

September 19, 2001

Mr. Michael Kansler  
Sr. Vice President and Chief  
Operating Officer  
Entergy Nuclear Operations, Inc.  
440 Hamilton Avenue  
White Plains, NY 10601

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT NO. 3 - ISSUANCE OF  
AMENDMENT RE: CHANGES TO THE TECHNICAL SPECIFICATIONS TO  
ALLOW A ONE-TIME REPLACEMENT OF STATION BATTERIES WHILE AT  
POWER (TAC NO. MB0180)

Dear Mr. Kansler:

The Commission has issued the enclosed Amendment No. 208 to Facility Operating License No. DPR-64 for the Indian Point Nuclear Generating Unit No. 3 (IP3). The amendment consists of changes to the Technical Specifications (TS) in response to the application by the Power Authority of the State of New York (PASNY), the former licensee, transmitted by letter dated September 7, 2000, as supplemented December 29, 2000.

On November 21, 2000, PASNY's ownership interest in IP3 was transferred to Entergy Nuclear Indian Point 3, LLC, to possess and use IP3, and to Entergy Nuclear Operations, Inc, to possess, use and operate IP3. By letter dated January 26, 2001, Entergy Nuclear Operations requested that the NRC continue to review and act on all requests before the Commission which had been submitted by PASNY before the transfer. Accordingly, the staff continued its review of PASNY's request and response concerning the issue of the enclosed amendment.

The amendment revises TS Section 3.7.B.4 to allow a one-time replacement of Station 125V DC batteries 31 and 32 while at power. The one-time change is necessary to support an on-line replacement of the existing batteries with new batteries. In addition, a change is made on a one-time basis to conduct testing of the battery while the plant is not shutdown. Also included is an administrative change involving the deletion of an expired one-time limiting condition for operation statement related to an Emergency Diesel Generator Fuel Oil Storage Tank repair effort.

M. Kansler

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

Sincerely,

**/RA/**

Guy S. Vissing, Sr. Project Manager, Section 1  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-286

Enclosures: 1. Amendment No. 208 to DPR-64  
2. Safety Evaluation

cc w/encls: See next page

M. Kansler

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cc w/encls: See next page

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\*Safety Evaluation Provided 2/27/01

OFFICE	PDI-1\PM	PDI-1\LA	SPSB/BC	OGC*	EEIB/SC*	PDI-1\ASC
NAME	GVissing:lh	SLittle	RBarrett	RWeisman	CHolden	PTam
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ENTERGY NUCLEAR OPERATIONS, INC.

DOCKET NO. 50-286

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 208  
License No. DPR-64

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by the Power Authority of the State of New York (PASNY) dated September 7, 2000, as supplemented December 29, 2000, as adopted by Entergy Nuclear Operations, Inc., pursuant to a letter dated January 26, 2001, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-64 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 208 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION

***/RA/***

Peter S. Tam, Acting Chief, Section I  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: September 19, 2001

ATTACHMENT TO LICENSE AMENDMENT NO. 208

FACILITY OPERATING LICENSE NO. DPR-64

DOCKET NO. 50-286

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

Remove Pages

3.8-4-1  
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3.8.4-2  
3.8.4-3

Insert Pages

3.8-4-1  
3.8-4-1a  
3.8.4-2  
3.8.4-3

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 208 TO FACILITY OPERATING LICENSE NO. DPR-64  
ENTERGY NUCLEAR OPERATIONS, INC.  
INDIAN POINT NUCLEAR GENERATING UNIT NO. 3  
DOCKET NO. 50-286

1.0 INTRODUCTION

By letter dated September 7, 2000, as supplemented December 29, 2000, the Power Authority of the State of New York, (PASNY, the former licensee) submitted a request for changes to the Indian Point Nuclear Generating Unit No. 3 (IP3) Technical Specifications (TSs). The requested changes would revise TS Section 3.7.B.4 to allow a one-time replacement of station 125V DC batteries 31 and 32 while at power. The proposed one-time change is necessary to support an on-line replacement of the existing batteries with new batteries. In addition, the licensee is requesting on a one-time basis to conduct battery testing while the plant is not shutdown. Also included in the request is an administrative change involving the deletion of an expired one-time limiting condition for operation statement related to an Emergency Diesel Generator Fuel Oil Storage Tank repair effort. The December 29, 2000, letter provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

On November 21, 2000, PASNY's ownership interest in IP3 was transferred to Entergy Nuclear Indian Point 3, LLC, to possess and use IP3, and to Entergy Nuclear Operations, Inc, to possess, use and operate IP3. By letter dated January 26, 2001, Entergy Nuclear Operations requested that the Nuclear Regulatory Commission (NRC) continue to review and act on all requests before the Commission which had been submitted by PASNY before the transfer. Accordingly, the staff continued its review of PASNY's request and response concerning the issue of the enclosed amendment.

2.0 BACKGROUND

The existing installed Station batteries 31 and 32 require replacement no later than June 2002. During the proposed on-line replacement, one DC bus will be connected in parallel with the existing safety-related battery charger and a temporary non-seismic station battery. This temporary battery is expected to meet the safety functions of the existing battery with the exception of seismic, interaction with seismic and vital area requirements.

The IP3 125V DC electrical distribution system, including the batteries, is designed to have sufficient independence, redundancy and testability to perform its safety function, assuming a single failure, consistent with 10 CFR Part 50, Appendix A, General Design Criterion 17 (GDC 17).

A one-time 10-day allowed outage time (AOT) would be applied for each of the station batteries separately, to replace them prior to June 2002. The requested change is temporary and, as set forth in the deterministic and probabilistic risk assessment evaluations below, the proposed changes will maintain acceptable levels of plant safety.

### 3.0 EVALUATION

The NRC staff reviewed and evaluated the proposed one-time change to the TS Section 3.7.4 which adds a note to TS 3.7.B.4 as follows:

On a one-time (per battery) only basis for station batteries 31 & 32, the batteries may be inoperable for up to 10 days each, as necessary, to allow on-line replacement of the batteries. The time period during which this allowance may be exercised will end on May 31, 2002. The following additional requirement shall also be met to invoke this extended one-time allowed outage time: No risk significant planned maintenance or testing activities, which may impact AC or DC normal or emergency electrical distribution source or ESF [Engineered Safety Feature] systems, shall be performed during this replacement period.

The IP3 electrical distribution system is designed to supply power to both safety-related and non-safety related equipment that requires DC power for operation and control. The 125V DC system is designed to have sufficient independence, redundancy and testability to perform its safety function assuming a single failure.

The 125V DC system consists of four independent, safety-related DC electrical power subsystems. Each subsystem consists of one 125V DC battery, the associated battery charger, all associated control equipment and interconnecting cables. The charger is the normal power source to the DC loads. Each battery is maintained fully charged and is the emergency power source in anticipation of a Loss of Offsite Power (LOOP) event with loss of normal power to the battery charger. The batteries are sized to carry the expected shutdown loads for a period of 2 hours without the battery terminal voltage falling below the minimum required voltage following a loss of AC power event.

The existing station batteries 31 and 32, type Exide GC-33, will be replaced with new, qualified batteries. To perform the replacement on-line, a temporary battery will be used during these separate planned 10-day AOT periods. The temporary battery used for the first battery replacement will serve as the actual replacement for the second battery. The temporary battery used during the second battery replacement will be the existing battery removed during the first battery replacement. During the AOT periods, the temporary battery, along with the associated, installed safety-related battery charger will supply the respective DC bus. The temporary batteries will be located in the non-seismic turbine building and will not be seismically mounted. The loss of the temporary battery during a seismic event or a seismic interactive event is possible and its failure cannot create a different response to any previously postulated accident, as follows: If a seismic event did occur and cause the LOOP, rendering a single ESF train unavailable (480V AC Bus 5A or Bus 6A) the remaining two ESF trains along with their respective 125V DC buses are designed to ensure safe shutdown of the facility. The 10-day completion time is long enough for removing the old battery and installation and testing of the new battery.

The temporary battery will be located away from the high-energy steam lines and oriented in the Turbine Building such that it is not susceptible to a turbine blade failure event or flooding event. Also, a main steamline break outside the Vapor Containment would be interrupted by the closure of the Main Steam Isolation Valves, and thus would not affect the battery and the associated 125V DC system.

The batteries to be used as temporary are qualified as safety-related in all aspects; and have been sized to carry shutdown loads for 2 hours without the battery terminal voltage falling below its minimum required voltage.

To support the 10-day AOT, the licensee has committed to include the following provisions/limitations/compensatory actions during the extended AOT that can mitigate any increase in risk:

- The existing safety-related battery charger associated with the replaced station battery is operable and connected to the DC bus in parallel with the temporary battery, as required by TS;
- The temporary and replacement batteries will be subjected to the applicable station battery surveillance tests before placing them into service;
- The plant is in a stable condition with no Required Actions in effect at the start of the battery replacement activity necessitating plant shutdown AND no risk significant, planned maintenance or testing activities (which may impact AC or DC normal or emergency electrical distribution sources or ESF systems) performed during the replacement period;
- No entry conditions into OD-8, Guidelines for Severe Weather, reasonably expected during the replacement period; Verification of operating crews training on ECA-0.0, "Loss of All AC Power", and associated procedures involving operation of a single EDG on a single service water pump;
- Back-up battery charger 35 available to be connected to the DC bus that the temporary battery supplies;
- The temporary battery paralleled onto the DC bus with the station battery prior to disconnecting or reconnecting the station battery;
- The instrument Bus Static Inverters have their respective Maintenance Bypass Switches in the "Inverter" position for the duration of the time the temporary battery is the sole supply of the associated DC bus;
- The Appendix "R" D/G is available during the AOT period; AND
- Appropriate security arrangements in place to support use of the temporary battery when it is connected to the associated DC bus."

One of the implementing actions during the replacement of the batteries is that operator crew training is verified to include EOP-ECA-0.0 and associated procedures for operating a single EDG on a single service water pump. In addition, the temporary battery will perform the same function as the battery removed, thus the proposed replacement activities will not prevent the plant from mitigating a design-basis accident (DBA) during events that result in the loss of the temporary battery. This is acceptable because the above actions and conditions will be in effect to support the 10-day AOT.

A note has been added to Surveillance Requirement (SR) 4.6.B.3 (24 months service test) and SR 4.6.B.4 (60 months performance or modified performance discharge test) as follows:

This battery surveillance may be performed on a one-time only basis during replacement of station batteries 31 and 32 when the unit is not shutdown in order to support the one-time allowed outage time change of 10 days, as indicated in section 3.7.B.4. This testing shall be done when the battery is disconnected from the DC bus.

IP3 will be able to perform the service or the performance/modified tests while the unit is on-line to ensure that the battery criteria are met prior to completing the battery installation and connection to the bus. These tests will be conducted on each battery as necessary while the battery is disconnected from the respective DC bus. This is acceptable as the above actions and conditions ensure risk minimization during battery replacement.

The licensee requested an administrative change to delete a note in TS Section 3.7.B.1 related to an EDG Fuel Storage Tank repair effort during 1999 and prior to Refueling Outage RO-10. The time for utilizing this note has expired. The change has no impact on any other TS sections and is acceptable.

#### 4.0 PROBABILISTIC SAFETY ASSESSMENT

The NRC staff evaluated the potential impact on plant risk due to the proposed change. The proposal would extend the AOT necessary to support the safety-related battery replacement at power. A temporary non-seismic station battery would be installed in the turbine building and connected to the associated DC bus. The existing safety-related battery charger would remain connected to the DC bus. The NRC staff evaluated whether or not the detail and quality of the licensee's risk assessment performed in support of the proposed change were appropriate, and the estimated risk impact of the change would be small.

The licensee's safety analysis determined that a seismic event would be a dominant risk contributor during the extended AOT period for battery replacement. Based on the licensee's Individual Plant Examination of External Events (IPEEE), the licensee assumed that the offsite power sources and the temporary battery would fail as a result of a 0.05g acceleration or greater earthquake. The frequency of such an earthquake was  $1.4E-3/\text{yr}$  based on the plant-specific Electric Research Power Institute Hazard Curve for the IP3 site. A calculation using the Individual Plant Examination (IPE) indicated that the incremental conditional core damage probability (ICCDP) given such an earthquake would be  $2.74E-6$  and  $2.60E-6$  for a duration of the proposed 10 days for the replacement of the 31 and 32 batteries, respectively. These values exceed the ICCDP threshold ( $5E-7$ ) set forth in Regulatory Guide (RG) 1.177. However, the licensee stated that for the dominant minimal cutset, a factor of 0.1 could still be credited for an Emergency Operating Procedure (EOP) attachment addressing single Essential Service Water (ESW) pump operation.

The licensee also evaluated other potential internal and external initiating events, including turbine blade failure and flooding, and found that none of the events would have a significant impact on risk.

The NRC staff issued a request for additional information (RAI) regarding the following aspects of the licensee's application: (1) the licensee's analysis did not include the potential risk due to fire; (2) it did not address the role of Appendix R Diesel Generator DG and how the Appendix R

safe shutdown capability would be maintained; and (3) the 0.1 credit taken for single ESW pump operation was not clearly justified. In response, the licensee provided additional information on December 29, 2000. The licensee performed a review of the proposed temporary rack and cable routing scheme with respect to the licensee's IPEEE. The review identified two areas to be subject to increased vulnerability to fire - the temporary battery rack and the cabling from the battery rack to the entrance of the Control Building. For both areas, the fire risk impact was estimated to fall well below  $1E-6$  in terms of ICCDP. The licensee indicated that the Appendix R DG was not credited for the scenarios identified in the application. The Appendix R DG could be aligned to provide power to the appropriate 480 VAC switchgear if the feeder circuits to the 6.9kV switchgear survive the fire. The licensee stated that it will conservatively be required to be available prior to entry of the proposed AOT period. A deterministic review also indicated that the ability to achieve and maintain safe shutdown in the event of fire would be maintained. Entry into the procedure for single ESW pump operation is deemed to occur upon a loss of AC power from at least two of the EDGs after a LOOP. The 0.1 credit accounts for a failure of operators to carry out the necessary ESW valve alignments required. The licensee did not identify any additional compensatory measures.

The NRC staff finds that the licensee's risk assessment performed in support of the proposed on-line battery replacement AOT is reasonable for this particular application. The NRC staff reviewed the licensee's submittal and the response to the staff's RAI and found that the licensee provided sufficient information for the NRC staff's evaluation of the risk impact. The risk impact of the proposed AOT was estimated to be near the range of the numerical threshold for permanent changes prescribed in RG 1.177. The NRC staff finds that the proposed change is temporary and the licensee's analysis is generally conservative; therefore, the risk impact of the proposed change is concluded to be small and the staff concludes that risk insights and findings support the proposed change.

Based on the above, the NRC staff approves the licensee's request for amendment to replace the 125V DC batteries 31 and 32 while at power, and to test these batteries while the plant is not shutdown since the DC supply is from the existing Class 1 E battery charger and a temporary battery qualified as safety-related in all aspects except for seismic requirements. The precautions and compensatory actions are sufficient to provide reasonable assurance that the temporary battery will be operable during the 10-day AOT. Additionally, the risk associated with this extension is consistent with RG 1.177 and does not involve a significant increase in the probability or consequences of an accident previously evaluated. The administrative change to delete a note in TS Section 3.7.B.1 related to an EDG Fuel Storage Tank repair effort during 1999 and prior to RO-10 is also acceptable.

## 5.0 STATE CONSULTATION

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

## 6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. 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 (65 FR 69063). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

## 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) 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.

Principal Contributors: S. Saba and I. Jung

Date: September 19, 2001