indian Point Nuclear Generating Unit No. 2 has been permanently shut down and defueled, and shall be implemented within 90 days of the effective date of the amendment, but will not exceed December 31, 2020.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA by Mirela Gavrilas for/

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

Date of Issuance: April 15, 2020



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

ENTERGY NUCLEAR INDIAN POINT 3, LLC

ENTERGY NUCLEAR OPERATIONS, INC.

DOCKET NO. 50-286

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 268
License No. DPR-64

1. The U.S. Nuclear Regulatory Commission (NRC or the Commission) has found that:
 - A. The application for amendment by Entergy Nuclear Operations, Inc. (the licensee) dated April 15, 2019, 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, by the Amendment No. 268, Renewed Facility Operating License No. DPR-64 is hereby amended to authorize revision to the Indian Point Nuclear Generating Unit No. 3 Emergency Plan as set forth in the licensee's application dated April 15, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.
3. This license amendment is effective following the docketing of the certifications required by 10 CFR 50.82(a)(1)(i) and (ii) that Indian Point Nuclear Generating Unit No. 3 has been permanently shut down and defueled, and shall be implemented within 90 days of the effective date of the amendment, but will not exceed December 31, 2021.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA by Mirela Gavrilas for/

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

Date of Issuance: April 15, 2020



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 62 TO PROVISIONAL OPERATING LICENSE NO. DPR-5
AMENDMENT NO. 293 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-26
AMENDMENT NO. 268 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-64
ENTERGY NUCLEAR INDIAN POINT 2, LLC,
ENTERGY NUCLEAR INDIAN POINT 3, LLC
ENTERGY NUCLEAR OPERATIONS, INC.
DOCKET NOS. 50-003, 50-247, AND 50-286
INDIAN POINT NUCLEAR GENERATING, UNIT NO. 1
INDIAN POINT NUCLEAR GENERATING UNIT NO. 2
INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

1.0 INTRODUCTION

By letter dated February 8, 2017 (Reference 1), in accordance with Sections 50.82(a)(1)(i) and 50.4(b)(8) of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," Entergy Nuclear Operations, Inc. (Entergy or the licensee) informed the U.S. Nuclear Regulatory Commission (NRC or the Commission) that the Indian Point Energy Center (IPEC) would permanently cease power operations at Indian Point Nuclear Generating Unit No. 2 (Indian Point 2, IP2, or Unit 2), and Indian Point Nuclear Generating Unit No. 3 (Indian Point 3, IP3, or Unit 3) by April 30, 2020, and April 30, 2021, respectively. Indian Point Nuclear Generating Unit No. 1 (Indian Point 1, IP1, or Unit 1), previously ceased power operations in October 1974, and its spent fuel is currently in dry storage at the IPEC onsite independent spent fuel storage installation (ISFSI). Upon the NRC's docketing of the licensee's certification that all fuel has been permanently removed from the Indian Point 2, and subsequently the Indian Point 3, reactor vessels and placed into the spent fuel pools (SFPs) pursuant to 10 CFR 50.82(a)(2), the respective Indian Point unit licenses will no longer authorize operation of the reactor or emplacement or retention of fuel into the reactor vessel. The irradiated fuel will be stored in the SFPs and in dry cask storage at the ISFSI until it is shipped offsite.

By application dated April 15, 2019 (Reference 2) (“the “application”), Entergy requested approval by the NRC of proposed changes to the IPEC Site Emergency Plan (SEP), as required under 10 CFR 50.54(q)(4), prior to implementation by the licensee to support the planned phased permanent cessation of operations and permanent defueling of the IP2 and IP3 reactors. As noted in the application:

Due to the planned one year staggered shutdown dates for IP2 and IP3, the proposed changes to the IPEC SEP address the interim Stage I period during which IP2 will be permanently shut down and defueled, and IP3 will remain in operation. The proposed Stage I changes will only affect the IP1 and IP2 on-shift staffs; there are no changes to the augmented ERO [Emergency Response Organization] staffing. The proposed Stage II changes to the IPEC SEP address the period following IP3 permanent shut down and defuel, which results in no reactors authorized to operate at the IPEC site. The Stage II changes will affect the IP2 and IP3 on-shift staffs, as well as the augmented ERO staffing. The proposed changes have been reviewed against the planning standards in 10 CFR 50.47(b) and the requirements in 10 CFR Part 50, Appendix E, and it was concluded that the standards and requirements will continue to be met.

The proposed changes would revise the IPEC SEP ERO on-shift and augmented staffing, commensurate with the reduced spectrum of credible accidents for a permanently shutdown and defueled nuclear power reactor facility. As a result of the transition from an operating facility to a permanently defueled facility, the proposed changes will properly reflect the conditions of the facility while continuing to maintain effectiveness of the IPEC SEP.

Stage I

The proposed changes would revise the IPEC SEP current staffing levels to eliminate the following on-shift ERO position from IP1:

- One (1) Nuclear Plant Operator

The proposed changes would revise the IPEC SEP current staffing levels to eliminate the following on-shift ERO positions from IP2:

- One (1) Control Room Supervisor
- One (1) Field Support Supervisor or Shift Technical Advisor
- Two (2) Reactor Operators
- Four (4) Nuclear Plant Operators

Stage II

The proposed changes would further revise the IPEC SEP staffing levels to eliminate the following on-shift ERO position from IP2:

- One (1) Chemistry Technician

The proposed changes would further revise the IPEC SEP staffing levels to eliminate the following on-shift ERO positions from IP3:

- One (1) Control Room Supervisor
- One (1) Field Support Supervisor or Shift Technical Advisor
- Two (2) Reactor Operators
- Four (4) Nuclear Plant Operators
- One (1) Senior Reactor Operator
- One (1) Chemistry Technician

In addition, the following current ERO minimum staffing augmented positions would be eliminated:

- One (1) Technical Support Center (TSC) Communicator
- One (1) Chemistry Technician
- Four (4) Radiation Protection (RP) Technicians
- One (1) Reactor Engineer
- One (1) Electrical Engineer
- One (1) Mechanical Engineer
- Operations Support Center (OSC) Craft consisting of one (1) Mechanical Maintenance Technician, one (1) Electrical Maintenance Technician, and one (1) Instrument and Control (I&C) Technician

2.0 REGULATORY EVALUATION

A licensee's emergency plan for an operating nuclear power reactor is developed for a level of effectiveness commensurate with the potential consequences to public health and safety for a wide spectrum of accident scenarios related to an operating power reactor. With the phased permanent cessation of operations and the permanent removal of the fuel from the reactor vessels at IP2 and IP3, most of the accident scenarios postulated for an operating power reactor will no longer be possible. The irradiated fuel will be stored in the SFP and in the onsite ISFSI until the fuel can be moved offsite for long-term storage or disposal. The reactor coolant system (RCS) and reactor support systems are no longer in operation and have no function related to the storage of the irradiated fuel. Therefore, postulated accidents involving a failure or malfunction of the reactor, RCS, or reactor support system are no longer applicable.

Chapter 14, "Safety Analysis," of the IP2 and IP3 Updated Final Safety Analysis Reports (Reference 3 and Reference 4, respectively) describes the abnormal operational transients and design-basis accident (DBA) scenarios that are applicable to each unit during plant operations. The postulated DBA that will remain applicable to IP2 and IP3 in permanently shutdown and defueled condition is a fuel handling accident (FHA) in the SFP. The licensee states that IP2 and IP3 Updated Final Safety Analysis Reports, Chapter 14, will be revised to eliminate the remaining DBAs that will no longer be applicable in the permanently defueled condition.

The regulatory requirements and guidance on which the NRC staff based its review of the license amendment request are addressed below.

2.1 Regulatory Requirements

Section 10 CFR 50.47(b)(1) requires, in part, that “each principal response organization has staff to respond and to augment its initial response on a continuous basis.”

Section 50.47(b)(2) of 10 CFR requires, in part, that “adequate staffing to provide initial facility accident response in key functional areas [be] maintained at all times,” and that “timely augmentation of response capabilities is available...”

Section 50.72(a)(3) of 10 CFR states, in part, that “The licensee shall notify the NRC immediately after notification of the appropriate State or local agencies and not later than one hour after the time the licensee declares one of the Emergency Classes.”

Section IV.A, “Organization,” of Appendix E to 10 CFR Part 50, “Emergency Planning and Preparedness for Production and Utilization Facilities,” states, in part, that “The organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee’s emergency organization....”

Section IV.D.3, “Notification Procedures,” of Appendix E to 10 CFR Part 50, states, in part, that “A licensee shall have the capability to notify responsible State and local governmental agencies within 15 minutes after declaring an emergency.”

2.2 Guidance

Regulatory Guide (RG) 1.101, Revision 2, “Emergency Planning and Preparedness for Nuclear Power Reactors,” dated October 1981 (Reference 5), provides guidance on methods acceptable to the NRC staff for implementing the planning standards of 10 CFR 50.47(b)(1) and (2), and the requirements of Sections IV.A and IV.D of Appendix E to 10 CFR Part 50. Revision 2 of RG 1.101 endorses Revision 1 to NUREG-0654/FEMA-REP-1 [Federal Emergency Management Agency – Radiological Emergency Preparedness], “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” dated November 1980 (referred to hereafter as NUREG-0654) (Reference 6), which provides specific acceptance criteria for complying with the planning standards set forth in 10 CFR 50.47. These criteria provide a basis for NRC licensees and State and local governments to develop acceptable radiological emergency plans.

Specifically, in NUREG-0654, Section II, “Planning Standards and Evaluation Criteria,” Evaluation Criteria II.B.1 and II.B.5, address the planning standard 10 CFR 50.47(b)(2). Evaluation Criterion II.B.1 specifies the onsite emergency organization of plant staff personnel for all shifts and its relation to the responsibilities and duties of the normal shift complement. In addition, Evaluation Criterion II.B.5 states, in part:

Each licensee shall specify the positions or title and major tasks to be performed by the persons to be assigned to the functional areas of emergency activity. For emergency situations, specific assignments shall be made for all shifts and for plant staff members, both onsite and away from the site. These assignments shall cover the emergency functions in Table B-1 entitled, “Minimum Staffing Requirements for Nuclear Power Plant Emergencies.” The minimum on-shift staffing levels shall be as indicated in Table B-1. The licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency. This capability shall be as indicated in Table B-1.

The NRC's Office of Nuclear Security and Incident Response (NSIR)/Division of Preparedness and Response (DPR) Interim Staff Guidance (ISG) document – NSIR/DPR-ISG-01, "Emergency Planning for Nuclear Power Plants," dated November 20, 2011 (Reference 7), provides updated guidance information to address emergency planning requirements for nuclear power plants. Specifically, NSIR/DPR-ISG-01 was developed to address the assignment of tasks or responsibilities to on-shift ERO personnel that would potentially overburden them and prevent the timely performance of their emergency plan functions. The ISG also endorsed the Nuclear Energy Institute (NEI) document NEI 10-05, Revision 0, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," dated June 2011 (Reference 8), which was developed to establish a standard methodology for licensees to perform analyses of the ability of on-shift staff to perform all required functions and tasks necessary to respond to a declared emergency for an operating power reactor. Licensees can use this methodology as an acceptable method to meet the requirement of Section IV.A.9 of Appendix E of 10 CFR Part 50 for all accident scenarios that are applicable in a permanently defueled condition.

3.0 TECHNICAL EVALUATION

The NRC staff reviewed the licensee's regulatory and technical analyses in support of its proposed emergency plan changes, as described in the licensee's letter dated April 15, 2019. The NRC staff reviewed the request using the evaluation criteria in Table B-1 of NUREG-0654, as well as the licensee's ability to promptly implement the SFP mitigation strategies, if required. The NRC staff's technical evaluation for each major functional area of Table B-1 of NUREG-0654 is detailed in Sections 3.1 through 3.9 of this safety evaluation.

In Section 3.2.1, "On-Shift Staffing," of Attachment 1, "Description and Evaluation of the Proposed Changes," to the application, the licensee states:

IPEC has conducted an analysis of its current on-shift staff in accordance with the guidance provided in NEI 10-05 to satisfy the requirements of Appendix E to 10 CFR Part 50, Section IV.A.9. This analysis examined the capability of the minimum on-shift staff provided in Table B-1 [Comparison of NUREG-0654 to Indian Point Energy Center] of the IPEC SEP to perform the key emergency response actions for events described in NSIR/DPR-ISG-01 until augmenting staff arrive.

Specifically, Section IV.A.9 states that licensees shall perform "...a detailed analysis demonstrating that on-shift personnel assigned emergency plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan."

The licensee stated that the following accident scenarios were evaluated in the analysis of proposed post-shutdown on-shift staff:

Indian Point 2 (Stage I):

- FHA
- Control Room fire requiring evacuation
- General Emergency with release and protective action recommendation
- Design-basis threat
- Probable aircraft threat

The IP3 accident scenarios for the Stage I analysis are unchanged from their current accident analysis.

Indian Point 2 and Indian Point 3 (Stage II):

- FHA
- Control Room fire requiring evacuation
- General Emergency with release and protective action recommendation
- Design-basis threat
- Probable aircraft threat

The spectrum of credible accidents and operational events for a permanently shutdown and defueled reactor and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to an operating plant. A licensee's emergency plan is developed for a level of effectiveness commensurate with the potential consequences to public health and safety for a wide spectrum of accident scenarios related to an operating power reactor. When Entergy certifies the permanent cessation of operations and the permanent removal of the fuel from the IP2 and IP3 reactor vessels at IPEC, most of the accident scenarios postulated for an operating power reactor will no longer be possible. The irradiated fuel will be stored in the SFPs and ISFSI and will remain on site until it can be moved offsite for long-term storage or disposal. The reactor, RCS and reactor support systems will no longer be in operation and will have no functions related to the storage of the irradiated fuel. Therefore, postulated accidents involving failure or malfunction of the reactor, RCS or reactor support systems will be no longer applicable. During reactor decommissioning, the principal public safety concerns involve the radiological risks associated with the storage of spent fuel on site.

The licensee identified that the postulated DBA that will remain applicable to IP2 and IP3 in the permanently shutdown and defueled condition is an FHA associated with the SFPs. The licensee determined that the station blackout event and Appendix R fire did not need to be considered in the Stage I post-shutdown on-shift staffing analysis for IP2. The licensee stated that Chapter 14 of the IP2 and IP3 FSARs will be revised to eliminate the DBAs that will not be applicable in the permanently shutdown and defueled condition.

In Stage I, once the certifications required by 10 CFR 50.82(a)(1)(i) and (ii) are docketed, IP2 will no longer be licensed to operate and 10 CFR 50.63 (the station blackout rule) will no longer be applicable pursuant to 10 CFR 50.63(a)(1). Similarly, 10 CFR Part 50, Appendix R, is applicable to licensed nuclear power generating stations. Once the certifications required by 10 CFR 50.82(a)(1)(i) and (ii) are docketed, IP2 will no longer be licensed to generate power. These analyses were considered for IP3 in Stage I. In Stage II, the station blackout event and Appendix R to 10 CFR Part 50 fire were not considered for IP3 for the same reason as discussed previously for IP2 in Stage I.

In Section 3.3, "Accident Analysis," of Attachment 1 to the application, the licensee states:

In the permanently shut down and defueled condition, the IPEC Fire Brigade will be responsible for implementing the SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2). IPEC will continue to maintain a trained and qualified Fire Brigade responsible for implementation of the SFP inventory makeup strategies. The Fire Brigade personnel identified in the IPEC SEP are separate and distinct from those responsible for implementing the major

elements of the emergency plan including command and control, emergency classification, offsite notifications, and dose assessment/protective action recommendation development. Therefore, sufficient staffing is available to promptly implement SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2) without impacting the performance of designated emergency plan functions.

As described in Section 3.4.5.3 of Attachment 1 to the application, events involving a loss of SFP cooling or water inventory can be addressed by implementation of SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2). These strategies will continue to be maintained to satisfy applicable portions of License Condition 2.N of the IP2 Renewed Facility Operating License and License Condition 2.AC of the IP3 Renewed Facility Operating License.

3.1 Major Functional Area: Plant Operations and Assessment

Section 3.4.1.1, "On-Shift Staffing," of Attachment 1 to the application provides Table 3.4-1, which identifies the current on-shift operations staffing as defined in the IPEC SEP and the proposed Stage I and Stage II on-shift staffing. The current operations on-shift staffing consists of:

Indian Point 1

- One (1) Nuclear Plant Operator

Indian Point 2

- One (1) Shift Manager
- One (1) Control Room Supervisor
- Two (2) Reactor Operators/Field Support Supervisors
- Five (5) Nuclear Plant Operators

Indian Point 3

- One (1) Shift Manager
- One (1) Control Room Supervisor
- Two (2) Reactor Operators/Field Support Supervisors
- Four (4) Nuclear Plant Operators

Table 3.4-1 provides the following note:

Proposed changes to the IPEC Technical Specifications (Reference 5 [Letter, Entergy to USNRC, NL-19-013, "Technical Specifications Proposed Change - Administrative Controls for a Permanently Defueled Condition," dated April 15, 2019]) revise the minimum shift staffing requirements by replacing references to licensed and non-licensed operators with references to CFHs [Certified Fuel Handlers] and Non-Certified Operators. The term Nuclear Plant Operator is being retained in the IPEC SEP. The term Non-Certified Operator is used to differentiate from CFH and refers to the shutdown unit's Non-Certified Operators that are not qualified as CFHs.

Stage I

The licensee's post-shutdown On-Shift Staffing Analysis (OSA) concluded that in a permanently shutdown and defueled condition for IP2, with the postulated accidents that would be applicable to that condition, the following on-shift complement would be eliminated:

- Indian Point 1
 - One (1) Nuclear Plant Operator
- Indian Point 2
 - One (1) Control Room Supervisor
 - Two (2) Reactor Operators or Field Support Supervisor
 - Four (4) Nuclear Plant Operators

The proposed IP2 Operations on-shift staffing at Stage I would be as follows:

- One (1) Shift Manager (qualified as a CFH)
- One (1) Nuclear Plant Operator (Non-Certified Operator)

In Section 3.4.1.3, "Analysis," of Attachment 1 to the application, the licensee states:

Unit 1

There are limited operating systems remaining in IP1. The limited operating systems combined with the reduced radioactive source term result in a limited potential impact to a possible radiological release resulting from an event at IP1. Additionally, there are no Emergency Action Levels specific to IP1 that would challenge the on-shift staffing beyond what would be in place for IP2 and IP3. As stated in Part 2, Section B.1.a of the IPEC SEP, one (1) IP2 Nuclear Plant Operator is assigned to IP1 and Safe Shutdown (SSD) for IP2. IP2 SSD is no longer a required function following certification of permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel. Therefore, this position can be eliminated following certification of permanent cessation of power operations and permanent removal of fuel from the IP2 reactor vessel without impacting IPEC's ability to respond to the spectrum of credible accidents and operational events for IP2 and IP3 or cause undue impact to the performance of the IPEC Emergency Plan.

Unit 2

Plant operations shift staffing, as implemented for an operating nuclear power reactor, is based on the philosophy of defense-in-depth. Because of the reduced number of possible events requiring mitigating actions and the limited number of actions to be performed by the Control Room positions in IP2's permanently shut down and defueled condition, the monitoring and control responsibilities of the on-shift staff is limited to the operation of SFP support systems.

The requirement for licensed Reactor Operators (ROs) and a Control Room Supervisor, who holds a Senior Reactor Operator's (SRO) license, is eliminated. Per Technical Specifications, the minimum shift crew composition requires ROs and SROs who are licensed by the NRC. The Shift Manager and the Control Room Supervisor fulfill the requirements for the SROs, and the Control Room Operator fulfills the requirement for the RO. In accordance with the IPEC SEP, the Shift Manager, the Control Room Supervisor and the Control Room Operators support the major functional area of Plant Operations and Assessment. Consistent with proposed changes to the IP2 Technical Specifications (Reference 5) that revise the minimum shift staffing requirements, the positions associated with the SRO and RO will be fulfilled by individuals qualified as CFHs and Non-Certified Operators. Because of the reduced number of possible events requiring mitigating actions in the permanently shutdown and defueled condition and the limited number of actions to be performed by the Control Room positions, the Shift Manager (CFH) and Non-Certified Operator positions would provide the resources needed. With IP2 in a permanently shutdown and permanently defueled condition, the operations staff will only have to respond to events regarding loss of SFP cooling and/or water inventory or external events that could lead to a challenge to maintaining SFP cooling and/or water inventory. The on-shift staff has the ability to monitor SFP parameters.

The Stage I on-shift staffing analysis, summarized in Section 3.5.1.1 [Stage 1 On-Shift Staffing Analysis], indicated that with IP2 in a permanently shutdown and defueled condition, with the postulated accidents that would be applicable to that condition, the IP2 and IP3 on-shift complement would be able to perform all required Emergency Plan actions in a timely manner and that there are no identified collateral duties that would prevent the timely performance of emergency plan functions. The evaluation also considers the current postulated accidents that will remain applicable to IP3.

The proposed on-shift staffing continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR 50, commensurate with the reduced spectrum of credible accidents for IP2 in the permanently shutdown and defueled condition, and ensures that IPEC retains the ability to promptly implement the IP2 SFP mitigation actions.

Stage II

The licensee's post-shutdown OSA concluded that in a permanently shutdown and defueled condition for IP3, with the postulated accidents that would be applicable to that condition, the following on-shift complement would be eliminated:

- Indian Point 3

One (1) Control Room Supervisor

Two (2) Reactor Operators or Field Support Supervisor

Four (4) Nuclear Plant Operators

The proposed Stage II IP3 Operations on-shift staffing will be as follows:

- One (1) Shift Manager (qualified as a CFH)
- One (1) Nuclear Plant Operator (Non-Certified Operator)

In Section 3.4.1.3, "Analysis," of Attachment 1 to the application, the licensee states:

Unit 3

For the same reasons cited previously, the IP3 on-shift staffing in the major functional area of Plant Operations and Assessment will be modified consistent with IP2 following certification of permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

The Stage II on-shift staffing analysis, summarized in Section 3.5.1.2 [Stage II On-Shift Staffing Analysis], indicated that with IP2 and IP3 in a permanently shutdown and defueled condition, with the postulated accidents that would be applicable to that condition, the IP2 and IP3 on-shift complement would be able to perform all required Emergency Plan actions in a timely manner and that there are no identified collateral duties that would prevent the timely performance of emergency plan functions.

The licensee concluded that the proposed ERO staffing continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR 50, commensurate with the reduced spectrum of credible accidents with IP2 and IP3 in the permanently shutdown and defueled condition, and that IPEC retains the ability to implement the IPEC SFP mitigation actions.

NRC Staff Conclusion

Based on the NRC staff's review of the information provided in the licensee's application, the staff finds that the proposed level of the ERO staffing for the Plant Operations and Assessment Major Functional Area continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Section IV.A of Appendix E to 10 CFR Part 50 to cope with radiological emergencies, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition of the IPEC facility. As such, the proposed changes in ERO staffing for the positions listed above for this functional area are acceptable and do not impact the ability of the ERO staffing to perform the required plant operations and assessment functions.

3.2 Major Functional Area: Emergency Direction and Control

Section 3.4.2, "Major Functional Area: Emergency Direction and Control," of Attachment 1 to the application currently identifies the following on-shift staffing in support of emergency direction and control:

- Indian Point 1
 - No on-shift staff in this major functional area

- Indian Point 2
 - One (1) Shift Manager or Control Room Supervisor
- Indian Point 3
 - One (1) Shift Manager or Control Room Supervisor

Stage I

The licensee's post-shutdown OSA concluded that in a permanently shutdown and defueled condition for IP2, with the postulated accidents that would be applicable to that condition, the following proposed IP2 and IP3 Operations on-shift staffing complement would be able to perform all required IPEC SEP actions in a timely manner in Stage I and that there are no identified collateral duties that would prevent the timely performance of emergency plan functions:

Indian Point 2

One (1) Shift Manager (qualified as a CFH)

Indian Point 3

One (1) Shift Manager or Control Room Supervisor

Stage II

The licensee's post-shutdown OSA concluded that in a permanently shutdown and defueled condition for IP3, with the postulated accidents that would be applicable to that condition, the following on-shift complement would be able to perform all required IPEC SEP actions in a timely manner and that there are no identified collateral duties that would prevent the timely performance of emergency plan functions:

- Indian Point 3
 - One (1) Shift Manager (qualified as a CFH)

In Section 3.4.2.3, "Analysis," of Attachment 1 to the application, the licensee states:

The position of Control Room Supervisor is proposed for elimination following permanent cessation of power operations and permanent removal of fuel from each unit. However, the responsibility of command and control will continue to reside with the unit-specific Shift Manager. The Shift Manager assumes the responsibility of the Emergency Director and implements the IPEC SEP in response to an emergency at the respective unit. When the EOF [Emergency Operations Facility] becomes operational, the on-call Emergency Director relieves the Shift Manager of Emergency Director responsibilities, and overall command and control of the emergency is transferred to the EOF.

The Stage I and II on-shift staffing analyses, summarized in Sections 3.5.1.1 and 3.5.1.2, respectively, indicated that with IP2 and IP3 in a permanently shutdown

and defueled condition, with the postulated accidents that would be applicable to that condition, the IP2 and IP3 on-shift complement would be able to perform all required Emergency Plan actions in a timely manner and that there are no identified collateral duties that would prevent the timely performance of emergency plan functions.

The licensee concluded that the proposed ERO staffing continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50, commensurate with the reduced spectrum of credible accidents with IP2 and IP3 in the permanently shutdown and defueled condition, and that IPEC retains the ability to implement the IPEC SFP mitigation actions.

NRC Staff Conclusion

The NRC staff reviewed the licensee's analysis of proposed post-shutdown ERO staffing. As discussed previously in Section 3.0 of this safety evaluation (SE), the spectrum of credible accidents and operational events for a permanently shutdown and defueled reactor and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to those at an operating plant. Based on this information, the NRC staff determined the proposed level of onsite emergency direction and control staffing will continue to provide for the direction and performance of actions to mitigate the remaining identified applicable events and the prompt implementation of mitigating actions in response to an SFP accident.

Based on the NRC staff's review of the information provided in the licensee's application, the staff finds that the proposed level of the ERO staffing for the Emergency Direction and Control Major Functional Area continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Section IV.A of Appendix E to 10 CFR Part 50 to cope with radiological emergencies, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition of the IPEC facility. As such, the proposed changes in ERO staffing for the positions listed above for this functional area are acceptable and do not impact the ability of the ERO staffing to perform the required command and control functions.

3.3 Major Functional Area: Notification/Communication

Section 3.4.3, "Major Functional Area: Notification/Communication," of Attachment 1 to the application currently identifies the following notification/communication on-shift staffing levels:

- Indian Point 1
 - No on-shift staff in this major functional area
- Indian Point 2
 - No on-shift staff in this major functional area
- Indian Point 3
 - One (1) Nuclear Plant Operator

Table B-1 of the IPEC SEP currently states that IPEC has a designated Communicator on shift (one Nuclear Plant Operator or qualified designee) for both units. In Table B-1, the on-shift Communicator has been counted in the IP3 total but can be provided by either unit.

Stage I

There are no proposed changes to the on-shift staffing for this major functional area in Stage I.

Stage II

The licensee's post-shutdown OSA concluded that in a permanently shutdown and defueled condition for IP3, with the postulated accidents that would be applicable to that condition, the following on-shift complement would be able to perform all required IPEC SEP actions in a timely manner and that there are no identified collateral duties that would prevent the timely performance of emergency plan functions:

- Indian Point 3
 - The on-shift Communicator has previously been counted in the IP3 total. This function will now be performed by any on-shift position qualified as a Communicator who, once designated, the individual will have no other assigned responsibilities.

In Section 3.4.3.3, "Analysis," of Attachment 1 to the application, the licensee states:

The regulations in Section IV.D.3 of Appendix E to 10 CFR 50 require that IPEC have the capability to notify responsible State and local government agencies within 15 minutes after declaration of an emergency. The regulations in 10 CFR 50.72(a)(3) require that IPEC notify the NRC immediately after notification of the appropriate State or local agencies and not later than 60 minutes after the time IP2 or IP3 declares one of the emergency classes. IPEC has a designated Communicator on shift (one Nuclear Plant Operator or qualified designee) for both units. In Table B-1, the on-shift Communicator has been counted in the IP3 total, but this function can be provided by either unit. This function can be performed by any on-shift position qualified as a Communicator. Once designated, the individual will have no other assigned responsibilities. This function is currently augmented by any two of the following positions: Offsite Team Coordinator (EOF), Control Room Communicator, or TSC Communicator.

IPEC uses the Radiological Emergency Communications System (RECS) located in the Control Rooms and EOF to support the State and Local Notification function. The RECS is a system of dedicated phone circuits independent of the normal land-line phone system that utilizes an auto-ring feature. It is used to transmit information to New York State; Westchester, Rockland, Putnam and Orange Counties; the City of Peekskill, and the West Point Military Police Desk for Unusual Events, Alerts, Site Area Emergencies, and General Emergencies. This system is available on a 24-hour basis and incorporates each principal emergency response center into a single dedicated network. In addition, each organization can be reached via normal commercial lines as a backup to the RECS.

NRC notifications were treated as a continuous action in accordance with 10 CFR 50.72(c)(3), meaning that once the initial NRC communications are established, it was assumed that the NRC will request an open line to be continuously maintained with the NRC Operations Center using the dedicated Emergency Notification System (ENS) network. The use of dedicated phone circuits and wireless headsets enables these notifications to be performed by the same on-shift communicator who performs the State and local notifications.

The Stage I and II OSAs, summarized in Sections 3.5.1.1 and 3.5.1.2, respectively, indicated that with IP2 and IP3 in a permanently shutdown and defueled condition, with the postulated accidents that would be applicable to that condition, the IP2 and IP3 on-shift complement would be able to perform all required Emergency Plan actions in a timely manner and that there are no identified collateral duties that would prevent the timely performance of emergency plan functions.

Augmenting ERO

The licensee proposed the following changes to the IPEC augmenting ERO upon permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel for this functional area:

- Table B-1 of the IPEC SEP is revised to remove reference to the Control Room Communicator and the TSC Communicator in the major functional area of Notification/Communication.
- Table B-1 of the IPEC SEP is revised to remove one of the three 60-minute augmented ERO positions. This function will be provided by the EOF Offsite Communicator and one additional augmenting position (Offsite Team Coordinator).

In Section 3.4.3.3, "Analysis," of Attachment 1 to the application, the licensee states:

Table B-1 of the IPEC SEP currently identifies three (3) 60-minute augmenting Communicators. The on-shift notification function is currently augmented by the EOF Offsite Communicator. The additional 60-minute augmenting Communicators are identified as the TSC Communicator and the Offsite Team Coordinator (IPEC SEP Table B-1, Note 5). The augmented staff assumes the function once their respective facility is activated and are managed by the applicable Emergency Director (ED) in the EOF or the Emergency Plant Manager in the TSC.

The proposed changes to the augmented ERO following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels include the elimination of the TSC Communicator position. The elimination of the TSC Communicator position does not impact the capabilities of the on-shift staffing or augmented response. The position can be eliminated without placing an undue burden on the remaining ERO positions, without impacting the ability of the EOF to provide the necessary information to offsite organizations, and without increasing the risk to public health and safety.

The licensee concluded that the proposed ERO staffing continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50, commensurate with the reduced spectrum of credible accidents with IP2 and IP3 in the permanently shutdown and defueled condition, and that IPEC retains the ability to implement the IPEC SFP mitigation actions.

NRC Staff Conclusion

The NRC staff reviewed the licensee's analysis of proposed post-shutdown ERO staffing. As discussed previously in Section 3.0 of this SE, the spectrum of credible accidents and operational events for a permanently shutdown and defueled reactor and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to those at an operating plant. Based on this information, the NRC staff determined the proposed level of onsite notification/communications staffing will continue to provide for the direction and performance of actions to mitigate the remaining identified applicable events and the prompt implementation of mitigating actions in response to an SFP accident.

Based on the NRC staff's review of the information provided in the licensee's application, the staff finds that the proposed level of the ERO staffing for the Notification/Communications Major Functional Area continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of 10 CFR 50.72(a)(3) and Sections IV.A and D.3 of Appendix E to 10 CFR Part 50 to cope with radiological emergencies, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition of the IPEC facility. As such, the proposed changes in ERO staffing for the positions listed above for this functional area are acceptable and do not impact the ability of the ERO staffing to perform the required notification/communication functions.

3.4 Major Functional Area: Radiological Accident Assessment and Support of Operational Accident Assessment

Section 3.4.4, "Major Functional Area: Radiological Accident Assessment and Support of Operational Accident Assessment," of Attachment 1 to the application currently identifies the following radiological accident assessment and support of operational accident assessment on-shift staffing:

- Indian Point 1
 - No on-shift staff in this major functional area
- Indian Point 2
 - One (1) RP Technician
 - One (1) Chemistry Technician
- Indian Point 3
 - One (1) RP Technician
 - One (1) Chemistry Technician

Stage I

There are no proposed changes to the on-shift staffing for this major functional area in Stage I.

Stage II

The licensee's post-shutdown OSA concluded that in a permanently shutdown and defueled condition for IP2 and IP3, with the postulated accidents that would be applicable to that condition, the following on-shift complement would be able to perform all required IPEC SEP actions in a timely manner and that there are no identified collateral duties that would prevent the timely performance of emergency plan functions:

- Indian Point 2
 - One (1) RP Technician
- Indian Point 3
 - One (1) RP Technician

In Section 3.4.4.3, "Analysis," of Attachment 1 to the application, the licensee states:

The IP2 and IP3 on-shift Chemistry Technicians are proposed for elimination following permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel.

The on-shift Chemistry Technician performs chemistry/radiochemistry tasks in support of the Functional Area Radiological Accident Assessment and Support of Operational Accident Assessment. The Chemistry Technician is responsible for performing all post-accident chemistry samples and analyses and supporting operations in the area of chemistry as directed by the Shift Manager. However, the current shift staffing analysis states that no chemistry job tasks were noted as being required within the first 90 minutes of any of the analyzed events. The two Chemistry Technicians on-shift (one each at IP2 and IP3) are qualified to work either unit.

Currently, the Chemistry Technician is an on-shift position so that a technician is always available to immediately collect and analyze a liquid sample if the applicable radiation monitor is not available during a release, or as directed by the Shift Manager. When the on-shift Chemistry Technician position is eliminated, the function will be maintained by having trained and qualified personnel on-shift to perform sampling and analysis at various locations, so as to not delay information potentially needed by the Shift Manager to determine if an emergency declaration is required.

Specific knowledge requirements would include how to obtain specific liquid samples. The initial training requirements for the designated on-shift person will include all training modules to ensure they are equipped with the required skills and knowledge to perform the required liquid sampling and analysis. These training modules will be specifically identified in their training program description

for the designated on-shift person position. This training is currently being developed in accordance with the requirements of 10 CFR 50.120.

For gaseous releases, the only credible scenario for releasing gas would be to mechanically damage spent fuel during handling or by impact of a heavy object. Plant activities that could cause mechanical damage will require that the radiation monitor listed in gaseous effluent EALs is in service or that a Chemistry Technician be on-site, thereby alleviating any reliance on a potentially delayed sample analysis to determine EAL applicability. Applicable fuel handling procedures will be revised to incorporate this as a prerequisite prior to fuel handling activities. Additionally, the Stage II shift staffing analysis validated that no chemistry job tasks were noted as being required within the first 90 minutes of any of the analyzed events.

The NRC requires that the IPEC SEP maintain a level of effectiveness commensurate with the potential consequences to public health and safety and common defense and security. With the permanent cessation of operations and the permanent removal of the fuel from the IP2 and IP3 reactor vessels, most of the accident scenarios postulated for an operating power reactor are no longer possible. The reactors, Reactor Coolant Systems (RCS), and reactor support systems are no longer in operation and have no function related to the storage of the irradiated fuel. Therefore, postulated accidents involving failure or malfunction of the reactor, RCS, or reactor support systems are no longer applicable.

The on-shift Chemistry Technicians are currently responsible for performing initial dose assessment activities. The purpose of conducting the off-site dose assessment is to review radiological conditions using data from available instrumentation, assess the impact of changing radiological conditions on emergency classification, assist in accident assessments based upon those changing radiological conditions, and recommend appropriate off-site protective measures. Dose assessment will no longer be required to evaluate the Condenser Off-gas, Reactor Building, and Steam Generator release paths, because the permanent defueled status will prohibit operation of the reactor, and these paths are only applicable to an operating unit. The only path that will be required to be assessed is the Fuel Storage Building Ventilation path in which the SFP source term potentially could be discharged.

The Stage II on-shift staffing evaluation employs the unaffected unit's RP Technician to perform the dose assessment function. The use of the unaffected unit's RP Technician to support the on-shift dose assessment is appropriate for a permanently shutdown and defueled condition because many of the potential initiating conditions that would lead to an emergency declaration are no longer credible. The set of plant equipment required in this condition is also greatly reduced, which also reduces the need for assessments and mitigation activities for an emergency.

Augmenting ERO

The licensee proposed the following changes to the IPEC augmenting ERO upon permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel for this functional area:

- Table B-1 of the IPEC SEP is revised to remove two (2) augmenting Radiation Protection Technicians.
- Table B-1 of the IPEC SEP is revised to remove the augmenting Chemistry Technician.

Section 3.4.4.3, "Analysis," of Attachment 1 to the application, the licensee states:

The need to perform complex chemistry sampling is greatly reduced with the permanent cessation of power operation of the IP2 and IP3 reactors and the source term confined to the SFPs. There is no need to dispatch a Chemistry Technician to support sampling. The on-shift staffing will be adequate to perform sampling of the SFPs. Upon activation of the ERO, the dose assessment responsibilities placed on the unaffected unit's RP Technician would be transferred to augmenting personnel and the unaffected unit's RP Technician would be available to provide support in the Major Functional Area of Radiological Accident Assessment and Support of Operational Accident Assessment. Note 11 of Table B-1 of the IPEC SEP indicates that credit may be taken for the opposite unit's on-shift Radiation Protection Technician. Additionally, if conditions warrant, Radiation Protection and Chemistry personnel are available to be called in by the OSC Manager.

The licensee concluded that the proposed ERO staffing continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50, commensurate with the reduced spectrum of credible accidents with IP2 and IP3 in the permanently shutdown and defueled condition, and that IPEC retains the ability to implement the IPEC SFP mitigation actions.

NRC Staff Conclusion

The NRC staff reviewed the licensee's analysis of proposed post-shutdown ERO staffing. As discussed previously in Section 3.0 of this SE, the spectrum of credible accidents and operational events for a permanently shutdown and defueled reactor and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to those at an operating plant. Based on this information, the NRC staff determined the proposed level of onsite radiological accident assessment staffing will continue to provide for the direction and performance of actions to mitigate the remaining identified applicable events and the prompt implementation of mitigating actions in response to an SFP accident.

Based on the NRC staff's review of the information provided in the application, the staff finds that the proposed level of the ERO staffing for the Radiological Accident Assessment and Support of Operational Accident Assessment Major Functional Area continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Section IV.A of Appendix E to 10 CFR Part 50, to cope with radiological emergencies, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition of the IPEC facility. As such, the proposed changes in ERO staffing for the positions listed above for this functional area are acceptable and do not impact the ability of the ERO staffing to perform the required radiological accident assessment functions.

3.5 Major Functional Area: Plant System Engineering, Repair and Mitigative Actions

Section 3.4.5, "Major Functional Area: Plant System Engineering, Repair and Mitigative Actions," of Attachment 1 to the application currently identifies the following plant system engineering, repair, and mitigative actions on-shift staffing:

- Indian Point 1
 - No on-shift staff in this major functional area
- Indian Point 2
 - One (1) Field Support Supervisor or Shift Technical Advisor
 - One (1) Mechanical Maintenance
- Indian Point 3
 - One (1) Field Support Supervisor or Shift Technical Advisor
 - One (1) Electrical Maintenance

The following note is provided for Table B-1 of the IPEC SEP with respect to the Mechanical Maintenance and Electrical Maintenance positions:

The repair and corrective action function would be initially performed by nuclear plant operators for minor mechanical [electrical] maintenance activities.

Stage I

The licensee's post-shutdown OSA concluded that in a permanently shutdown and defueled condition for IP2, with the postulated accidents that would be applicable to that condition, the following on-shift complement would be able to perform all required IPEC SEP actions in a timely manner and that there are no identified collateral duties that would prevent the timely performance of emergency plan functions:

- Indian Point 2
 - One (1) Mechanical Maintenance
- Indian Point 3
 - One (1) Electrical Maintenance

Stage II

The licensee's post-shutdown OSA concluded that in a permanently shutdown and defueled condition for IP3, with the postulated accidents that would be applicable to that condition, the following on-shift complement would be able to perform all required IPEC SEP actions in a timely manner and that there are no identified collateral duties that would prevent the timely performance of emergency plan functions:

- Indian Point 2
 - One (1) Mechanical Maintenance
- Indian Point 3
 - One (1) Electrical Maintenance

In Section 3.4.5.3, "Analysis," of Attachment 1 to the application, the licensee states:

The Shift Technical Advisor performs independent assessments of plant operating concerns, technical support, appropriate corrective actions, analysis of events and their effects, effectiveness of response(s) to emergent conditions, classifications of emergencies, protection of the public, and any other actions related to critical safety functions and plant safety during abnormal and emergency situations. The Shift Technical Advisor also contributes to operations during normal plant conditions. By routine monitoring of equipment and plant operations, the Shift Technical Advisor can focus on preventative actions to mitigate the consequences of an accident.

Because of the permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels, the Shift Technical Advisor position is no longer necessary for technical and analytical assistance. The Technical Support function will be assumed by the remaining Control Room personnel.

The Stage I and Stage II analysis of proposed post-shutdown on-shift staffing concluded that the IP2 and IP3 on-shift Shift Manager and Non-Certified Operator can perform any required technical analysis, until augmented by the TSC, in a timely manner and there are no collateral duties that would prevent the timely performance of this task.

Augmenting ERO

The licensee proposed the following changes to the IPEC augmenting ERO upon permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel for this functional area:

- Table B-1 of the IPEC SEP is revised to reduce the augmenting Mechanical Maintenance Technicians from two (2) to one (1).
- Table B-1 of the IPEC SEP is revised to reduce the augmenting Electrical Maintenance Technicians from two (2) to one (1).
- Table B-1 of the IPEC SEP is revised to eliminate the augmenting Instrument & Control Technician.

Regarding the changes to the augmented ERO in Section 3.4.5.3 of Attachment 1 to the application, the licensee states:

The proposed changes to the augmented ERO following permanent cessation of power operations and removal of fuel from the IP2 and IP3 reactor vessels include the elimination of one (1) augmenting Mechanical Maintenance position and one (1) augmenting Electrical Maintenance position.

IPEC proposes to maintain the OSC Manager position, and a pool of one (1) Mechanical Maintenance Technician and one (1) Electrical Maintenance Technician, to support repair and corrective actions.

The IPEC ERO staffing is intended to address the risks to public health and safety inherent in an operating reactor. The risk with IP2 and IP3 in the permanently shutdown and defueled condition is significantly reduced. Many of the potential initiating conditions that would lead to an emergency declaration will no longer be credible. The set of plant equipment required in the permanently shutdown and defueled condition is also greatly reduced, which reduces the assessments and mitigation activities that the OSC must perform. The spectrum of credible accidents and operational events, and the quantity and complexity of activities required for safe storage of spent fuel is reduced, as compared to an operating power reactor. Restoration of equipment supporting SFP cooling and inventory will be the primary focus of emergency mitigation actions for the TSC/OSC with IP2 and IP3 in a permanently shutdown and defueled condition.

In the permanently shutdown and defueled condition there are no longer any complex automatic control systems in service, and dedicated Instrument & Control maintenance technicians are no longer required. If conditions warrant, the OSC Manager can call out Instrument & Control support as necessary. The OSC Manager will continuously evaluate the need for resources and coordinate with the EOF Technical Advisor to call in additional qualified personnel. OSC resources will continue to be augmented positions with specific training and qualification requirements for assigned personnel in accordance with the site training program.

The primary events of concern in the immediate post-shutdown and defueled condition will be a fuel handling accident and a loss of SFP cooling and/or water inventory. Events involving a loss of SFP cooling and/or water inventory can be addressed by implementation of the SFP inventory makeup strategies, as required under License Condition 2.N of the IP2 FOL and License Condition 2.AC of the Indian Point 3 FOL, and 10 CFR 50.54(hh)(2). OSC staff is not relied upon to implement SFP inventory makeup. As such, elimination of the augmenting Mechanical Maintenance, Electrical Maintenance, and Instrument & Control Technician positions do not impact the ability of the ERO to perform the required function based on the permanent shutdown and defueled condition of the IP2 and IP3.

The licensee concluded that the proposed ERO staffing continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50, commensurate with the reduced spectrum of credible accidents with IP2 and IP3 in the permanently shutdown and defueled condition, and that IPEC retains the ability to implement the IPEC SFP mitigation actions.

NRC Staff Conclusion

The NRC staff reviewed the licensee's analysis of proposed post-shutdown ERO staffing. As discussed previously in Section 3.0 of this SE, the spectrum of credible accidents and operational events for a permanently shutdown and defueled reactor and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to those at an operating plant. Based on this information, the NRC staff determined the proposed level of onsite plant systems engineering, repair, and mitigative actions staffing will continue to provide for the direction and performance of actions to mitigate the remaining identified applicable events and the prompt implementation of mitigating actions in response to an SFP accident.

Based on the NRC staff's review of the information provided in the application, the staff finds that the proposed level of the ERO staffing for the Plant System Engineering, Repair, and Mitigative Actions Major Functional Area continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Section IV.A of Appendix E to 10 CFR Part 50 to cope with radiological emergencies, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition of the IPEC facility. As such, the proposed changes in ERO staffing for the positions listed above for this functional area are acceptable and do not impact the ability of the ERO staffing to perform the required engineering, repair, and mitigative functions.

3.6 Major Functional Area: Protective Actions (In-Plant)

The IPEC SEP currently identifies the following in-plant protective actions on-shift staffing for IP1, IP2, and IP3:

- Two (2) RP Technicians

There are no proposed changes to the on-shift staffing of RP Technicians in either Stage I or Stage II.

Augmenting ERO

The licensee proposed the following changes to the IPEC augmenting ERO upon permanent cessation of power operations and permanent removal of fuel from the IP3 reactor vessel for this functional area:

- Table B-1 of the IPEC SEP is revised to reduce the augmenting Radiation Technicians or other qualified personnel from four (4) to one (1).

Regarding the changes to the augmented ERO staffing, in Section 3.4.6.3, "Analysis," of Attachment 1 to the application, the licensee states:

The proposed changes to the augmented ERO following permanent cessation of power operations and removal of fuel from the IP2 and IP3 reactor vessels include eliminating three (3) of the four (4) augmenting Radiation Protection Technicians in the Major Functional Area of Protective Actions (In-Plant). The function of these resources is to provide radiation protection oversight of the complement of personnel for damage repair, corrective actions, search and rescue, first aid, firefighting and personnel monitoring. Once the ERO is

activated, the two (2) on-shift Radiation Protection technicians will join the augmented Radiation Protection Technician providing three (3) personnel to support station emergency plan activities in this Major Functional Area. If conditions warrant, Radiation Protection and Chemistry personnel are available to be called in by the OSC Manager.

During a declared emergency, Radiation Work Permits (RWPs) and dose set points will change depending on the emergency and plant conditions. Both systems have been used by plant workers for several years. Worker dose margins and training qualifications are also automatically verified when the RWP access control system is used. If a worker's dose margin is inadequate or training is expired, the worker's access would be precluded, and the access control system would not allow issuance of an electronic dosimeter. In an emergency, approval to exceed dose margins is required. During the log-in process, workers acknowledge their electronic dosimeter alarm set points and that they have read and understand their RWP. The electronic dosimeter provides the worker with a continuous status of dose received and work area dose rates and will alarm at preset dose and dose rates. Worker use of electronic dosimeters facilitates more efficient use of Radiation Protection Technicians to provide Radiation Protection coverage while preserving the As Low As Reasonably Achievable (ALARA) concept.

Access control is maintained because the worker must obtain an electronic dosimeter and enter a radiation work permit number into the access control computer system prior to being allowed access into the Radiologically Controlled Area (RCA). No setup is required for the RWP access control computers, which allows Radiation Protection Technicians to be used for more critical tasks during emergency response. Personnel are required to self-monitor for radioactive contamination whenever they exit the RCA. No Radiation Protection involvement is necessary for this contamination monitoring activity because workers are trained to perform this task without supervision or oversight. However, contaminated personnel exiting the RCA will require Radiation Protection oversight.

For a permanently shutdown and defueled condition, the evaluated DBAs are limited to the SFP area. Because entry is expected to be limited to those areas where maintenance necessary to maintain SFP cooling is required and the areas potentially affected by an accident involving the SFP are limited, there is a significant decrease in the areas potentially requiring Radiation Protection coverage in a permanently shutdown and defueled condition. Multiple repair teams can be covered by the on-shift Radiation Protection personnel. If Radiation Protection coverage is not provided (for entry into areas with low radiological risk or known radiological status), work protection is still ensured since emergency workers are required to wear electronic dosimeters (which will alarm at preset dose and dose rate set points) and because of the installed area radiation monitors that alarm locally and remotely at preset dose rates located throughout the plant.

Additionally, closed-circuit television and remote reading radiation telemetry that is installed in the areas required to perform mitigation activities to the SFP and areas containing SFP related equipment augment the monitoring capability provided by installed radiation monitors. The output of these monitoring systems

is available to personnel in the Control Room, TSC, and OSC. This technology allows for real time monitoring of the radiological conditions in these areas. Use of this technology can significantly reduce the exposure and time necessary to implement corrective measures.

Therefore, three (3) Radiation Protection personnel will be capable [of] providing adequate protective actions to support plant activities with IP2 and IP3 in the permanently shutdown and defueled conditions.

The licensee concluded that the proposed ERO staffing continues to meet the planning standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50, commensurate with the reduced spectrum of credible accidents with IP2 and IP3 in the permanently shutdown and defueled condition, and that IPEC retains the ability to implement the IPEC SFP mitigation actions.

NRC Staff Conclusion

The NRC staff reviewed the licensee's analysis of proposed post-shutdown ERO staffing. As discussed previously in Section 3.0 of this SE, the spectrum of credible accidents and operational events for a permanently shutdown and defueled reactor and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to those at an operating plant. Based on this information, the NRC staff determined the proposed level of onsite in-plant protective actions staffing will continue to provide for the direction and performance of actions to mitigate the remaining identified applicable events and the prompt implementation of mitigating actions in response to an SFP accident.

Based on the NRC staff's review of the information provided in the application, the staff finds that the proposed level of the ERO staffing for the Protective Actions (In-Plant) Major Functional Area continues to meet the planning standards of 10 CFR 50.47(b)(2) and the requirements of Section IV.A of Appendix E to 10 CFR Part 50 to cope with radiological emergencies, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition of the IPEC facility. As such, the proposed changes in ERO staffing for the positions listed above for this functional area are acceptable and do not impact the ability of the ERO staffing to perform the required in-plant protective actions functions.

3.7 Major Functional Area: Firefighting

Table B-1 of the IPEC SEP currently identifies firefighting as "Staffed per the Fire Protection Program Plan." However, it further provides a note that states:

One (1) SRO [Senior Reactor Operator] designated FBL [Fire Brigade Leader]. This is a person on shift qualified as FBL. This person has been counted in the IP3 total, but can come from either unit.

In Section 3.4.7.3, "Analysis," of Attachment 1 to the application, the licensee states:

The Fire Brigade complement during Stage I and Stage II will continue to consist of five (5) trained and qualified responders, including an FBL and four (4) trained and qualified Fire Brigade Members in accordance with the Fire Protection Program. The role of FBL can be filled by any qualified on-shift individual in accordance with the Fire Protection Program Plan.

All Fire Brigade training and qualification requirements will be maintained using the Fire Hazards Analysis requirements. The Fire Brigade will continue to perform the task of firefighting with IP2 and IP3 in the permanently shut down and defueled condition. The Fire Brigade will be available to promptly implement SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2) without impacting the performance of designated emergency plan functions.

The only proposed change to the IPEC staffing in this Major Functional Area is to remove the designation of an SRO as the FBL and identify it as a position that could be filled by any qualified on-shift individual in accordance with the Fire Protection Program Plan. All Fire Brigade training and qualification requirements will be maintained using the Fire Hazards Analysis requirements. The Fire Brigade will continue to perform the task of firefighting with IP2 and IP3 in the permanently shutdown and defueled condition. The Fire Brigade will be available to promptly implement SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2) without impacting the performance of designated emergency plan functions.

NRC Staff Conclusion

Based on the NRC staff's review of the licensee's application, the staff finds that the level of the ERO staffing for the Firefighting Major Functional Area continues to meet the planning standards of 10 CFR 50.47(b)(2) and the requirements of Section IV.A of Appendix E to 10 CFR Part 50 to cope with radiological emergencies, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition of the IPEC facility.

3.8 Major Functional Area: First Aid and Rescue

There are no proposed changes to Table B-1 of the IPEC SEP staffing in this Major Functional Area. As such, the NRC staff finds that the level of the ERO staffing for the First Aid and Rescue Major Functional Area continues to meet the planning standards of 10 CFR 50.47(b)(2) and the requirements of Section IV.A of Appendix E to 10 CFR Part 50 to cope with radiological emergencies, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition of the IPEC facility.

3.9 Major Functional Area: Site Access Control and Accountability

There are no proposed changes to Table B-1 of the IPEC SEP staffing in this Major Functional Area. As such, the NRC staff finds that the level of the ERO staffing for the Site Access Control and Accountability Major Functional Area continues to meet the planning standards of 10 CFR 50.47(b)(2) and the requirements of Section IV.A of Appendix E to 10 CFR Part 50 to cope with radiological emergencies, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition of the IPEC facility.

3.10 Emergency Response Organization Changes – Emergency Response Facility Evaluation

3.10.1 Control Room Augmenting Emergency Response Organization

In Section 3.5.2.1, “Control Room Augmenting Positions,” of Attachment 1 to the application, the licensee states:

IPEC SEP Part 2, Section B describes the IPEC ERO, their key positions and associated responsibilities, including augmented ERO positions that respond to the Control Room. Table 3.5-2 identifies those augmented ERO positions that respond to the Control Room following an emergency declaration and the proposed changes to the post-shutdown augmented ERO responding to the Control Room.

Upon arrival at the affected Control Room, the Plant Operations Manager (POM) relieves the Shift Manager of the Emergency Director responsibilities and takes charge of the overall emergency response, thus freeing the Shift Manager to direct his/her attention towards the mitigation of the accident. Overall control of the onsite ERO is maintained by the Emergency Plant Manager (EPM) in the TSC. After command and control is transferred to the ED in the EOF, it remains there until the event is terminated.

The Facility Communicator responds to the Control Room and is responsible for providing data to the other ERFs [Emergency Response Facilities].

After permanent cessation of power operations and certification of permanent removal of fuel from the IP2 and IP3 reactor vessels, in accordance with 10 CFR 50.82(a)(1)(i) and (ii), and pursuant to 10 CFR 50.82(a)(2), the 10 CFR Part 50 license will no longer authorize reactor operation or emplacement or retention of fuel in the reactor vessel. The spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The set of plant equipment required in the permanently shut down and defueled condition is also greatly reduced. Therefore, augmented ERO positions responding to the Control Room are no longer necessary in the permanently shut down and defueled condition.

NRC Staff Conclusion

The NRC staff reviewed the licensee’s analysis of proposed post-shutdown ERO staffing. As discussed previously in Section 3.0 of this SE, the spectrum of credible accidents and operational events for a permanently shutdown and defueled reactor and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to those at an operating plant. Based on this information, the NRC staff determined the proposed level of onsite in-plant protective actions staffing will continue to provide for the direction and performance of actions to mitigate the remaining identified applicable events and the prompt implementation of mitigating actions in response to an SFP accident.

Based on the NRC staff’s review of the information provided in the application, the staff finds that the proposed level of the ERO staffing continues to meet the planning standards of

10 CFR 50.47(b) and the requirements of Section IV.A of Appendix E to 10 CFR Part 50 to cope with radiological emergencies, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition of the IPEC facility. As such, the proposed changes in ERO staffing for the positions listed above for this functional area are acceptable and do not impact the ability of the ERO to perform the required functions.

3.10.2 Technical Support Center Augmenting Positions

The following table illustrates the NRC staff's summary of proposed changes to the TSC staffing:

Technical Support Center	
Current IPEC Augmented ERO Positions	Proposed Post-Shutdown Augmented ERO Positions
Emergency Plant Manager	Emergency Plant Manager
TSC Manager	-- ¹
Operations Coordinator	--
Radiological Coordinator	Radiological Coordinator
Engineering Coordinator	Engineering Coordinator
TSC Communicator	--
ENS [Emergency Notification System] Communicator	Filled by available personnel in the Control Room
TSC Reactor Engineer	--
TSC Engineers (Electrical, I&C, Mechanical)	Available to respond on an as-needed basis as determined by the TSC Engineering Coordinator
TSC IT [Information Technology] Specialist	--
Security Coordinator	Security Coordinator

In Section 3.5.2.2, "Technical Support Center Augmenting Positions," of Attachment 1 to the application, the licensee states:

Following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels, the TSC will continue to be located in the area immediately adjacent to the Control Room. The changes proposed to the IPEC SEP do not involve any physical modifications to, or layout/configuration changes in, the TSC.

The licensee stated that the current IPEC SEP is intended to address the risks to public health and safety inherent in an operating reactor. The risk in the permanently shutdown and defueled condition is significantly reduced because many of the potential initiating conditions that would lead to an emergency declaration will no longer be possible.

The licensee stated that the spectrum of credible accidents and operational events and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to an operating power reactor site. The set of plant equipment required in the permanently shutdown and defueled condition is also greatly reduced, which reduces the assessment and mitigation activities the TSC must perform. Therefore, the TSC Manager,

¹ A dash (--) indicates the position is proposed for elimination upon implementation of the Stage II Post-Shutdown Emergency Plan.

Operations Coordinator, TSC Reactor Engineer, TSC Engineers, TSC Communicator, and the TSC IT Specialist positions can be eliminated without placing an undue burden on the remaining ERO positions in the TSC and without increasing the risk to public health and safety. In Section 3.5.2.2, "Technical Support Center Augmenting Positions," of Attachment 1 to the application, the licensee states:

TSC Manager

The TSC Manager is currently responsible for ensuring the TSC is activated in accordance with applicable procedures and ensuring notification of the ERO has been made. This position also advises the Emergency Plant Manager on proposed corrective actions and emergency classification from a technical standpoint (i.e., plant system damage, core damage, etc.). The TSC Manager does not directly perform actions necessary to accomplish Planning Standard functions under NUREG-0654, but rather supports other personnel at the TSC and therefore can be eliminated. Functional responsibilities of the TSC Manager position that remain applicable in a permanently shut down and defueled condition will be reassigned to remaining positions in the TSC.

TSC Reactor Engineer

The primary duties of the TSC Reactor Engineer include: monitoring plant conditions for any indication of core damage, assisting in clarifying core parameter information to the Engineering Team, and assisting in the implementation of Severe Accident Management Guidelines. As indicated in Table B-1 of the IPEC SEP, the current TSC Reactor Engineer position satisfies the technical support Core Thermal Hydraulics position included in Table B-1 of NUREG-0654. The current TSC Reactor Engineer position assists with implementation of those portions of the Severe Accident Management Guidelines related to the recovery of SFP level. However, this assistance can be provided by other trained members of the ERO. In a permanently shut down and defueled condition, responsibilities associated with a reactor core no longer need to be maintained. The TSC Reactor Engineer position can be eliminated without increasing the risk to public health and safety because the major task of evaluating core/thermal hydraulics is not necessary or possible in a permanently shut down and defueled condition, the spectrum of credible accidents and operational events for a permanently shutdown and defueled reactor is reduced, and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to an operating plant.

TSC Engineers (Electrical, I&C, and Mechanical)

The primary duties of the TSC Engineer positions include responding to engineering requests from the Engineering Coordinator, evaluating the implementation of Severe Accident Management Guidelines, and assisting the OSC in preparing to send repair teams into the plant. These duties are either no longer necessary in a permanently shut down and defueled condition or will be performed by the Engineering Coordinator. The Engineering Coordinator is tasked with performing an engineering assessment of plant conditions and/or actions needed to mitigate damage to the plant.

After permanent cessation of power operations and certification of permanent removal of fuel from the IP2 and IP3 reactor vessels, in accordance with 10 CFR 50.82(a)(1)(i) and (ii), and pursuant to 10 CFR 50.82(a)(2), the 10 CFR Part 50 licenses will no longer authorize reactor operation or emplacement or retention of fuel in the reactor vessels. Thus, the need for augmenting engineers is reduced. The TSC Engineering Coordinator, tasked with performing engineering assessments of plant conditions and actions needed to mitigate damage to the plant, will provide technical support in the Major Functional Area of Plant System Engineering, Repair, and Corrective Action in IPEC SEP Table B-1. The TSC Engineering Coordinator will have the necessary qualifications, expertise, and capabilities to perform an engineering assessment of plant conditions and/or actions needed to mitigate damage to the plant in response to a fuel handling accident or an event resulting in damage to the SFP integrity or the loss of SFP cooling or inventory.

With respect to responding to engineering requests from the Engineering Coordinator, this function will continue to be performed by augmenting qualified engineering resources. The Engineering Coordinator will continuously evaluate the need for engineering resources and coordinate with the EOF Technical Advisor to call in qualified engineering personnel. These individuals may be tasked with activities to be completed at engineering offices external to the TSC, called to report to the TSC, or directed to other facilities.

Engineering resources will continue to be available as supplemental positions with specific training and qualification requirements for assigned personnel in accordance with the site training program. However, these positions will no longer be identified as on-call positions. The elimination of the TSC Engineer positions is justified because the spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The set of plant equipment required in the permanently shut down and defueled condition is also greatly reduced, which reduces the assessment and mitigation activities the TSC must perform.

In addition to the positions described above, the following TSC positions are also proposed for elimination following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels:

- Operations Coordinator
- TSC Communicator
- TSC IT Specialist

The primary duties of the Operations Coordinator are to monitor plant data communications between the Control Room and other ERFs, inform the TSC of the overall plant condition and significant changes to system and equipment status, provide technical assistance to the Shift Manager, monitor fission product barrier and plant status, and coordinate TSC efforts in support of Control Room actions. These duties are either no longer necessary in a permanently shut down and defueled condition, or they will be performed by other members of the post shutdown ERO, including the Emergency Plant Manager and the Engineering Coordinator.

The elimination of the augmenting TSC Communicator position was previously evaluated in Section 3.4.3, which evaluated the Major Functional Area of Notification/Communication. The elimination of the TSC Communicator and TSC IT Specialist positions does not impact the capabilities of the on-shift staffing or augmented response. The TSC will continue to be activated at an Alert or higher declaration. Functional responsibilities of the positions eliminated as a result of the changes will be reassigned to remaining positions, as necessary. The proposed augmented ERO staffing reductions continue to address the risks to public health and safety, comply with the IPEC Emergency Plan, site commitments, and applicable regulations.

NRC Staff Conclusion

The NRC staff reviewed the licensee's analysis of proposed post-shutdown ERO staffing. As discussed previously in Section 3.0 of this SE, the spectrum of credible accidents and operational events for a permanently shutdown and defueled reactor and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to those at an operating plant. These proposed changes eliminate positions that are no longer needed due to the permanently defueled condition of the reactor and reassign some functional and administrative responsibilities. The reassigned tasks can be performed by the remaining positions without adversely impacting their previously assigned duties, given the limited activities required for the post-shutdown condition. Therefore, the NRC staff concludes that the proposed level of TSC staffing remaining after elimination of the TSC Manager, Operations Coordinator, TSC Reactor Engineer, TSC Engineers, TSC Communicator, and the TSC IT Specialist positions will continue to provide plant management and technical support to the operating personnel located in the Control Room for the level of support required for the remaining DBAs and for mitigative actions in response to an SFP accident.

Based on the NRC staff's review of the information in the application, the staff finds that the proposed level of staffing for the OSC, as described above, continues to meet the planning standards of 10 CFR 50.47(b) for timely augmentation of response capabilities and the requirements of 10 CFR 50.72(a)(3) and Sections IV.A and IV.D of Appendix E to 10 CFR Part 50 to cope with emergencies, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition of the IPEC facility. As such, the proposed changes in TSC staffing for the positions listed above are acceptable and do not impact the ability of the ERO to perform the required functions.

3.10.3 Operations Support Center Augmenting Positions

Following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels, the OSC will continue to be located in the IP1 Superheater Building, 53 feet elevation, adjacent to the TSC. The proposed changes to the IPEC SEP do not involve any physical modifications to, or layout and configuration changes in, the OSC.

In the permanently shutdown and defueled condition, the primary functions of the OSC will remain dispatching of and accounting for Repair and Corrective Action Teams and dispatching Onsite Monitoring Teams. The OSC Manager is responsible for ensuring adequate staffing of the OSC and continuously evaluating the need for resources. The OSC Manager can call in additional assistance, if necessary. OSC resources will continue to be positions with specific training and qualification requirements for personnel in accordance with the site training program.

The following table illustrates the NRC staff's summary of the proposed changes to the OSC staffing:

Operations Support Center	
Current IPEC Augmented ERO Positions	Proposed Post-Shutdown Augmented ERO Positions
OSC Manager	OSC Manager
Work Control Coordinator	--
OSC Log Keeper	--
Rad/Chem Coordinator	--
Mechanical and I&C/Electrical Coordinators	--
OSC Operations Support	--
Technicians (Electrical, I&C, Mechanical Maintenance, RP/HP, Chemistry)	On-call Personnel (Electrical, Mechanical Maintenance, RP/HP, Chemistry) – Reduced numbers

In Section 3.5.2.3, "Operations Support Center Augmenting Positions," of Attachment 1 to the application, the licensee states:

In the permanently shut down and defueled condition, the spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The primary events of concern in the immediate post-shutdown and defueled condition will be an FHA and a loss of SFP cooling and/or water inventory. Events involving a loss of SFP cooling and/or water inventory can be addressed by implementation of SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2). These strategies will continue to be maintained as a license condition. OSC staff is not relied upon to implement SFP inventory makeup.

Restoration of equipment supporting SFP cooling and inventory will be the primary focus of emergency mitigation actions for the TSC and OSC in a permanently shut down and defueled condition. Although ERO activation/response time requirements will be unchanged, the elimination of credible accidents involving an operating reactor provides additional time to plan and execute assessment and mitigation actions. The proposed changes do not impact the capability to assess and monitor actual or potential offsite consequences of a radiological emergency or provide information to offsite authorities in a timely manner. Therefore, the OSC Log Keeper, Rad/Chem Coordinator, Mechanical and I&C/Electrical Coordinators, and OSC Operations Support positions can be eliminated without placing an undue burden on the remaining ERO positions in the OSC and without increasing the risk to public health and safety.

In the application, the proposed staffing changes eliminate one (1) augmenting Mechanical Maintenance Technician, one (1) augmenting Electrical Maintenance Technician, and the augmenting I&C Technician. These positions are included in IPEC SEP Table B-1 as 60-minute augmenting responders. The elimination of these augmented ERO positions was previously evaluated in Section 3.4.5, "Major Functional Area of Plant System Engineering, Repair and Corrective Actions."

In Section 3.5.2.3, "Operations Support Center Augmenting Positions," of Attachment 1 to the application, the licensee states:

The proposed staffing changes to the OSC eliminate the Work Control Coordinator, described in procedures as typical minimum staffing that could be considered necessary to declare the OSC operational. The Work Control coordinator is responsible for assembling, briefing, dispatching, tracking, and debriefing OSC teams sent to the field. Functional responsibilities of the OSC Work Control Coordinator position that remain applicable in a permanently shut down and defueled condition will be reassigned to the OSC Manager.

The proposed staffing changes do not eliminate any ERO positions in the OSC described in procedure as typical minimum staffing that could be considered necessary to declare the OSC operational.

Attachment 8, "Emergency Response Organization Task Analysis," to the application identifies the OSC augmented ERO positions proposed for elimination and evaluates the transfer of tasks to remaining ERO positions following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels. The attachment evaluates and dispositions each ERO task as being reassigned or eliminated, as appropriate. Given the elimination of credible accidents involving an operating reactor, the proposed post-shutdown augmented ERO can continue to satisfactorily perform its existing Emergency Plan responsibilities, as well as any transferred responsibilities.

NRC Staff Conclusion

The NRC staff reviewed the licensee's analysis of proposed ERO staffing for the permanently shutdown and defueled condition and considered the postulated accidents that would be applicable to that condition. As discussed previously in Section 3.0 of this SE, the spectrum of credible accidents and operational events for a permanently shutdown and defueled reactor and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to those at an operating plant. The duties being reassigned can be adequately performed by the remaining ERO staff in the OSC, and the assumption of duties previously done by eliminated positions will not affect the capability of the remaining ERO positions or the OSC to perform their designated functions with respect to the reduced spectrum of accidents.

Based on the NRC staff's review of the information as provided in the application, the staff finds that the proposed level of staffing for the OSC, as described above, continues to meet the planning standards of 10 CFR 50.47(b) for timely augmentation of response capabilities and the requirements of Section IV.A of Appendix E to 10 CFR Part 50 to cope with emergencies, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition of the IPEC facility. As such, the proposed changes in OSC staffing for the positions listed above are acceptable and do not impact the ability of the ERO to perform the required functions.

3.10.4 Emergency Operations Facility (EOF) Augmenting Positions

Following permanent cessation of power operations, the EOF will continue to be located inside the main gate of IPEC. The proposed changes to the IPEC SEP do not involve any physical modifications to, or layout and configuration changes in, the EOF.

The proposed staffing changes do not eliminate any ERO positions in the EOF identified in the licensee's application as typical minimum staffing that could be considered necessary to declare the EOF operational.

The following table illustrates the NRC staff's summary of proposed changes to the EOF staffing:

Emergency Operations Facility	
Current IPEC Augmented ERO Positions	Proposed Post-Shutdown Augmented ERO Positions
Emergency Director	Emergency Director
Radiological Assessment Coordinator	Radiological Assessment Coordinator
Offsite Communicator	Offsite Communicator
EOF Technical Advisor	EOF Technical Advisor
EOF Manager	--
EOF Communicator	--
Lead Offsite Liaison	Lead Offsite Liaison
Administration and Logistics Coordinator	--
IT Specialist	--
Dose Assessor	Dose Assessor
Offsite Team Coordinator	Offsite Team Coordinator
Offsite Liaisons (5)	Offsite Liaisons (5)
Monitoring Teams	Monitoring Teams
Public Information Liaison	--

In Section 3.5.2.4, "Emergency Operations Facility Augmenting Positions," of Attachment 1 to application, the licensee states:

The EOF maintains extensive communications capability with all ERFs and direct links are established between the EOF, the State and County Emergency Operations Centers (EOCs), and the JIC to provide up-to-date emergency status reports. The proposed changes to the IPEC SEP do not involve changes to the ability of offsite authorities to report to the EOF or the JIC, and as a result, do not impact the ability of the offsite authorities to mobilize to, or operate from, the EOF and JIC.

When activated, the Emergency Director reports to the EOF and directs the activities of the augmented ERO throughout the emergency and until the recovery activities have been terminated. The Emergency Director, or a designated alternate, issues periodic status reports of the event to offsite representatives located in the EOF. The Radiological Assessment Coordinator and EOF Technical Advisor will provide and interpret plant information to the offsite representatives in the EOF. Additionally, technical support staff are dispatched to the State and County EOCs when requested and appropriate, or generally, during an Alert or higher declaration to act as a liaison with the plant technical staff so the magnitude of the emergency can be more clearly conveyed to the EOCs staff. The proposed changes do not reduce the ability of IPEC to provide the necessary information regarding the status and progression of an event or in the frequency at which event information updates are provided. Nor do the changes impact the ability to dispatch additional technical support to the

EOCs. As a result, the proposed changes do not impact the ability of IPEC to communicate with the offsite response organizations.

Centralized coordination of the offsite radiological assessment effort with all organizations interested in, and/or performing, assessments is necessary to ensure that the data and its interpretation are reviewed by IPEC and offsite response organizations with monitoring and assessment responsibilities. The number and type of organizations performing this effort vary with time and following emergency declarations and offsite notification. Initially, plant emergency response personnel are the only organization performing this function and they are directed from, and their results evaluated, at the EOF. State and Federal response agencies would augment plant assessment efforts. The proposed changes to the IPEC SEP do not impact the ability of offsite response organizations to monitor and assess a potential release and effectively implement their emergency plans. Additionally, the proposed changes to the EOF staff do not impact the capability to assess and monitor actual or potential offsite consequences of a radiological emergency. Appropriate assessment and mitigation are well within the capabilities of the proposed EOF staff provided in Table 3.5-5.

IPEC will continue to maintain the capability to display plant and meteorological data in the EOF, maintain offsite monitoring equipment at the EOF and maintain the current dose assessment capabilities at the EOF. Additionally, IPEC will maintain a goal of sixty (60) minutes after declaration of an emergency to activate the EOF.

The proposed elimination of the EOF staffing listed above does not impact the capabilities of the on-shift staffing or augmented response. The positions can be eliminated without placing an undue burden on the remaining ERO positions in the EOF and without increasing the risk to public health and safety. The EOF will continue to be activated at an Alert or higher declaration. Functional responsibilities of the positions proposed for elimination will be reassigned to remaining positions. The proposed augmented ERO staff will continue to address the risks to public health and safety, comply with the IPEC SEP, site commitments, and applicable regulations. The proposed changes to the ERO staffing in the EOF do not impact the ability of the State and County response organizations to effectively implement their Federal Emergency Management Agency (FEMA) approved radiological emergency plans. Additional discussion of the potential impact on offsite response organizations is included in Section 3.6.

Attachment 8 identifies the EOF augmented ERO positions proposed for elimination and evaluates the transfer of tasks to remaining ERO positions following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels. The attachment evaluates and dispositions each ERO task as being reassigned or eliminated, as appropriate. Given the elimination of credible accidents involving an operating reactor, the proposed post shutdown augmented ERO can continue to satisfactorily perform their existing Emergency Plan responsibilities as well as any transferred responsibilities.

NRC Staff Conclusion

The NRC staff reviewed the licensee's analysis of proposed post-shutdown ERO staffing. For a permanently shutdown and defueled reactor, the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to an operating plant. The remaining ERO positions will assume duties from the eliminated positions. The proposed staffing changes do not eliminate any ERO positions in the EOF described in the procedure as typical minimum staffing that could be considered necessary to declare the EOF operational. The licensee's analysis of proposed post-shutdown ERO staffing indicates that the eliminated positions are not needed, the tasks being transferred can be adequately performed by the remaining ERO positions, and the reassigned duties and administrative responsibilities will not adversely affect the capability of the EOF to perform its functions, given the limited activities required for post-shutdown condition. Therefore, the NRC staff concludes that the proposed level of EOF staffing will continue to provide management of overall licensee emergency response (including coordination with Federal, State, and local officials), coordination of radiological and environmental assessments, and determination of recommended public protective actions for the level of support required for the remaining DBA and for mitigative actions in response to an SFP accident.

Based on the NRC staff's review of the information as provided in the application, the staff finds that the proposed level of staffing for the OSC, as described above, continues to meet the planning standards of 10 CFR 50.47(b) for timely augmentation of response capabilities and the requirements of 10 CFR 50.72(a)(3) and Sections IV.A and IV.D of Appendix E to 10 CFR Part 50 to cope with radiological emergencies, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition of the IPEC facility. As such, the proposed changes in EOF staffing for the positions listed above for this functional area are acceptable and do not impact the ability of the ERO to perform the required functions.

3.10.5 Joint Information Center Augmenting Positions

The Joint Information Center (JIC) provides a location for the news media to receive information from all involved agencies and companies during an emergency and provide it to the public. The JIC is equipped to accommodate the news media for large briefings and conferences and contains extensive communications systems. Media monitoring and rumor control are also accomplished at the JIC, allowing Entergy and State representatives to address incorrect information or rumors. Responses to media telephone inquiries are also addressed at the JIC.

Following permanent cessation of operations and permanent removal of fuel from the IP2 and IP3 reactor vessels, the JIC will continue to be located in Hawthorne, New York. The proposed changes to the IPEC SEP do not involve any physical modifications to, or layout/configuration changes in, the JIC.

The following table illustrates the NRC staff's summary of the proposed changes to the JIC staffing:

Joint Information Center	
Current IPEC Augmented ERO Positions	Proposed Post-Shutdown Augmented ERO Positions
Company Spokesperson	Company Spokesperson
JIC Manager	JIC Manager
Technical Advisor	Technical Advisor
Media Liaison	Media Liaison
Press Release Writer	--
JIC Admin and Logistics Coordinator	--
Inquiry Response Coordinator	--
Media Monitoring	Media Monitoring
Rad Advisor	--
Documenter	--
Support Staff	--
IT Specialist	--
AV Coordinator	--
AV Graphics Support (2)	--

In Section 3.5.2.5, "Joint Information Center Augmenting Positions," of Attachment 1 to the application, the licensee states:

In the permanently shut down and defueled condition, media briefings and rumor control will continue to be conducted regularly during an emergency to provide accurate and timely information to the public. The proposed JIC staffing changes described above do not impact the capabilities of the on-shift staffing or augmented response. The positions can be eliminated without placing an undue burden on the remaining ERO positions in the JIC and without increasing the risk to public health and safety. Functional responsibilities of the positions proposed for elimination will be reassigned to remaining positions. The proposed augmented ERO staffing reductions continue to address the risks to public health and safety, comply with the IPEC SEP, site commitments, and applicable regulations.

Attachment 8 identifies the JIC augmented ERO positions proposed for elimination and evaluates the transfer of tasks to remaining ERO positions following permanent cessation of power operations and permanent removal of fuel from the IP2 and IP3 reactor vessels. The attachment evaluates and dispositions each ERO task as being reassigned or eliminated, as appropriate. Given the elimination of credible accidents involving an operating reactor, the proposed post-shutdown augmented ERO can continue to satisfactorily perform their existing Emergency Plan responsibilities as well as any transferred responsibilities.

NRC Staff Conclusion

The NRC staff reviewed the licensee's analysis of proposed post-shutdown ERO staffing. As discussed previously in Section 3.0 of this SE, the spectrum of credible accidents and

operational events for a permanently shutdown and defueled reactor and the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to those at an operating plant. The licensee's analysis of proposed post-shutdown ERO staffing indicates that the eliminated positions are not needed, the tasks being transferred can be adequately performed by the remaining ERO positions, and the reassigned duties and administrative responsibilities will not adversely affect the capability of the JIC to perform its functions, given the limited activities required for the post-shutdown condition. Therefore, the NRC staff concludes that the proposed level of staffing at the JIC will continue to disseminate information to the public for the level of support required for the remaining DBAs and for mitigative actions in response to an SFP accident.

Based on its review of the information as provided in the application, the NRC staff finds that the proposed level of augmented JIC staffing, as described above, continues to meet the planning standards of 10 CFR 50.47(b) for timely augmentation of response capabilities and the requirements of Section IV.A of Appendix E to 10 CFR Part 50 to cope with radiological emergencies, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition of the IPEC facility. As such, the proposed changes in JIC staffing for the positions listed above are acceptable and do not impact the ability of the JIC to perform the required functions.

3.10.6 Assessment of Proposed Staffing Changes on Offsite Response Organizational Interfaces

In Section 3.6, "Assessment of Proposed Staffing Changes on Offsite Response Organization Interfaces," of Attachment 1 to the application, the licensee states:

Because of the location of IPEC, the planning and responsibilities at the State and local level involve coordination with the State of New York, Westchester, Orange, Putnam, and Rockland Counties, the City of Peekskill, and the United States Military Academy at West Point. Part 2, Section A, Figure A-1 of the IPEC SEP describes the interrelationships between the IPEC and offsite emergency response organizations.

Part 2, Section F of the IPEC SEP describes the extensive communications network maintained between IPEC, Federal, State, and local organizations as a means of promptly notifying and maintaining communications with appropriate authorities. The coordination effort with offsite authorities is initiated using the RECS with phones in the Control Rooms and EOF as the primary means for Indian Point Energy Center personnel to simultaneously notify the State and County Warning Points, Emergency Operations Centers, West Point and the City of Peekskill of an emergency. The proposed changes to the IPEC SEP do not involve changes to this communications network, and as a result, do not impact the ability of IPEC to promptly notify and initiate coordination with the offsite authorities.

Formal offsite REP [Radiological Emergency Preparedness] plans, approved by the FEMA in accordance with 44 CFR 350, are required to be maintained in effect until the NRC approves an exemption from formal offsite emergency preparedness requirements. Because the changes proposed by Entergy, specifically in regard to ERO staffing of the EOF and JIC, have the potential to adversely impact the effective implementation of the State and County REP

plans, the proposed changes to the IPEC SEP were evaluated for impacts on the ability of the State and County response organizations to effectively implement their FEMA-approved REP Plans.

IPEC technical support staff are dispatched to the State and County EOCs when requested and appropriate, or generally, during an Alert or higher emergency declaration to act as a liaison with the plant technical staff to clearly convey the magnitude of the emergency to the EOC's staff. These positions are retained in the Stage II augmented ERO. The proposed changes do not reduce the ability of IPEC to provide the necessary information regarding the status and progression of an event or in the frequency at which event information updates are provided. Nor do the changes impact the ability to dispatch additional technical support to the EOCs. As a result, the proposed changes do not impact the ability of IPEC to communicate with the offsite response organizations or the ability of the State and County response organizations to effectively implement their FEMA-approved REP Plans.

By letter dated April 24, 2019 (Reference 9), the NRC staff requested FEMA's review of the proposed licensee staffing changes against the current FEMA-approved State and local REP plans to verify that no potential adverse impacts exist that would preclude the effective implementation of State and local REP plans. By letter dated July 12, 2019 (Reference 10), FEMA responded that the FEMA REP staff reviewed the proposed licensee staffing changes to the IPEC EOF and JIC against the current FEMA-approved REP Plans and confirmed that no adverse impacts exist that would preclude the effective implementation of State and local REP Plans or impact FEMA's finding of reasonable assurance for IPEC.

NRC Staff Conclusion

Based on the NRC staff's review of the information addressed above, as confirmed by the FEMA evaluation of potential unintended impacts on offsite REP plans, the staff finds that the proposed changes to the IPEC SEP staffing are acceptable and continue to meet the planning standards of 10 CFR 50.47(b) and the requirements of Sections IV.A and IV.D.3 of Appendix E to 10 CFR Part 50, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition at the IPEC facility.

3.10.7 Validation and Training

In Section 3.7, "Validation and Training," of Attachment 1 to the application, the licensee states:

To validate the results of the proposed changes to the augmented ERO described within this amendment request, a drill will be developed and conducted prior to implementation of the Stage II augmented ERO changes described within this LAR. The drill will be conducted to confirm the ability of the post-shutdown augmented ERO to perform the necessary functions of each ERF. The drill will evaluate and validate the ability to accomplish the stated mission of each ERF and ensure that the planning standard functions are preserved with no degradation in time sensitive activities or in the ability to communicate with offsite response organizations. The drill will also validate that the Stage II augmented ERO continues to address the risks to public health and safety and comply with the IPEC Emergency Plan, site commitments, and applicable regulations. Implementing procedures will be revised to address the permanently shutdown

and defueled conditions. The revised procedures will be used to support training of the ERO staff, and the conduct of drills described above.

Training and procedures will be developed and in place prior to performing the Stage II augmented ERO validation drill. The drill scenarios will include SFP events and will be designed to test the major elements of the IPEC SEP. Major elements to be tested will include communications and coordination with offsite response organizations, including the JIC [Joint Information Center]. State, local, and Federal response organizations will be provided the opportunity to participate in or observe the drills.

As specified in Attachment 9 [List of Regulatory Commitments] of this submittal, Entergy has committed to conduct a validation drill under this amendment request to demonstrate that no loss of emergency planning function will result from the proposed changes. The drill will include each ERF.

In addition, other training drills will be conducted to train Stage II augmented ERO members. These drills may not involve all ERFs or State/local participation. However, all ERO members will participate in at least one training drill. The post shutdown procedures which support the defueled condition will be available in draft form to support the drills. Final implementation of the procedures will occur concurrent with implementation of the requested SEP changes.

Based on the NRC staff's review of the information addressed above, the staff finds that the drills and training proposed provide an acceptable means of verifying, prior to implementation, that the proposed ERO staffing levels will continue to meet the planning standards of 10 CFR 50.47(b) and the requirements of 10 CFR 50.72(a)(3) and Sections IV.A and IV.D.3 of Appendix E to 10 CFR Part 50, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition at the IPEC facility.

3.11 Summary

Based on the evaluation above, the NRC staff finds that the proposed emergency plan changes meet the planning standards of 10 CFR 50.47(b) and the requirements in 10 CFR 50.72(a)(3) and Sections IV.A and IV.D of Appendix E to 10 CFR Part 50, and provide reasonable assurance that adequate protective measures can and will continue to be taken in the event of a radiological emergency, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition.

4.0 REGULATORY COMMITMENT

The licensee submitted the following regulatory commitments in Attachment 9 to the application. Regulatory commitments specify the items for which the licensees volunteer to perform in support of its licensing applications. Regulatory commitments do not require prior NRC approval of subsequent changes, and therefore, they are not enforceable licensing requirements. In its review of license applications, the NRC staff does not use the regulatory commitments as a basis in the safety evaluation for approving license amendments.

Commitment	Type (check one)		Scheduled Completion Date
	One-Time Action	Continuing Compliance	
The applicable fuel handling procedures will be revised to require that the radiation monitor listed in gaseous effluent EALs is in service or that a Chemistry Technician be on-site as a prerequisite prior to fuel handling activities.	X		Prior to implementation of the Stage I changes to the IPEC SEP.
A drill will be conducted to confirm the ability of the Stage II augmented emergency response organization to perform the necessary functions of each emergency response facility and to utilize the post-shutdown procedures being developed, depicting the revised assignment of duties. State and local response organizations will be offered the opportunity to participate, and the NRC and FEMA will be provided advance notice and the opportunity to observe drill activities.	X		Prior to implementation of the Stage II Post-Shutdown Emergency Plan.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New York State (NYS) official was notified of the proposed issuance of the amendment on March 5, 2020. The New York State official had previously sent comments by letter dated January 9, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20011C343). The NRC staff considered the comments in its review of the license amendment request and addresses them below.

NYS:

Entergy proposes to reduce on-shift and augmented Emergency Response Organization staffing in stages following permanent cessation of power operations and permanent removal of nuclear fuel from the Indian Point Unit 2 and Unit 3 reactor vessels. The reductions are proposed to occur before the transfer of the spent nuclear fuel from the spent fuel pools into dry cask storage. The State of New York strenuously objects to that timing and proposal.

NRC Staff Response:

A licensee's emergency plan for an operating nuclear power reactor is developed for a level of effectiveness commensurate with the potential consequences to public health and safety for a wide spectrum of accident scenarios related to an operating power reactor. With the phased permanent cessation of operations and the permanent removal of the fuel from the reactor vessels at IP2 and IP3, most of the accident scenarios postulated for an operating power reactor will no longer be possible. The proposed changes would revise the IPEC site ERO

on-shift and augmented staffing commensurate with the reduced spectrum of credible accidents for a permanently shutdown and defueled nuclear power reactor facility, including a facility where spent nuclear fuel is present in spent fuel pools.

The NRC staff evaluated the application based, in part, on 10 CFR 50.47(b). Specifically, Section 50.47(b)(1) requires, in part, that “each principal response organization has staff to respond and to augment its initial response on a continuous basis.” Section 50.47(b)(2) requires, in part, that “adequate staffing to provide initial facility accident response in key functional areas [be] maintained at all times,” and that “timely augmentation of response capabilities is available...” Based on its evaluation of the licensee’s proposed changes to the IPEC site emergency plan (SEP), the NRC staff has determined that the proposed changes meet the planning standards of 10 CFR 50.47(b), and provide reasonable assurance that adequate protective measures can and will continue to be taken in the event of a radiological emergency, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition, including a facility where spent nuclear fuel is present in spent fuel pools.

The NRC staff notes that the proposed changes to the IPEC SEP address the interim “Stage I” period during which IP2 will be permanently shut down and defueled, and IP3 will remain in operation. The proposed Stage I changes will only affect the IP1 and IP2 on-shift staffs. There are no changes to the augmented emergency response organization (ERO) staffing in Stage I. The proposed Stage II changes to the IPEC SEP address the period following IP3 permanent shutdown and defuel, which will result in no IPEC reactors being authorized to operate at the site. The Stage II changes will affect the IP2 and IP3 on-shift staffs, as well as the augmented ERO staffing.

NYS:

The Indian Point nuclear power and spent fuel storage facilities have the highest surrounding population of any nuclear power site in the country. The federal government approved the Indian Point site before there were siting regulations concerning issues such as the surrounding population within 50 miles, design basis threats, seismic hazards, waste storage, co-located energy infrastructure, or emergency planning. Relatedly, the federal government has not conducted a site-specific analysis of severe spent fuel pool accidents for the Indian Point spent fuel pools and the means to mitigate the impacts of such accidents on surrounding communities, nor has NRC conducted an analysis of an aircraft impact on the site’s spent fuel pools. Over the years, spent nuclear fuel in the Indian Point Unit 2 and Indian Point Unit 3 pools has been re-racked so that those spent fuel pools hold 5 times the amount of spent fuel assemblies than they were initially designed to hold. NRC site emergency protocols recognize that an accident with dry storage casks pose less of a site emergency risk than do accidents with spent fuel pools. A spent fuel pool accident at Indian Point could have unique and devastating impacts on the New York metropolitan area, that would be unlike the impacts at any other site in the country.

NRC Staff Response:

The NRC staff notes that the licensee’s analysis of proposed post-shutdown on-shift staff involved the evaluation of several accident scenarios including the fuel handling accident, probable aircrafts threat, control room fire requiring evacuation, general emergency with

release, and design-basis threat. As stated in its application, the licensee will continue to maintain a trained and qualified fire brigade responsible for implementation of the spent fuel pool inventory makeup strategies. Therefore, sufficient staffing is available to promptly implement SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2) without impacting the performance of designated emergency plan functions and events involving a loss of SFP cooling or water inventory. These strategies will continue to be required as License Conditions 2.N and 2.AC, "Mitigation Strategy License Condition," in the IP2 and IP3 Facility Licenses, respectively.

The NRC has previously considered the need to require expediting the transfer of spent fuel assemblies from the SFP into dry cask storage and has concluded it is not necessary based on applicable regulatory requirements and risk. The NRC's regulatory activities and past studies have shown that SFPs are effectively designed to prevent accidents that could affect the safe storage of spent fuel. Additionally, operating experience has shown that SFPs have safely withstood challenging events, maintaining structural integrity and a large inventory of coolant to protect the stored fuel. The NRC staff also determined that further study would not likely support a requirement that reactor licensees expedite the transfer of spent fuel from their SFPs into dry cask storage. The NRC's regulatory practice has consistently not required decommissioning power reactor licensees to maintain the offsite REP aspects of their emergency plans until all spent fuel has been removed from the SFP. Offsite REP requirements can be removed when they are no longer needed, in view of the extremely small risk of an SFP accident requiring offsite response organization support, and the ability of Comprehensive Emergency Management Plan measures to protect public health and safety in response to that extremely small risk, just as they protect against non-nuclear hazards in the community.

The NRC staff also notes that the concerns raised in the January 9, 2020, NYS letter, are issues that were previously considered by the NRC in connection with the Continued Storage rulemaking (e.g., site-specific analysis of spent fuel pool accidents, population density, site location, aircraft impacts, criticality safety, and spent fuel pool re-racking). In response to public comments, the NRC made clarifying changes and added additional information to some portions of NUREG-2157, "Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel," and the final Continued Storage Rule (79 FR 56238), which were published in September 2014.²

Additionally, during the license renewal application review for IP2 and IP3, the impact determinations of NUREG-2157 were incorporated in accordance with the requirements in 10 CFR 51.23(b). In its evaluation, the NRC staff concluded that the appropriate analyses for the potential environmental impacts associated with the continued storage of spent fuel beyond the licensed life for reactor operations at IP2 and IP3 are applicable to those presented in NUREG-2157 and are appropriately incorporated into the final supplemental environmental impact statement for the renewal of the operating licenses for IP2 and IP3.³

² The NRC amended its regulations at 10 CFR 51.23 to adopt the generic impact determinations made in NUREG-2157, "Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel," regarding the continued storage of spent nuclear fuel beyond the licensed life for operation of the reactor (ADAMS Accession Nos. ML14196A105 and ML14196A107).

³ See NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Regarding Indian Point Nuclear Generating Unit Nos. 2 and 3," Supplement 38, Volume 5, April 2018 (ADAMS Accession No. ML18107A759).

Regarding the EOF augmenting positions, the NRC staff reviewed the licensee's analysis of proposed post-shutdown ERO staffing. For a permanently shutdown and defueled reactor, the number and complexity of activities required for the safe storage of spent nuclear fuel is reduced, as compared to an operating plant. The remaining ERO positions will assume duties from the eliminated positions. The proposed staffing changes do not eliminate any ERO positions in the EOF described in the procedure as typical minimum staffing that could be considered necessary to declare the EOF operational. The licensee's analysis of proposed post-shutdown ERO staffing indicates that the eliminated positions are not needed, the tasks being transferred can be adequately performed by the remaining ERO positions, and the reassigned duties and administrative responsibilities will not adversely affect the capability of the EOF to perform its functions, given the limited activities required for post-shutdown condition. Therefore, the NRC staff concludes that the proposed level of EOF staffing will continue to provide management of overall licensee emergency response (including coordination with Federal, State, and local officials), coordination of radiological and environmental assessments, and determination of recommended public protective actions for the level of support required for the remaining DBAs and for mitigative actions in response to an SFP accident.

NYS:

Accordingly, until such time that fuel from the reactors is secured in dry cask storage, and therefore any potential risk has been truly minimized, the State of New York's position is that all on-site and off-site emergency response capabilities should be maintained at current levels. This will ensure all necessary personnel, planning, resources, and tools are in place to protect New York citizens at and near the plants and spent fuel pool storage facilities.

NRC Staff Response:

Regarding offsite resources, as stated in the licensee's application, because of the location of IPEC, emergency planning and preparedness at the State and local level involve coordination with the State of New York, Westchester, Orange, Putnam, and Rockland Counties, the City of Peekskill, and the U.S. Military Academy at West Point. The IPEC SEP describes the extensive communications network maintained between IPEC, Federal, State, and local organizations as a means of promptly notifying and maintaining communications with appropriate authorities. The coordination effort with offsite authorities is addressed using the Radiological Emergency Communications System with phones in the Control Rooms and EOF as the primary means for IPEC personnel to simultaneously notify the State and County Warning Points, Emergency Operations Centers, West Point and the City of Peekskill of an emergency. The NRC staff notes that the proposed changes to the IPEC SEP do not involve changes to this communications network, and as a result, do not impact the ability of IPEC to promptly notify and initiate coordination with the offsite authorities.

Formal offsite REP plans approved by FEMA are also required to be maintained in effect until the NRC approves an exemption from formal offsite emergency preparedness requirements. Because the changes proposed by Entergy, specifically regarding ERO staffing of the EOF and Joint Information Center (JIC), have the potential to adversely impact the effective implementation of the State and County REP plans, the proposed changes to the IPEC SEP were evaluated for impacts on the ability of the State and County response organizations to effectively implement their FEMA-approved REP plans. The NRC staff requested FEMA's review (Reference 9) of the proposed licensee staffing changes against the current

FEMA-approved State and local REP plans to verify that no potential adverse impacts exist that would preclude the effective implementation of State and local REP plans. FEMA reviewed the proposed licensee staffing changes to the IPEC EOF and JIC (Reference 10) and confirmed that no adverse impacts exist that would preclude the effective implementation of State and local REP plans or impact FEMA's finding of reasonable assurance for IPEC.

Based on the NRC staff's review of the licensee's proposed SEP changes and information in the licensee's application, as confirmed by the FEMA evaluation of potential unintended impacts on offsite REP plans, the NRC staff has determined that the proposed changes to the IPEC SEP staffing are acceptable and continue to meet the planning standards of 10 CFR 50.47(b) and the requirements of Sections IV.A and IV.D.3 of Appendix E to 10 CFR Part 50, commensurate with the reduced spectrum of credible accidents in the permanently shutdown and defueled condition at the IPEC facility.

6.0 ENVIRONMENTAL CONSIDERATION

The amendment relates, in part, to changes in recordkeeping, reporting, or administrative procedures or requirements because the proposed changes to minimum shift staffing requirements involve the replacement of references to licensed and non-licensed operators with references to Certified Fuel Handlers and Non-Certified Operators. The amendment also relates, in part, to changing requirements with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 because the amendment approves a site emergency plan for the permanently defueled condition which is required for operation of the facility. 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 published in the Federal Register on June 18, 2019 (84 FR 28342). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and 51.22(c)(10). 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.

7.0 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) there is reasonable assurance that 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.

8.0 REFERENCES

1. Vitale, Anthony J. Entergy Nuclear Operations, Inc., letter to U.S. Nuclear Regulatory Commission, "Notification of Certification of Permanent Cessation of Power Operations," dated February 8, 2017 (ADAMS Accession No. ML17044A004).
2. Halter, Mandy. Entergy Nuclear Operations, Inc., letter to U.S. Nuclear Regulatory Commission, "License Amendment Request to Revise the Indian Point Energy Center

- Site Emergency Plan to Address the Permanently Shut Down and Defueled Condition,” dated April 15, 2019 (ADAMS Accession No. ML19105B278).
3. Indian Point Unit 2, “Revision 27 to Updated Final Safety Analysis Report, Chapter 14, ‘Safety Analysis,’” dated September 17, 2018 (ADAMS Accession No. ML18304A067).
 4. Indian Point Unit 3, “Revision 7 to Updated Final Safety Analysis Report, Chapter 14, ‘Safety Analysis,’” dated October 2, 2017 (ADAMS Accession No. ML17299A224).
 5. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.101, Revision 2, “Emergency Planning and Preparedness for Nuclear Power Reactors,” dated October 1981 (ADAMS Accession No. ML090440294).
 6. U.S. Nuclear Regulatory Commission, Federal Emergency Management Agency, NUREG-0654/FEMA-REP-1, Rev. 1, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” dated November 1980 (ADAMS Accession No. ML040420012).
 7. U.S. Nuclear Regulatory Commission, NSIR/DPR-ISG-01, “Interim Staff Guidance – Emergency Planning for Nuclear Power Plants,” dated November 20, 2011 (ADAMS Accession No. ML113010523).
 8. NEI 10-05, Revision 0, “Assessment of On-Shift Emergency Response Organization Staffing and Capabilities,” dated June 2011 (ADAMS Accession No. ML111751698).
 9. Anderson, Joseph D., U.S. Nuclear Regulatory Commission, letter to Vanessa Quinn, Federal Emergency Management Agency, “Federal Emergency Management Agency Review Requested of Revision to the Indian Point Energy Center Site Emergency Plan to Address the Permanently Defueled Condition,” dated April 24, 2019 (ADAMS Accession No. ML19114A283).
 10. Quinn, Vanessa E., Federal Emergency Management Agency, letter to Joseph Anderson, U.S. Nuclear Regulatory Commission, “Federal Emergency Management Agency Review of Revision to the Indian Point Energy Center Emergency Plan to Address the Permanently Defueled Condition,” dated July 12, 2019 (ADAMS Accession No. ML19196A095).
 11. Dean, Janice A., New York State Energy Research and Development Authority, letter on behalf of Alyse Peterson, State Liaison Designee to Rich Guzman, U.S. Nuclear Regulatory Commission, “Proposed License Amendment to Revise the Emergency Plan for the Indian Point Nuclear Site,” dated January 9, 2019 (ADAMS Accession No. ML20011C343).

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