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

September 1, 2010

Mr. Thomas Joyce
President and Chief Nuclear Officer
PSEG Nuclear
P.O. Box 236, N09
Hancocks Bridge, NJ 08038

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NO. 2, ISSUANCE OF AMENDMENT RE: ONE-TIME ON-LINE BATTERY REPLACEMENT (TAC NO. ME3596)

Dear Mr. Joyce:

The Commission has issued the enclosed Amendment No. 280 to Facility Operating License No. DPR-75 for the Salem Nuclear Generating Station (Salem), Unit No. 2. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated March 29, 2010, as supplemented by letters dated June 25, and August 18, 2010.

The amendment revises the TSs to allow a one-time replacement of the 2C 125-volt direct current battery while Salem Unit 2 is at power.

A copy of our safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

Richard B. Ennis, Senior Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-311

Enclosures:
1. Amendment No. 280 to License No. DPR-75
2. Safety Evaluation

cc w/encls: Distribution via Listserv

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

PSEG NUCLEAR, LLC

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-311

SALEM NUCLEAR GENERATING STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 280
License No. DPR-75

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

   A. The application for amendment filed by PSEG Nuclear LLC, acting on behalf of itself and Exelon Generation Company, LLC (the licensees) dated March 29, 2010, as supplemented by letters dated June 25, and August 18, 2010, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in Title 10 of the *Code of Federal Regulations* (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 set forth in 10 CFR Chapter I;

   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-75 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 280, 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 its date of issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Peter Bamford for

Harold K. Chernoff, Chief
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Facility Operating License
and the Technical Specifications

Date of Issuance: September 1, 2010

ATTACHMENT TO LICENSE AMENDMENT NO. 280

FACILITY OPERATING LICENSE NO. DPR-75

DOCKET NO. 50-311

Replace the following page of Facility Operating License No. DPR-75 with the attached revised page as indicated. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

Remove	Insert
Page 4	Page 4

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

Remove	Insert
3/4 8-10	3/4 8-10
3/4 8-11a	3/4 8-11a

(2) Technical Specifications and Environmental Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 280, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

125-VOLT D.C. DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.3 The following D.C. bus trains shall be OPERABLE and energized:

TRAIN 2A consisting of 125-volt D.C. bus No. 2A, 125-volt D.C. battery No. 2A and battery charger 2A1.

TRAIN 2B consisting of 125-volt D.C. bus No. 2B, 125-volt D.C. battery No. 2B and battery charger 2B1.

TRAIN 2C consisting of 125-volt D.C. bus No. 2C, 125-volt D.C. battery No. 2C* and battery charger 2C1.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With one 125-volt D.C. bus inoperable or not energized, restore the inoperable bus to OPERABLE and energized status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one 125-volt D.C. battery charger inoperable, restore the inoperable charger to OPERABLE status within 2 hours or connect the backup charger for no more than 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With one or more 125-volt D.C. batteries with one or more battery cell parameters not within the Category A or B limits of Table 4.8.2.3-1:

1. Verify within 1 hour, that the electrolyte level and float voltage for the pilot cell meets Table 4.8.2.3-1 Category C limits, and

2. Verify within 24 hours, that the battery cell parameters of all connected cells meet Table 4.8.2.3-1 Category C limits, and

3. Restore battery cell parameters to Category A and B limits of Table 4.8.2.3-1 within 31 days, and

4. If any of the above listed requirements cannot be met, comply with the requirements of action f.

d. With one or more 125-volt D.C. batteries with one or more battery cell parameters not within Table 4.8.2.3-1 Category C values, comply with the requirements of action f.

e. With average electrolyte temperature of representative cells less than 65°F, comply with the requirements of action f.

f. Restore the battery to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

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* During the one-time on-line replacement of station battery 2C, this LCO can be satisfied by a temporary battery as described in PSEG LAR submittal dated March 29, 2010.

3. The connection resistance is:

≤150 micro ohms for inter-cell connections,
≤350 micro ohms for inter-rack connections,
≤350 micro ohms for inter-tier connections,
≤70 micro ohms for field cable terminal connections,and
≤2500 micro ohms for the total battery connection resistance which includes all inter-cell connections (including bus bars), all inter-rack connections (including cable resistance) all inter-tier connections (including cable resistance) and all field terminal connections at the battery.

e. At least once per 18 months by verifying that the battery charger will supply at least 170 amperes at 125 volts for at least 4 hours.

f. At least once per 18 months, during shutdown*, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for the design duty cycle when the battery is subjected to a battery service test.

g. At least once per 60 months, during shutdown*, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Satisfactory completion of this performance discharge test shall also satisfy the requirements of Specification 4.8.2.3.2.f if the performance discharge test is conducted during a shutdown* where that test and the battery service test would both be required.

h. At least once per 12 months, during shutdown, if the battery shows signs of degradation OR has reached 85% of the service life with a capacity less than 100% of manufacturers rating, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its capacity on the previous performance test, or is below 90% of the manufacturer's rating.

i. At least once per 24 months, during shutdown, if the battery has reached 85% of the service life with capacity greater than or equal to 100% of manufacturers rating, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test.

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* This battery surveillance may be performed, as required, associated with a one-time replacement of station battery 2C when the unit is not shutdown. This testing shall be done when the battery is disconnected from the 2C DC bus. This testing must be completed by February 1, 2011.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 280 TO FACILITY OPERATING LICENSE NO. DPR-75

PSEG NUCLEAR, LLC

EXELON GENERATION COMPANY, LLC

SALEM NUCLEAR GENERATING STATION, UNIT NO. 2

DOCKET NO. 50-311

1.0 INTRODUCTION

By letter dated March 29, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML100970064), as supplemented by letters dated June 25, and August 18, 2010 (ADAMS Accession Nos. ML101880040 and ML102370769, respectively), PSEG Nuclear, LLC (PSEG or the licensee) submitted a request for changes to the Salem Nuclear Generating Station (Salem), Unit No. 2, Technical Specifications (TSs). The proposed amendment would change the TSs to allow a one-time replacement of the existing safety-related 2C 125-volt direct current (VDC) battery with a new battery while Salem Unit 2 is at power. A temporary battery would be installed prior to the replacement activities and the temporary battery would be used to satisfy the operability requirements of the 2C battery during the replacement activities.

The proposed amendment would revise TS surveillance requirements (SRs) 4.8.2.3.2.f and 4.8.2.3.2.g to permit battery testing, on a one-time basis, in a non-shutdown condition (currently these SRs only allow the testing to be performed during shutdown). In addition, the proposed amendment would add a footnote to limiting condition for operation (LCO) 3.8.2.3 to make it clear that the LCO requirements are being satisfied by a temporary battery during the 2C battery replacement activities.

The supplements dated June 25, and August 18, 2010, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the Nuclear Regulatory Commission (NRC or the Commission) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on June 1, 2010 (75 FR 30446).

2.0 REGULATORY EVALUATION

The NRC regulatory requirements and guidance documents discussed below are applicable to the staff's review of the licensee's amendment request.

As discussed in Section 3.1 of the Salem Updated Final Safety Analysis Report (UFSAR), the general design criteria (GDC) followed in the design of Salem Units 1 and 2 are the Atomic Industrial Forum (AIF) version, as published in a letter to the Atomic Energy Commission (AEC) from E. A. Wiggin, AIF, dated October 2, 1967. As also discussed in Section 3.1 of the UFSAR, in addition to the AIF GDC, the Salem units were designed to comply with the intent of the AEC's proposed GDC dated July 1967. Section 3.1.2 of the UFSAR provides a discussion of the Salem's conformance with the AEC proposed GDCs. Section 3.1.3 of the UFSAR also states that the design of the Salem units conforms to the intent of Appendix A to Title 10 of the *Code of Federal Regulations* (10 CFR), "General Design Criteria for Nuclear Power Plants," dated July 7, 1971 (with several exceptions as discussed in this section of the UFSAR).

GDC 17, "Electric power systems," of Appendix A to 10 CFR Part 50, requires, in part, that "[t]he onsite electric power supplies, including the batteries, and the onsite electric distribution system, shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure."

GDC 18, "Inspection and testing of electric power systems," of Appendix A to 10 CFR Part 50, requires, in part, that "[e]lectric power systems important to safety shall be designed to permit appropriate inspection and testing."

Section 50.63 of 10 CFR, "Loss of all alternating current power," requires, in part, that each light-water-cooled nuclear power plant licensed to operate "must be able to withstand for a specified duration and recover from a station blackout as defined in §50.2."

In Regulatory Guide (RG) 1.32, Revision 3, "Criteria for Power Systems for Nuclear Power Plants," dated March 2004, the NRC staff endorsed, with certain exceptions, Institute of Electrical and Electronic Engineers (IEEE) Standard 308 (IEEE 308), "Criteria for Class 1E Power Systems for Nuclear Power Generating Stations," dated December 6, 2001, as providing a method acceptable to the staff for use in complying with the NRC's regulations for the design, operation, and testing of electric power systems in nuclear power plants.

In RG 1.129, Revision 2, "Maintenance, Testing, and Replacement of Vented Lead-Acid Storage Batteries for Nuclear Power Plants," dated February 2007, the NRC staff endorsed, with certain clarifications, IEEE Standard 450 (IEEE 450), "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," dated December 9, 2002, as providing a method acceptable to the NRC staff for use in complying with the NRC's regulations for the maintenance, testing, and replacement of vented lead-acid storage batteries in nuclear power plants.

3.0 TECHNICAL EVALUATION

Proposed TS Changes

The NRC staff reviewed and evaluated the proposed TS changes. The staff's review focused on the one-time replacement of the 2C battery and allowing the use of a new temporary battery.

As proposed in PSEG's application dated March 29, 2010, SRs 4.8.2.3.2.f and 4.8.2.3.2.g would be revised and a footnote would be added, applicable to these SRs, to permit testing on a one-time basis in a non-shutdown condition. Specifically, an asterisk would be added after the word

"shutdown," in each of the SRs and a footnote associated with the asterisk would be added. The proposed SRs and footnote would read as follows:

f. At least once per 18 months, during shutdown*, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for the design duty cycle when the battery is subjected to a battery service test.

g. At least once per 60 months, during shutdown*, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Satisfactory completion of this performance discharge test shall also satisfy the requirements of Specification 4.8.2.3.2.f if the performance discharge test is conducted during a shutdown* where that test and the battery service test would both be required.

*This battery surveillance may be performed, as required, associated with a one-time replacement of station battery 2C when the unit is not shutdown. This testing shall be done when the battery is disconnected from the 2C DC bus. This testing must be completed by February 1, 2011.

In addition, as shown in PSEG's supplement dated June 25, 2010, the proposed amendment would add a footnote to LCO 3.8.2.3 to make it clear that the LCO requirements are being satisfied by a temporary battery during the 2C battery replacement activities. Specifically, an asterisk would be added after "125-volt D.C. battery No. 2C" in the LCO and the following footnote associated with the asterisk would be added:

*During the one-time replacement of station battery 2C, this LCO can be satisfied by a temporary battery as described in PSEG LAR submittal dated March 29, 2010.

Background

Three 125 VDC batteries (2A, 2B and 2C) are provided for Salem Unit 2 to supply an independent source of control power for each of the three 4160-volt alternating current (VAC) and 460 VAC vital buses and for the 125 VDC distribution cabinets. The station direct current (DC) systems provide a continuous source of power for operation of circuit breakers, valve controls, inverters, etc. Each 125 VDC battery is connected to its associated switchgear through a disconnect switch and protective fuses. A static battery charger is provided for each battery, and a ground detection system and under-voltage alarm relay is provided for each bus. Each charger maintains a floating charge on its associated battery and is capable of supplying the required equalizing charge when necessary.

The batteries are mounted on corrosion-resistant, seismically-designed steel racks in separately ventilated and isolated rooms. Each battery consists of 60 cells contained within two racks (30 cells per rack).

During normal operation, the DC load is fed from the battery chargers with the batteries floating on the system. Upon loss of DC power from a battery charger, the DC load is drawn from the batteries. The batteries are sized for 2 hours of operation after a loss of offsite power (LOOP)

concurrent with a loss-of-coolant accident (LOCA), based upon the required operation of the DC emergency equipment. These batteries are also sized for 4 hours of operation following a station blackout (SBO). If offsite power is lost, the battery chargers are energized from the emergency diesel generators and resume their function automatically.

The 2C battery, located in the Unit 2 elevation 64 foot (ft) switchgear room, showed signs of degradation when tested in accordance with SR 4.8.2.3.2 during the October 2009 refueling outage. The battery was subjected to two performance discharge tests during the outage. The first test, a 60-month performance discharge test, was performed on October 15, 2009, and resulted in a measured capacity of 85.3%. Following the first test, 28 existing degraded cells were replaced with new cells (the maximum number of cells that could be procured) and a second performance discharge test was performed on November 2, 2009. The second test resulted in a measured capacity of 88.2%.

The 2C battery is operable in accordance with TS 3/4.8.2.3, since the last performance discharge test reflected battery capacity of 88.2% is greater than required 80%. Since the measured capacity is less than 90%, 2C battery is also considered degraded per SR 4.8.2.3.2.h and IEEE 450. In accordance with SR 4.8.2.3.2.h, the battery must be tested at least once per 12 months during shutdown if the battery shows signs of degradation, or has reached 85% of the service life with a capacity less than 100% of the manufacturer's rating when subjected to a performance discharge test. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from the previous performance discharge test, or is below 90% of manufacturer's rating.

Since the 2C battery was determined degraded by the performance discharge testing performed on November 2, 2009, the next surveillance is due within 12 months (i.e., on or before November 2, 2010) and is required to be performed during shutdown per the requirements in SR 4.8.2.3.2.h. To avoid a mid-cycle shutdown for this surveillance testing, PSEG proposes to replace the 2C battery on-line. Note that by replacing the existing 2C degraded battery, SR 4.8.2.3.2.h will no longer be applicable; instead the replacement (i.e., new permanent) battery will need to be tested in accordance with SR 4.8.2.3.2 f and g.

In its application dated March 29, 2010, the licensee stated that initially when the two banks of new battery cells arrive at the site they will be staged temporarily in the turbine building for inspection and performance discharge testing. These two banks of new batteries will be seismically qualified and safety-related Class 1E batteries. One set will be used as the temporary battery bank and the other set will be used as a replacement battery bank (i.e., new permanent 2C battery). After inspection and testing, the temporary battery will be re-located to the 4160 VAC switchgear room adjacent to and outside of the existing 2C battery room. The temporary battery will be connected to the 125 VDC bus and become operational after the existing 2C battery is disconnected from the bus. The second bank will become the new permanent 2C battery and will be relocated from the turbine building and installed in place of the existing 2C battery in the existing 2C battery room. The new permanent 2C battery will be considered operational after successful pre-operational tests and once connected to the bus after the temporary battery is disconnected from service. The temporary battery will be installed on the west side of the Unit 2 elevation 64 ft 4160 VAC switchgear room between the existing 2C battery room and the west wall. In order to connect the temporary battery to the 125 VDC bus 2C, the licensee will need to connect temporary cables from the temporary battery to the permanent cables feeding the 2C battery. A temporary battery charger will be placed and

secured on the north-west corner of the switchgear room, to recharge and maintain charge of the temporary battery until the battery is connected to the 125 VDC bus 2C.

In Section 4.0 of Attachment 1 to the application dated March 29, 2010, the licensee evaluated a number of technical considerations with respect to the temporary battery to ensure that it meets the NRC regulations, industry guidance and the existing 2C battery requirements. These technical considerations are discussed further below.

Design Parameters

In Section 4.1 of Attachment 1 to the application dated March 29, 2010, the licensee stated that the temporary battery will be sized to the requirements of the existing 2C battery and in accordance with IEEE 308 and IEEE 485, "IEEE Recommended Practice for Sizing Lead-Acid Batteries for Stationary Applications." Thus, the licensee concluded that the capacity of the temporary battery will be large enough to support the maximum design loads for design basis events such as LOCA concurrent with a LOOP, as well as an SBO. In addition, the licensee stated in the application that the duty cycle for the temporary battery will be identical to the existing 2C battery and will address 125 VDC loading during normal operation, LOCA/LOOP, and SBO load profiles.

Battery Connections

In Section 4.2 of Attachment 1 to the application dated March 29, 2010, the licensee stated that the cables and conduits used to connect the temporary battery to the 2C 125 VDC bus will be seismically installed, meet the Salem electrical separation criteria, Appendix R separation requirements, and would adequately account for voltage drop.

Seismic Installation

In Section 4.3 of Attachment 1 to the application dated March 29, 2010, the licensee stated that the temporary battery will be supplied and qualified to the same seismic qualification requirements as the existing 2C battery. In addition, the temporary battery installation will meet the seismic design anchorage requirements of the existing battery.

Ventilation

In Section 4.4 of Attachment 1 to the application dated March 29, 2010, the licensee stated that it had performed an evaluation of the ventilation for the switchgear room where the temporary battery will be located. With respect to hydrogen concentration, the analyzed peak hydrogen concentration in the switchgear room is well below the maximum allowable hydrogen concentration of 2 percent. In addition, the licensee stated that it will perform periodic hydrogen concentration monitoring with appropriate contingency actions in place. This issue is discussed further below under "Fire Protection."

Missile Hazards

In Section 4.5 of Attachment 1 to the application dated March 29, 2010, the licensee stated that it had performed an evaluation of the missile hazards that could adversely impact the temporary battery. As a result of this review, the licensee determined that the light standards located above

the temporary battery will be removed to prevent the possibility of them falling onto the battery. Other than the light standards, the licensee concluded that there are no credible externally or internally-generated missiles that could damage or impair the temporary battery.

Fire Protection

In Section 4.6 of Attachment 1 to the application dated March 29, 2010, the licensee provided information regarding its evaluation of fire protection considerations for the temporary battery. The licensee stated that, unlike the existing 2C 125 VDC battery, it is not possible to place the temporary battery in a separate enclosed room that does not contain other plant equipment. The temporary battery will be located inside the 64 ft elevation 4160 VAC Unit 2 switchgear room just outside the existing 2C battery room. The 2C battery room is inside the 4160 VAC switchgear room. The switchgear room is separated from other areas of the plant by 3-hour fire wall and with fire doors that are rated at 1.5 hours.

Salem Unit 1 was licensed to operate on December 1, 1976 (a pre-1979 plant), and Unit 2 was licensed to operate on May 20, 1981. Pre-1979 plants were reviewed under Appendix A to Branch Technical Position (BTP), Auxiliary and Power Conversion Systems Branch (APCSB) 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants Docketed Prior to July 1, 1976," dated February 24, 1977. Salem Unit 2 committed to the guidance of Appendix A to BTP 9.5-1. The Salem Units 1 and 2 fire protection program describes the fire protection features of the plant necessary to comply with BTP APCSB 9.5-1, Appendix A. Section F.7, "Station Battery Room," of BTP APCSP 9.5-1 states that ventilation systems in the battery rooms should be capable of maintaining the hydrogen concentration well below 2 percent. The licensee states that, by analysis, peak hydrogen concentration in the elevation 64 ft 4160 VAC switchgear room is well below the maximum allowable of 2 percent. This satisfies the NRC staff fire protection program guidance for battery room hydrogen concentration.

Appendix A to BTP APCSB 9.5-1 indicates that one acceptable approach for battery room fire barriers is to have a combustible loading in the room of less than 1.5 hours. The licensee analyzed the additional combustible load in the fire area as a result of this temporary modification. The licensee stated that the installation of the temporary battery bank and temporary charger created a slight increase in the combustible loading in the room but remained below 1.5 hours. The 4160 VAC switchgear room, where the temporary battery will be located, also has a pre-action sprinkler system which provides full area coverage. The light standards located above the temporary battery will be removed to eliminate an ignition source. In addition, the licensee stated that locating the temporary battery within the 4160 VAC switchgear room does not alter the safe shutdown analysis or operator response due to a fire in this area.

Testing Frequency

As discussed above, since the 2C battery was determined degraded by the performance discharge testing performed on November 2, 2009, the next surveillance, in accordance with SR 4.8.2.3.2.h, is due within 12 months (i.e., on or before November 2, 2010). The proposed footnote to be added to SRs 4.8.2.3.2.f and 4.8.2.3.2.g states that battery testing "must be completed by February 1, 2011." In an NRC staff request for additional information (RAI) the staff questioned the licensee's technical basis for proposing to extend the 12-month test frequency to 15 months (i.e., from November 2, 2010 to February 1, 2011). The licensee stated, in its supplement dated June 25, 2010, that it intends to replace the existing 2C battery prior to

November 2, 2010. The 12-month testing requirement of the degraded battery is consistent with the recommendations provided in IEEE 450. The 12-month testing frequency is based on operating experience and the uncertainty of battery operability given the degraded condition. As a contingency, the licensee stated that it may utilize the surveillance frequency allowances of TS 4.0.2 (allowing a 25 percent extension to the SR 4.8.2.3.2.h due date), which would allow completion of the replacement to be extended until February 1, 2011. As noted above, following the replacement of the 2C battery, SR 4.8.2.3.2.h will no longer apply; instead the replacement (new permanent) battery will need to be tested in accordance with SRs 4.8.2.3.2 f and g.

Emergency Diesel Generator Loading

In an RAI, the NRC staff questioned whether use of a new temporary battery charger could impact the emergency diesel generator loading. In response, the licensee, in its supplement dated June 25, 2010, stated that the temporary battery will be powered from the existing Class 1E 125 VDC battery charger when it is connected to the Class 1E DC bus. Since the existing charger will be used, and the new and temporary batteries will meet the same design requirements of the existing 2C battery, there is no additional impact to the associated emergency diesel generator loading. When the temporary battery is installed in the 4160 VAC switchgear room prior to being connected to the Class 1E DC Bus, the temporary battery's charge will be maintained through the use of a temporary charger.

Testing

In an RAI, the NRC staff questioned how the preoperational tests for the temporary battery and the new permanent battery would provide assurance that the batteries would be capable of supplying power to support all required loads for as long as would be required following a loss of alternating current power consistent with the Salem design basis. The staff stated that, consistent with IEEE-308-2001, Section 6.3, "Preoperational system test," the preoperational test should be performed after the temporary and new permanent batteries are installed in the switchgear room and 2C battery room, respectively.

In response, the licensee, in its supplement dated August 18, 2010, stated that, in accordance with IEEE 308-2001, Section 6.3, the temporary 2C battery and the new permanent 2C battery will be tested to verify the batteries can meet the design requirements of their connected loads without the chargers in operation. The test will be performed after final installation with all components installed, prior to placing the batteries in service. Specifically, the licensee stated that a service test will be performed on the temporary 2C battery and the new permanent 2C battery in accordance with PSEG procedure SC.MD-ST.125-0006. The test will be performed after the batteries are installed in the switchgear room and 2C battery room, respectively. The licensee stated that the test meets the requirements of IEEE 450-2002 for "Service Test" and TS SR 4.8.2.3.2.f (i.e., test of the battery's ability to satisfy the battery duty cycle).

Conclusion

Based on the review of the considerations discussed above, the NRC staff finds that the licensee has adequately demonstrated that the temporary battery will be designed, installed, and tested consistent with the requirements for the existing 2C battery. Therefore, the NRC staff concludes that there is reasonable assurance that temporary battery will be capable of performing the design functions currently performed by the existing 2C battery during the battery

replacement activities. As such, the NRC concludes that the proposed amendment is acceptable.

4.0 STATE CONSULTATION

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

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes SRs. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (75 FR 30446). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: P. Sahay
P. Qualls
R. Ennis

Date: September 1, 2010

September 1, 2010

Mr. Thomas Joyce
President and Chief Nuclear Officer
PSEG Nuclear
P.O. Box 236, N09
Hancocks Bridge, NJ 08038

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NO. 2, ISSUANCE OF AMENDMENT RE: ONE-TIME ON-LINE BATTERY REPLACEMENT (TAC NO. ME3596)

Dear Mr. Joyce:

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The amendment revises the TSs to allow a one-time replacement of the 2C 125-volt direct current battery while Salem Unit 2 is at power.

A copy of our safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,
/ra/
Richard B. Ennis, Senior Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-311

Enclosures:

1. Amendment No. 280 to License No. DPR-75
2. Safety Evaluation

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