

RS-11-014

January 28, 2011

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

LaSalle County Station, Units 1 and 2  
Facility Operating License Nos. NPF-11 and NPF-18  
NRC Docket Nos. 50-373 and 50-374

Subject: Additional Information Supporting License Amendment Request Regarding the Use of Neutron Absorbing Inserts in Unit 2 Spent Fuel Pool Storage Racks

- References:
1. Letter from P. R. Simpson (Exelon Generation Company, LLC) to U.S. NRC, "License Amendment Regarding the Use of Neutron Absorbing Inserts in Unit 2 Spent Fuel Pool Storage Racks," dated October 5, 2009
  2. Letter from E. A. Brown (U.S. NRC) to M. J. Pacilio (Exelon Nuclear), "LaSalle County Station, Units 1 and 2 – Proposed License Conditions Related to Use of Neutron Absorbers (TAC Nos. ME2376 and ME2377)," dated January 24, 2011
  3. Letter from P. R. Simpson (Exelon Generation Company, LLC) to U.S. NRC, "Additional Information Supporting License Amendment Request Regarding the Use of Neutron Absorbing Inserts in Unit 2 Spent Fuel Pool Storage Racks," dated January 24, 2011

In Reference 1, Exelon Generation Company, LLC (EGC) requested an amendment to Facility Operating License Nos. NPF-11 and NPF-18 for LaSalle County Station (LSCS), Units 1 and 2, respectively. The proposed change revises Technical Specifications (TS) Section 4.3.1, "Criticality," to address a non-conservative TS. Specifically, the proposed change addresses the BORAFLEX™ degradation issue in the Unit 2 spent fuel storage racks by revising TS Section 4.3.1 to allow the use of NETCO-SNAP-IN® rack inserts in Unit 2 spent fuel storage rack cells as a replacement for the neutron absorbing properties of the existing BORAFLEX™ panels.

In Reference 2, the NRC described proposed license conditions that will be necessary to address the crediting of boron (i.e., in BORAFLEX™) in the LSCS Unit 2 spent fuel storage racks during the interim period until NETCO-SNAP-IN® rack inserts are loaded in all accessible storage rack cells. Reference 2 requested EGC to provide a response indicating EGC's

understanding and acceptance of the license conditions. EGC's response was submitted to the NRC in Reference 3.

On January 28, 2011, the NRC discussed additional changes to the proposed license conditions, and requested EGC to submit a letter to document our understanding and acceptance of the changes. EGC has reviewed the additional changes to the proposed license conditions, and understands that the NRC plans to issue the following license conditions.

- (30) Beginning 120 days after the LSCS Unit 2 refueling outage 13 (L2R13) and until October 28, 2011, the storage cells in the rack modules without NETCO-SNAP-IN® inserts will be placed into one of three categories: Unrestricted, Restricted, and Unusable.
  - a. Unrestricted will be cells whose minimum panel B<sup>10</sup> areal density is greater than or equal to 0.0167 g/cm<sup>2</sup>. Unrestricted cells may contain fuel assemblies up to the maximum reactivity identified in TS 4.3.1.1.d.
  - b. Restricted will be cells whose minimum panel B<sup>10</sup> areal density is between 0.0167 g/cm<sup>2</sup> and 0.0115 g/cm<sup>2</sup>. Restricted cells will only contain LSCS Units 1 and 2 Cycle 1 General Electric (GE) and GE14 fuel assemblies.
  - c. Unusable will be cells whose minimum panel B<sup>10</sup> areal density is less than or equal to 0.0115 g/cm<sup>2</sup>. Unusable cells will be administratively controlled to remain empty of any fuel assembly.
  
- (31) After October 28, 2011, for the storage cells in the rack modules without NETCO-SNAP-IN® inserts in the LSCS Unit 2 SFP, the following categories will apply: Unrestricted, Restricted, and Unusable.
  - a. Unrestricted will be cells whose minimum panel B<sup>10</sup> areal density is greater than or equal to 0.0200 g/cm<sup>2</sup>. Unrestricted cells may contain fuel assemblies up to the maximum reactivity identified in TS 4.3.1.1.d.
  - b. Restricted will be cells whose minimum panel B<sup>10</sup> areal density is between 0.0200 g/cm<sup>2</sup> and 0.0167 g/cm<sup>2</sup>. Restricted cells will only contain LSCS Units 1 and 2 Cycle 1 GE and GE14 fuel assemblies.
  - c. Unusable will be cells whose minimum panel B<sup>10</sup> areal density is less than or equal to 0.0167 g/cm<sup>2</sup>. Unusable cells will be administratively controlled to remain empty of any fuel assembly.
  
- (32) To ensure the ongoing Boraflex degradation will not exceed the spent fuel pool criticality limits, Exelon shall complete loading all accessible storage rack cells in the LSCS Unit 2 spent fuel pool with NETCO-SNAP-IN® inserts no later than December 31, 2014.

- (33) The methodology in AREVA NP Inc. Report No. ANP-2843(P), "LaSalle Unit 2 Nuclear Power Station Spent Fuel Storage Pool Criticality Safety Analysis with Neutron Absorbing Inserts and Without Boraflex," Revision 1, dated August 2009, as corrected by Attachment 3 to a letter dated June 10, 2010, from P. Simpson to the NRC, shall be used to perform required criticality calculations associated with the storage cells containing NETCO-SNAP-IN® inserts.

In addition, on January 28, 2011, the NRC requested EGC to submit a revised markup of the proposed Technical Specifications to add information related to the design of the NETCO-SNAP-IN® rack inserts. The requested information is provided in the Attachment.

EGC has reviewed the information supporting a finding of no significant hazards consideration, and the environmental consideration, that were previously provided to the NRC in Attachment 1 of Reference 1. The additional information provided in this submittal does not affect the bases for concluding that the proposed license amendment does not involve a significant hazards consideration. In addition, the additional information provided in this submittal does not affect the bases for concluding that neither an environmental impact statement nor an environmental assessment needs to be prepared in connection with the proposed amendment.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this letter, please contact Mr. Kenneth M. Nicely at (630) 657-2803.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 28th day of January 2011.

Respectfully,



Darin M. Benyak  
Director – Licensing

Attachment: Revised Markup of Proposed Technical Specifications Page

cc: NRC Regional Administrator, Region III  
NRC Senior Resident Inspector – LaSalle County Station  
Illinois Emergency Management Agency – Division of Nuclear Safety

**ATTACHMENT**  
**Revised Markup of Proposed Technical Specifications Page**

**LaSalle County Station, Units 1 and 2**  
**Facility Operating License Nos. NPF-11 and NPF-18**

REVISED TECHNICAL SPECIFICATIONS PAGE

4.0-2

## 4.0 DESIGN FEATURES (continued)

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### 4.3 Fuel Storage

#### 4.3.1 Criticality

4.3.1.1 The spent fuel storage racks are designed and shall be maintained with:

- a.  $k_{\text{eff}} \leq 0.95$  if fully flooded with unborated water, which includes an allowance for uncertainties as described in ~~Section 9.1.2 of the UFSAR; and~~
- b. A nominal 6.26 inch center to center distance between fuel assemblies placed in the storage racks.

#### 4.3.2 Drainage

The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 819 ft.

#### 4.3.3 Capacity

The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 3986 fuel assemblies for Unit 1 and 4078 fuel assemblies for Unit 2.

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either: (1) Section 9.1.2 of the UFSAR, or (2) AREVA NP Inc. Report No. ANP-2843(P), "LaSalle Unit 2 Nuclear Power Station Spent Fuel Storage Pool Criticality Safety Analysis with Neutron Absorbing Inserts and Without Boraflex," Revision 1, dated August 2009, for the Unit 2 spent fuel storage racks with rack inserts.

- c. For Unit 2 only, a neutron absorbing rack insert shall be installed in spent fuel storage rack cells prior to loading fuel assemblies in cells that cannot otherwise maintain the requirements of 4.3.1.1.a. The neutron absorbing rack inserts shall have a minimum certified  $^{10}\text{B}$  areal density greater than or equal to 0.0086 grams  $^{10}\text{B}/\text{cm}^2$ . The approved inserts are those described in Attachment 4 to the letter from P. Simpson to the NRC, dated October 5, 2009.
- d. The combination of U-235 enrichment and gadolinia loading shall be limited to ensure fuel assemblies have a maximum k-infinity of 0.9185 for all lattices in the top of the assembly, a maximum k-infinity of 0.8869 for all lattices in the intermediate portion of the assembly, and a maximum k-infinity of 0.8843 for all lattices in the bottom of the assembly as determined at 4°C in the normal spent fuel pool in-rack configuration. The bottom, intermediate, and top zones are between 0"-96", 96"-126", and greater than 126" above the bottom of the active fuel.
- e. For Unit 2 only, at the interface between a non-insert rack module and an insert rack module of the spent fuel pool, the placement of inserts will be expanded one row and one column into the non-insert rack module as necessary to completely surround all assemblies in the insert rack module with four wings of an insert.