



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

February 1, 2022

LICENSEE: Southern Nuclear Operating Company, Inc.

FACILITY: Vogtle Electric Generating Plant, Units 1 and 2

SUBJECT: SUMMARY OF JANUARY 27, 2022, PUBLIC MEETING WITH SOUTHERN NUCLEAR OPERATING COMPANY, INC., REGARDING A PROPOSED ACCIDENT TOLERANT FUEL LICENSE AMENDMENT REQUEST AND EXEMPTION FOR VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2 (EPID NO. L-2022-LRM-0003)

On January 27, 2022, an Observation public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) and representatives of Southern Nuclear Operating Company, Inc. (SNC, the licensee). The purpose of the meeting was for SNC to describe its plan to submit an Accident Tolerant Fuel (ATF) license amendment request (LAR) and exemption request to load 16 fuel rods (4 assemblies with 4 rods per assembly) with an enrichment of 6 weight-percent U-235 for Vogtle Electric Generating Plant (Vogtle), Units 1 and 2.

A list of attendees is provided as an Enclosure.

On January 10, 2022 (Agencywide Document and Access Management System (ADAMS) Accession No. ML22027A368), the meeting was noticed on the NRC public webpage.

The NRC staff opened the meeting with introductory remarks and a roll call of the attendees.

The SNC representative discussed the following topics: (1) description of Lead Test Assembly (LTA) program, (2) overview of primary analytical impacts, (3) review of spent fuel pool (SFP) and new fuel storage criticality requirements, (4) overview of the proposed LAR, (5) LTA transport, and (6) timeline and future plans. The SNC representative presented slides contained in ADAMS Accession No. ML22021B647.

#### Description of LTA Program

Vogtle, Units 1 and 2, have 193 fuel assemblies, and the rod array is 17 x 17, with 264 rods per assembly.

SNC stated that the 4 Westinghouse Electric Company, LLC (Westinghouse) ATF LTAs with higher enrichment capable of higher burnup have the following:

- 4 rods with enrichment up to 6 weight-percent U-235 in 4 LTAs (16 rods),
- **AXIOM**<sup>®</sup> high performance fuel rod cladding,
- **EnCore**<sup>®</sup> chromium (Cr) coated cladding (one or more rods may be uncoated),

- **ADOPT™** doped fuel material for non-IFBA (Integral Fuel Burnable Absorbers) rods,
- Standard (undoped) fuel material for IFBA rods.

**ADOPT™**, **AXIOM®**, and **EnCore®** are trademarks or registered trademarks of Westinghouse.

The 4 LTAs will consist of a distribution of **AXIOM®** cladding, **EnCore®** Cr-coated cladding, **ADOPT™** doped fuel pellets, and standard fuel material for IFBA rods. The Cr-coated cladding rods (**EnCore®**) are considered ATF and doped pellets are generally considered to be ATF as well.

#### Overview of Primary Analytical Impacts

SNC stated that modeling will be consistent with descriptions in NRC-approved topical reports, where available, or based on the most recent level of characterization for materials not yet approved from Westinghouse development or NRC interactions on ongoing topical report reviews.

SNC stated that some NRC-approved methods outside the Vogtle current licensing basis will be used solely to assess performance of the LTAs.

#### Review of SFP and New Fuel Storage Criticality Requirements

SNC stated that the following LTA characteristics are beyond current Vogtle analysis of record (AOR) scope, and will be addressed in LAR:

- Increased enrichment
- **ADOPT™** pellets
- Chromium coated **AXIOM®** cladding

SNC representatives stated that its intent is to provide acceptable storage requirements using the Vogtle AOR storage configurations, or a subset thereof, via a Comparative Reactivity Analysis that (1) uses modern analytical codes – Scale 6.2+ with associated cross section libraries, and (2) separate storage evaluations for fresh fuel analysis (SFP and New Fuel Storage Racks) and burned fuel analysis.

#### Overview of the Proposed LAR

SNC stated that ATF fuel materials are currently being reviewed by the NRC for (1) **ADOPT™** fuel under NRC review (WCAP-18482-P), and (2) **AXIOM®** cladding under NRC review (WCAP-18546-P). The licensee stated that **EnCore®** chromium coated cladding has not yet been submitted for NRC review.

SNC stated that the proposed LAR will revise (1) Technical Specification (TS) 4.2.1, “Fuel Assemblies,” and (2) TS 4.3.1, “Criticality.” SNC stated the proposed LAR could potentially revise TS 3.7.18, “Fuel Assembly Storage in the Fuel Storage Pool.”

SNC stated that it would also request exemptions from Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.46, “Acceptance criteria for emergency core cooling systems for light-water nuclear reactors,” and Appendix K to Part 50, “ECCS [emergency core cooling system] Evaluation Models.”

SNC said that it plans to submit a LAR to implement Alternate Source Term (AST) into the radiological consequences licensing basis in the third quarter of 2022.

### LTA Transport

SNC stated that the ATF LTAs will be transported to Vogtle in the Traveller-B Package that was submitted to the NRC by Westinghouse in August 2021 with an expected NRC approval by March 2022.

### Timeline and Future Plans

SNC stated that it plans to submit the proposed LAR and exemption request in early third quarter of Calendar Year 2022, and to request completion by the NRC by August 2023.

SNC stated that it plans start-up of Vogtle, Unit 2, Operating Cycle 24 in November 2023.

### Questions

The NRC staff asked:

- Will the ATF lead test assemblies (LTAs) be installed in non-limiting or limiting locations?
- Will the 16 rods be 6 weight-percent U-235?
- Will all the 16 rods have ATF materials?
- Regarding the 4 fuel assemblies that will contain the 6 weight-percent U-235 ATF LTAs, what will the remaining 260 rods contain?
- What fuel is currently in Vogtle, Units 1 and 2? Is it only Westinghouse Optimized ZIRLO™ fuel assembly (OFA)?
- In April 2019, under 10 CFR 50.59, SNC installed four GAIA, which is Framatome's pressurized-water reactor fuel assembly and grid design, LTAs containing enhanced ATF, including both pellets and cladding, into Vogtle's, Unit 2, core. Have all four of those ATF LTAs been removed from Vogtle's, Unit 2, core for analysis?
- Has SNC considered fuel fragmentation, redistribution, and dispersal?
- Is SNC going to link the proposed ATF LTA LAR with the proposed AST LAR that is planned to be submitted in third quarter of 2022?
- Since Vogtle has a risk-informed completion time (RICT) program in Vogtle's TS, and because the probabilistic risk assessment models used for the RICT program are based on inherent assumptions, such as fuel design and its response to severe accidents, has consideration been given to providing a discussion in the LAR that addresses or confirms that the TS RICT is not impacted by the fuel change?

### Public Participation

In attendance, there were members of the Senate Environment and Public Works Committee, State of Georgia Department of Natural Resources, Department of Energy, Oak Ridge National Laboratory, Global Nuclear Fuels, Nuclear Energy Institute, Sargent and Lundy, Excel Services Corporation, and Georgia Institute of Technology.

Closing

The NRC staff made no regulatory decisions during the meeting.

Once received, the NRC staff will perform a thorough review of the proposed LAR and exemption requests and make any regulatory decisions in writing in a timely manner. Public Meeting Feedback forms were available, but no comments were received. The meeting adjourned at 11:56 am (Eastern time).

Please direct any inquiries to me at 301-415-3100.

John G. Lamb, Senior Project Manager  
Plant Licensing Branch, II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-424 and 50-425

Enclosure: List of Attendees

cc w/encls: Distribution via Listserv

LIST OF ATTENDEES  
JANUARY 27, 2022, PUBLIC MEETING WITH SOUTHERN NUCLEAR COMPANY  
REGARDING A PROPOSED ACCIDENT TOLERANT FUEL (ATF)  
LICENSE AMENDMENT REQUEST AND EXEMPTION  
VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2

<u>ATTENDEE</u>	<u>REPRESENTING</u>
John G. Lamb	U.S. Nuclear Regulatory Commission (NRC)
Rob Krsek	NRC – Commissioner Baran’s Office
Caty Nolan	NRC – Office of Executive Director of Operations
Mike Markley	NRC
Kevin Hsueh	NRC
Vic Cusumano	NRC
Matt Hamm	NRC
Henry Wagage	NRC
Steve Jones	NRC
Scott Krepel	NRC
Charles Peabody, Jr.	NRC
Elijah Dickson	NRC
Edward Stutzcage	NRC
Donald Palmrose	NRC
Robert Lukes	NRC
Brandon Wise	NRC
Kent Wood	NRC
Josh Whitman	NRC
Kevin Heller	NRC
Larry Burkhart	NRC
James Rubenstone	NRC
Caroline Carusone	NRC
Delza Mas-Pernanda	NRC
Mike Norris	NRC
Ed Robinson	NRC
Dave Gasperson	NRC
Lynnea Wilkins	NRC
Zena Abdullahi	NRC
Weidong Wang	NRC
Carolyn Wolf	NRC
Paul Clifford	NRC
Ben Parks	NRC
Angel Moreno	NRC
Rob Elliott	NRC
Ravi Grover	NRC
Joe Messina	NRC
Kristy Bucholtz	NRC

<b><u>ATTENDEE</u></b>	<b><u>REPRESENTING</u></b>
Jeremy Dean	NRC
Brian Wittick	NRC
Prema Chandrathil	NRC
Don Palmrose	NRC
Ken Erwin	NRC
Chris Safouri	NRC
MJ Ross-Lee	NRC
Joe Donoghue	NRC
Ken Lowery	Southern Nuclear Operating Company (SNC)
Ryan Joyce	SNC
Johnathan Chavers	SNC
Jennifer Baker	SNC
Cheryl Gayheart	SNC
Jason Douglass	SNC
Matt Leonard	SNC
Frank Boylan	Westinghouse
Michael Boone	Westinghouse
Radu Pomirleanu	Westinghouse
Micheal Wenner	Westinghouse
Carey Haas	Westinghouse
Parvez Khambatta	Westinghouse
Cenk Guler	Westinghouse
Tanya Sloma-DeLosier	Westinghouse
Andrew Bowman	Westinghouse
Zeses Karoutas	Westinghouse
Robert Schillat	Westinghouse
Matthew Marzano	Senate Environment and Public Works Committee
Barty Simonton	State of Georgia Department of Natural Resources (DNR)
Sean Hayes	State of Georgia DNR
Dr. Madeline Feltus	Department of Energy (DOE)
Frank Goldner	DOE
Andy Worrall	Oak Ridge National Laboratory
Tyler Schweitzer	Global Nuclear Fuels
Aladar Csontos	Nuclear Energy Institute (NEI)
Nima Ashkeboussi	NEI
Parrez Golub	Sargent & Lundy
Christopher Canniff	EXCEL Services Corporation
Dr. S. I. Abdel-Khalik	Georgia Institute of Technology

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**ADAMS Accession Nos:   PKG ML22028A045**  
**Meeting Notice ML22027A368**  
**Meeting Summary ML22028A046**  
**Slides ML22021B647**

<b>OFFICE</b>	DORL/LPL2-1/PM	DORL/LPL2-1/LA	DSS/STSB/BC	DSS/SFNB/BC
<b>NAME</b>	JLamb	KGoldstein	VCusumano	RLukes
<b>DATE</b>	01/27/2022	01/31/2022	01/31/2022	02/01/2022
<b>OFFICE</b>	DSS/SNSB/BC	DORL/LPL2-1/BC	DORL/LPL2-1/PM	
<b>NAME</b>	SKrepel	MMarkley	JLamb	
<b>DATE</b>	02/01/2022	02/01/2022	02/01/2022	

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