

## NRR-DMPSPeM Resource

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**From:** Wiebe, Joel  
**Sent:** Monday, December 31, 2018 1:24 PM  
**To:** 'Steinman, Rebecca L:(GenCo-Nuc)'  
**Cc:** Gullott, David M.:(GenCo-Nuc); Purnell, Blake  
**Subject:** RE: RE: RE: Byron 2 LAR to use Accident Tolerant Fuel Lead Test Assemblies  
**Attachments:** Audit Plan R2.docx

Rebecca,

Here is the audit plan.

Joel

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**From:** Steinman, Rebecca L:(GenCo-Nuc) <[Rebecca.Steinman@exeloncorp.com](mailto:Rebecca.Steinman@exeloncorp.com)>  
**Sent:** Monday, December 31, 2018 9:14 AM  
**To:** Purnell, Blake <[Blake.Purnell@nrc.gov](mailto:Blake.Purnell@nrc.gov)>  
**Cc:** Gullott, David M.:(GenCo-Nuc) <[David.Gullott@exeloncorp.com](mailto:David.Gullott@exeloncorp.com)>; Wiebe, Joel <[Joel.Wiebe@nrc.gov](mailto:Joel.Wiebe@nrc.gov)>  
**Subject:** [External\_Sender] RE: RE: Byron 2 LAR to use Accident Tolerant Fuel Lead Test Assemblies

Blake,

Thank you for the update. Although I am out of the office today, I am available via cell phone at 734-972-4585 should there be a need to discuss any aspect of the audit further.

Sincerely,

Rebecca L. Steinman  
Senior Regulatory Engineer  
Exelon - Cantera  
(630) 657-2831 – office  
(734) 972-4585 - cell

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**From:** Purnell, Blake <[Blake.Purnell@nrc.gov](mailto:Blake.Purnell@nrc.gov)>  
**Sent:** Monday, December 31, 2018 8:08 AM  
**To:** Steinman, Rebecca L:(GenCo-Nuc) <[Rebecca.Steinman@exeloncorp.com](mailto:Rebecca.Steinman@exeloncorp.com)>  
**Cc:** Gullott, David M.:(GenCo-Nuc) <[David.Gullott@exeloncorp.com](mailto:David.Gullott@exeloncorp.com)>; Wiebe, Joel <[Joel.Wiebe@nrc.gov](mailto:Joel.Wiebe@nrc.gov)>  
**Subject:** RE: RE: Byron 2 LAR to use Accident Tolerant Fuel Lead Test Assemblies

Rebecca,

We would like to start at 9:00 am. We plan to issue the audit plan today or Wednesday.

Thanks,

Blake Purnell

ph: 301-415-1380

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**From:** Steinman, Rebecca L:(GenCo-Nuc) [<mailto:Rebecca.Steinman@exeloncorp.com>]  
**Sent:** Sunday, December 30, 2018 5:12 PM  
**To:** Purnell, Blake <[Blake.Purnell@nrc.gov](mailto:Blake.Purnell@nrc.gov)>  
**Cc:** Gullott, David M.:(GenCo-Nuc) <[David.Gullott@exeloncorp.com](mailto:David.Gullott@exeloncorp.com)>; Wiebe, Joel <[Joel.Wiebe@nrc.gov](mailto:Joel.Wiebe@nrc.gov)>  
**Subject:** [External\_Sender] RE: Byron 2 LAR to use Accident Tolerant Fuel Lead Test Assemblies

Blake,

Westinghouse and Exelon can support an audit of the analyses that support the conclusions of the 12/18/18 Exelon supplement to the Byron ATF LAR on Friday, January 4, 2019 at the Westinghouse offices in Rockville. Westinghouse will be sending three people and Exelon will be sending one person to Rockville to support the audit. Additional people are available for a conference call or web-meeting should any questions require additional support. Please let me know the intended start time so that our side can make appropriate travel arrangements.

The address for the Westinghouse offices is provided below for convenience.

11333 Woodglen Drive  
Suite 202  
Rockville, MD 20852

Let me know if you need any additional input at this time.

Sincerely,

[Rebecca L. Steinman, PhD, PE](#)  
Sr. Regulatory Engineer  
Exelon Nuclear - Corporate Licensing  
4300 Winfield Road – 4<sup>th</sup> Floor  
Warrenville, IL 60555  
Office: 630-657-2831 | Fax: 630-657-4327  
[Rebecca.Steinman@exeloncorp.com](mailto:Rebecca.Steinman@exeloncorp.com) | [www.exeloncorp.com](http://www.exeloncorp.com)

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**From:** Purnell, Blake <[Blake.Purnell@nrc.gov](mailto:Blake.Purnell@nrc.gov)>  
**Sent:** Friday, December 28, 2018 7:12 AM  
**To:** Steinman, Rebecca L:(GenCo-Nuc) <[Rebecca.Steinman@exeloncorp.com](mailto:Rebecca.Steinman@exeloncorp.com)>  
**Cc:** Gullott, David M.:(GenCo-Nuc) <[David.Gullott@exeloncorp.com](mailto:David.Gullott@exeloncorp.com)>; Wiebe, Joel <[Joel.Wiebe@nrc.gov](mailto:Joel.Wiebe@nrc.gov)>  
**Subject:** [EXTERNAL] Byron 2 LAR to use Accident Tolerant Fuel Lead Test Assemblies  
**Importance:** High

Rebecca,

The NRC staff has reviewed Exelon's December 18 supplement to the subject LAR and would like to audit the related analysis. Specifically, the staff would like to review:

- 1) The analysis that determined that the ADOPT™ LTAs will exceed the RSAC LHGR limit for Cycle 22 during a boron dilution transient, with rods in manual control, at the burnup step of 150 MWD/MTU.
- 2) The analysis to demonstrate the applicability and appropriateness of TS Safety Limit 2.1.1.3 as applied to ADOPT™ fuel pellets, including how the melting point of this new fuel pellet has been determined.

To support the review schedule, the staff would like to conduct the audit as soon as possible (**January 2, 3, or 4, if possible**). If possible, the staff could conduct the audit at the Westinghouse office in Rockville.

Alternatively, the staff could use an electronic portal. The staff would need licensee/contractor personnel to be available to answer questions. Once the details are worked out we will issue an audit plan.

Thanks,

Blake Purnell, Project Manager  
Plant Licensing Branch III  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
ph: 301-415-1380

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**Hearing Identifier:** NRR\_DMPS  
**Email Number:** 763

**Mail Envelope Properties** (SN6PR0901MB24472AA450A3E54BCDAB24E88BB20)

**Subject:** RE: RE: RE: Byron 2 LAR to use Accident Tolerant Fuel Lead Test Assemblies  
**Sent Date:** 12/31/2018 1:23:46 PM  
**Received Date:** 12/31/2018 1:23:00 PM  
**From:** Wiebe, Joel

**Created By:** Joel.Wiebe@nrc.gov

**Recipients:**

"Gullott, David M.:(GenCo-Nuc)" <David.Gullott@exeloncorp.com>

Tracking Status: None

"Purnell, Blake" <Blake.Purnell@nrc.gov>

Tracking Status: None

"Steinman, Rebecca L:(GenCo-Nuc)" <Rebecca.Steinman@exeloncorp.com>

Tracking Status: None

**Post Office:** SN6PR0901MB2447.namprd09.prod.outlook.com

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	5647	12/31/2018 1:23:00 PM
Audit Plan R2.docx	22372	

**Options**

**Priority:** Standard

**Return Notification:** No

**Reply Requested:** No

**Sensitivity:** Normal

**Expiration Date:**

**Recipients Received:**

REGULATORY AUDIT OF BYRON STATION, UNIT 2 LICENCE AMENDMENT REQUEST TO  
ALLOW INSERTION OF ACCIDENT TOLERANT FUEL LEAD TEST ASSEMBLIES  
DOCKET NO. 50-455

## **BACKGROUND**

By letter dated March 8, 2018, as supplemented by letters dated July 2, 2018, and December 18, 2018, (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML18067A431, ML18184A270, and ML18352B117) Exelon Generation Company, LLC (Exelon), the licensee, requested an amendment to the Byron Station, Unit 2, operating license that would allow accident tolerant fuel (ATF) lead test assemblies (LTAs) to be utilized at the plant. The proposed amendment would insert a license condition permitting the use of two such LTAs in Byron Unit 2 during cycles 22, 23, and 24.

The December 18 supplement identifies a transient analyzed in the UFSAR whereby the LTAs may be the limiting bundles in the core. The NRC has determined that a regulatory audit be conducted in accordance with the Nuclear Reactor Regulation (NRR) Office Instruction LIC-111, "Regulatory Audits," on these calculations in order to expedite the review of this new development, given the short time available before the refueling outage.

## **REGULATORY AUDIT SCOPE**

The audit will focus on the following areas:

- 1) The analysis that determined that the ADOPT™ LTAs will exceed the RSAC LHGR limit for Cycle 22 during a boron dilution transient, with rods in manual control, at the burnup step of 150 MWD/MTU.
- 2) The applicability and appropriateness of TS Safety Limit 2.1.1.3 as applied to ADOPT™ fuel pellets, including how the melting point of this new fuel pellet has been determined.
- 3) How the currently proposed License Condition supports the LTA program described in the LAR and supplements. The staff has concerns that the license condition excludes the operation that is being requested.

The NRC staff requests that Exelon make available appropriate staff with detailed knowledge of these topics. These staff members should be able to address comprehension questions made by the NRC staff about the topical report in question as well as its references.

## **TEAM AND REVIEW ASSIGNMENTS**

Joshua Whitman, NRR/DSS/SNPB – Nuclear Performance and Code Review Branch - Lead Reviewer

Paul Clifford, NRR/DSS – Senior Technical Advisor for Reactor Fuel

Reed Anzalone, NRR/DSS/SRXB – Reactor Systems Branch

## **LOGISTICS**

The regulatory audit will be held on Friday January 4, 2019 at Westinghouse's Rockville office:  
11333 Woodglen Drive, Suite 202, Rockville, MD 20852

## **DELIVERABLES**

A regulatory audit summary will be provided within 21 days of the completion of the audit.