



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

September 30, 2013

Mr. Michael J. Pacilio
Senior Vice President
Exelon Generation Company, LLC
President and Chief Nuclear Officer
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

**SUBJECT: LASALLE COUNTY STATION, UNIT 2 - REQUEST FOR ADDITIONAL
INFORMATION REGARDING REVIEW OF CORE OPERATING LIMITS
REPORT, CYCLE 15, REVISION 0 (TAC NOS. MF2396)**

Dear Mr. Pacilio:

By letter to the Nuclear Regulatory Commission (NRC, the Commission) dated March 6, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML130720335), Exelon Generation Company, LLC (the licensee), submitted a Core Operating Limits Report (COLR) for Cycle 15, for LaSalle County Station (LSCS), Unit 2, in accordance with LaSalle County Station Technical Specification (TS) 5.6.5, "Core Operating Limits (COLR)," item d.

The NRC staff reviewed your submittal and has determined that additional information is required to complete the review. The specific information requested is addressed in the enclosure to this letter. During a discussion with your staff on September 16, 2013, it was agreed that you would provide a response by October 31, 2013.

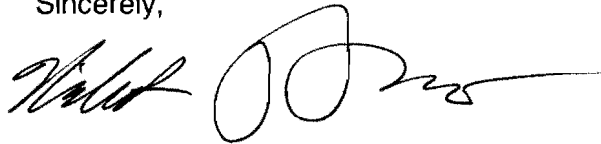
The NRC staff considers that timely responses to requests for additional information help ensure sufficient time is available for NRC staff review and contribute toward the NRC's goal of efficient and effective use of staff resources.

M. Pacilio

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If circumstances result in the need to revise the requested response date, please contact me at (301) 415-1115.

Sincerely,

A handwritten signature in black ink, appearing to read 'Nick DiFrancesco', with a long horizontal flourish extending to the right.

Nicholas J. DiFrancesco, Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-374

Enclosure:
Request for Additional Information

cc w/encl: ListServ

REQUEST FOR ADDITIONAL INFORMATION
CORE OPERATING LIMITS REPORT, REVISION 0
FOR CYCLE 15, NUCLEAR FUEL TRANSITION FROM
AREVA ATRIUM 10 to
GLOBAL NUCLEAR FUELS – AMERICAN GNF 2
EXELON GENERATION COMPANY, LLC
LASALLE COUNTY STATION, UNIT 2
DOCKET NO. 50-374

In reviewing the Exelon Generation Company, LLC (EGC or the licensee) submittal of the Core Operating Limits Report (COLR) dated March 6, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML130720335), for LaSalle County Station (LSCS), Unit 2, Cycle 15, which is transitioning nuclear fuel from AREVA Atrium 10 to Global Nuclear Fuels – Americas (GNF) GNF2, the Nuclear Regulatory Commission (NRC) staff has determined that the following information is needed in order to complete its review:

1. Background

Consistent with Generic Letter 88-16, "Removal of Cycle-specific Parameter Limit from Technical Specifications [TS]," TS 5.6.5 (b) requires that, "The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC." The NRC staff is concerned that the operating limits established for the Cycle 15 core design with AREVA Atrium 10 and GNF2 nuclear fuel were not performed within the limitations and conditions of approved NRC analytical methods. In order to assist the staff in understanding and assessing the application of NRC approved methods to the Cycle 15 core design, please provide the following:

Requests:

- (a) Please provide LSCS approved changes to the updated final safety analysis report (UFSAR) relating to this fuel transition since submittal of LSCS UFSAR Rev 19 by letter dated April 12, 2012.
- (b) Please provide the 50.59 screenings/evaluations which added or revised methods of evaluation described in your UFSAR (including changes to references incorporated into the UFSAR).
- (c) Please identify whether GNF Report 0000-0156-1147-SRLR, Revision 1, "Supplemental Reload Licensing Report for LaSalle Unit 2 Reload 14 Cycle 15,"

January 2013, is incorporated as part of the LSCS updated UFSAR. Please provide 50.59 screenings/evaluations performed against changes made to GNF Report 0000-0156-1147-SRLR, Revision 1, "Supplemental Reload Licensing Report for LaSalle Unit 2 Reload 14 Cycle 15," January 2013.

- (d) Please provide 50.59 screenings/evaluations associated with incorporating the latest revision changes to each COLR Section 11, "Methodology," methodologies since 2009.
- (e) Please provide justification to support that the GESTAR II methodology is applicable and approved to perform fuel transition analyses for mixed core designs with AREVA Atrium 10 and GNF2 nuclear fuel. Please demonstrate that AREVA Atrium 10 conforms to all applicable acceptance criteria in GESTAR II including Amendment 22. Please explain how EGC verified that the methods of evaluation have been used within their limitations and conditions.
- (f) Please identify GNF safety analyses models which used the AREVA ATRIUM-10 fuel design to establish or confirm core operating limits.
- (g) Please provide or reference technical evaluations of the mechanical, nuclear, and thermal-hydraulic compatibility of ATRIUM-10 and GNF-2 fuel. Please justify why these evaluations are applicable to LSCS, Unit 2. Please discuss if these evaluations are applicable or were approved for an existing method.

2. Background:

Based on the NRC staff understanding of the limitations and the conditions of the generic methods contained in TS 5.6.5.(b), the method of evaluation used for the nuclear fuel transition performed by LSCS, Unit 2 was not previously approved.

Requests:

Please provide the reload licensing documents associated with the fuel design change, reload reports which document safety analysis, such as the New Fuel Introduction Report (NFIR) and/or Supplemental Reload Licensing Report (SRLR), and other pertinent references establishing COLR limits (e.g. fuel thermal-mechanical limits, core thermal-hydraulic limits, Emergency Core Cooling System limits, nuclear limits, and transient and accident analysis limits).

- (a) "GNF Report 0000-0156-1147-SRLR, Revision 1, "Supplemental Reload Licensing Report for LaSalle Unit 2 Reload 14 Cycle 15," January 2013.
- (b) GNF Report NEDC-33647-P, Revision 2, "GNF2 Fuel Design Cycle-Independent Analyses for Exelon LaSalle County Station Units 1 and 2," February, 2012.
- (c) GNF Transmittal CFL-EXN-HA2-12-173, transmitting results of DRF Section 0000-0155-9963, "LaSalle Unit 2 Cycle 15 Single [Linear heat generation rate] LHGR Curve Determination (TSD NF-B483)," December 19, 2012.
- (d) GNF DRF Section 0000-0151-0765 Rev. 0 "Application of SLO MCPR," February 12, 2013.

3. Please identify all penalties applied to the COLR reload parameters and safety analysis to ensure nuclear safety with the LSCS, Unit 2 nuclear fuel transition design. If the

penalties are documented in references requested in RAI 2, please provide a listing of the applicable Section references. Please justify that these penalties are appropriate and discussion how these penalties compare to those imposed in other transition fuel designs with GNF and Areva fuel.

4. Background:

The COLR per TS 5.6.5 (a) shall establish core operating limits prior to each reload cycle for TS 3.2.1, 3.2.2, 3.2.3, 3.3.2.1, and SR 3.3.1.3.3. These limits shall be determined with methods previously reviewed and approved by the NRC in TS 5.6.5 (b). LSCS, Unit 2 COLR does not identify the methodology used to establish the core operating limits.

Requests:

- (a) Please identify the TS 5.6.5(b) analytical methods used in the COLR report to establish each of the respective TS operating limits. Should some combination of methodologies be used to establish the bounding core operating limits please explain?
- (b) Please explain how Section 1, "References," and Section 11, "Methodology," are being utilized. Please identify any references used in Section 1, "References," which should be incorporated into the update UFSAR.
- (c) The current reload cycle power/flow map is not included in the COLR or the UFSAR for backup stability operations. Please identify where in plant operating procedures and licensing basis the current power-to-flow map has been incorporated.
- (d) Please explain why TS 5.6.5 (b) has not been updated to add Global Nuclear Fuel, "The PRIME Model for Analysis of Fuel Rod Thermal-Mechanical Performance," Technical Bases NEDC-33256-P, Qualification-NEDC 33258P-A, September 2010, as an analytical method used to determine operating limits identified in TS 5.6.5 (a). Please advise if additional methods should be reflected in TS 5.6.5 (b).
- (e) Please identify all TS 5.6.5 (b) methodologies which were not utilized for establishing core operating limits for Cycle 15 (e.g. NFSR-0091, "Benchmark of CASMO/MICROBURN BWR Nuclear Design Methods").

M. Pacilio

-2-

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Sincerely,

/ **RA** /

Nicholas J. DiFrancesco, Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-374

Enclosure:
Request for Additional Information

cc w/encl: ListServ

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*via email

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