



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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August 18, 2020

MEMORANDUM TO: John P. Segala, Chief
Advanced Reactor Policy Branch
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

FROM: Joseph Sebrosky, Senior Project Manager */RA/*
Advanced Reactor Policy Branch
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SUBJECT: SUMMARY OF JULY 30, 2020, PUBLIC MEETING TO DISCUSS
TECHNOLOGY INCLUSIVE CONTENT OF APPLICATION PROJECT

On July 30, 2020, the U.S. Nuclear Regulatory Commission (NRC) held a Category 2 public meeting with Southern Company (Southern) to discuss the industry-led technology inclusive content of application project (TICAP). The meeting notice is available in the NRC's Agencywide Documents Access and Management System (ADAMS) at Accession No. ML20210M308 and the presentation slides are available in ADAMS at Accession No. ML20210M083. This was a teleconference meeting, and an attempt was made to capture a list of the attendees as they called into the meeting. Enclosure 1 provides the attendees for the meeting as captured by the operator that helped to facilitate the meeting.

Topics for the meeting included:

- Brief overview of TICAP
- Responses to the NRC comments on TICAP from a June 11, 2020, public meeting on the topic (see meeting summary dated July 15, 2020 (ADAMS Accession No. ML20190A217)).
- Update on status of the development of a report mapping fundamental safety functions (FSFs)¹ to NRC regulations and General Design Criteria
- Nuclear Energy Institute (NEI) guidance document status
- Update on the final safety analysis report (FSAR) outline
- Tabletop exercise update

Southern began the meeting by providing an overview of its TICAP efforts. Southern stressed that the scope of the TICAP effort is governed by the licensing modernization project (LMP)²-based affirmative safety case. The LMP-based affirmative safety case was defined by Southern as a collection of scientific, technical, administrative and managerial evidence which documents the basis that the performance objectives of the technology inclusive FSFs are met by a design

¹ Fundamental Safety Functions are defined as: 1) limiting the release of radioactive material, 2) removing decay heat from the reactor and waste stores, and 3) controlling reactivity.

² The NRC's Advanced Reactor Website (<https://www.nrc.gov/reactors/new-reactors/advanced.html#modern>) provides background information regarding the LMP.

during specific anticipated operational occurrences, design basis events, beyond design basis events, and design basis accidents.

Industry TICAP representatives then discussed the NRC's comments on TICAP that were provided as a result of the June 11, 2020, public meeting on the topic. The NRC staff's comments are available in ADAMS at Accession No. ML20210M083. Industry stated that they found the NRC staff's comments were generally supportive of industry's TICAP vision and that the NRC staff's concepts would be considered as the TICAP guidance is developed.

Regarding the status of industry's mapping activity, industry stated that this work was being performed to demonstrate that an affirmative safety case (which is based on meeting the performance objectives of the FSFs) meets the underlying intent of the current requirements or regulations. In previous TICAP meetings industry introduced the concept of principle design criteria (PDC), and complimentary design criteria (CDC) as part of this mapping effort.

During the meeting industry provided a further explanation of PDC and CDC. The PDC support demonstration of FSFs, while the CDC are structures, systems, and components that provide additional means to perform required safety functions. Industry and the NRC staff agreed that further discussion is needed in this area and agreed that developing examples of PDC and CDC would be helpful. Southern indicated that the mapping report would be provided to the NRC following its completion in early August 2020.

Regarding the status of the development of the NEI guidance document associated with TICAP, industry stated that it is targeting providing the NRC staff a draft document in the Spring of 2021 and a final guidance document in the Fall of 2021. In response to an NRC staff question industry stated that it intended to develop the guidance needed to support a Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52 combined license application but the guidance would also include the information needed to support a 10 CFR Part 52 design certification application and a 10 CFR Part 50 construction permit application.

Industry stated that the FSAR outline was still in the development phase and provided an outline of an LMP-based FSAR that had nine chapters. The staff noted that the outline provided in the June 11, 2020, public meeting had eleven chapters. The NRC staff and industry agreed that continued engagement during the development of the LMP-based FSAR outline was appropriate and noted that the Idaho National Lab draft FSAR outline discussed during an April 22, 2020, meeting (see ADAMS Accession No. ML20107J565) would aid in this effort.

Regarding the status of tabletop exercises, industry stated that it was targeting such exercises in September of 2020 as part of TICAP guidance development. Designs that are being considered for the tabletop exercise include:

- GEH Prism liquid sodium reactor
- Westinghouse eVinci heat pipe microreactor
- Karios molten salt cooled pebble bed reactor
- X-energy helium cooled pebble bed reactor, and
- Terrapower molten liquid salt fueled reactor

The NRC staff expressed interest in observing the tabletop exercises and stated that having access to the draft guidance documents used to support the tabletop exercises would be

beneficial. Industry stated that it would work with the designers to determine if arrangements could be made for NRC observation of the exercises.

Enclosure:
Attendance List

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***via e-mail**

NRC-001

OFFICE	NRO/DANU/UARP/PM	NRO/DANU/UARP/BC	NRO/DANU/UARP/PM
NAME	JSebrosky	JSegala	JSebrosky
DATE	8/18/2020	8/18/2020	8/18/2020

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July 30, 2020, Public Meeting to Discuss Technology Inclusive Content of
Application Project Attendance List

NAME	AFFILIATION	NAME	AFFILIATION
Amir Afzali	Southern Company	Marc Nichol	Nuclear Energy Institute (NEI)
Frank Akstulewicz	Industry Consultant - TICAP	Kati Austgen	NEI
Steven Nesbit	LMNT Consulting	Mike Tschiltz	NEI
Brandon Chisholm	Southern Company	Martin O'Neill	NEI
Carolyn Lauron	NRC/DNRL/NRLB	Cyril Draffin	US Nuclear Industry Council
Bill Reckley	NRC/DANU/UARP	Farshid Shahrokhi	Framatome
Amy Cabbage	NRC/DANU/UARP	Dennis Henneke	GE Hitachi
Joe Sebrosky	NRC/DANU/UARP	Martin Owens	GE Hitachi
Eric Oesterle	NRC/DANU/UARP	Margaret Ellenson	Kairos Power
Chris Van Wert	NRC/DANU/UART	Caroline Cochran	Oklo
		Alex Runner	Oklo
Jim Kinsey	Idaho National Laboratory (INL)	Pete Gaillard	TerraPower
Tom Hicks	INL	Rick Paese	Westinghouse
Tom King	INL	Kurt Harris	FLIBE Energy
Wayne Moe	INL	Travis Chapman	X Energy
Brandon Waits	Southern Company	Joe Hoagland	TVA
Carl Flemming	Southern Company Consultant	Dave Grebasik	Argonne National Lab
Jason Redd	Southern Nuclear	Bill Horak	Brookhaven National Laboratory
Mo Shams	NRC/NRR/DANU	Stephen Burdick	INL
Brian Smith	NRC/NRR/DANU	Jason Andruf	INL
Jordan Hoellman	NRC/NRR/DANU/UARP	Alex Hunnig	Oak Ridge National Lab
Nan Valliere	NRC/NRR/DANU/UARP	John Alvis	Los Alamos National Lab
Arlon Costa	NRC/NRR/DANU/UARP	Joshua Hogancamp	Sandia National Lab (SNL)
Maryam Khan	NRC/NRR/DANU/UARP	Jamel Mohman	SNL
Michelle Hart	NRC/NRR/DANU/UART	Jay Jones	Department of Energy
Ian Jung	NRC/NRR/DANU/UART	Donald Helton	NASA
Alyssa Beasley	NRC/NRR/DANU/UART	Prasad Kadambi	Consultant
Stu Magruder	NRC/NRR/DNRL/UARL	Mark Jaeger	Structural Integrity Associates
Ismael Garcia	NRC/NRR/DEX	Nathan Hill	Southwest Research Institute
Nadim Khan	NRC/NRR/DEX/EENB	Alex Polanski	Morgan Lewis
Sunwoo Park	NRC/NRR/DRA/APLC	Paul Amico	Jensen Hughes
Shakur Walker	NRC/COMM/OCMDW	Rick Wachowiak	Jensen Hughes
Eric Bowman	NRC/COMM/OCMKS	Ed Wallace	GNBC Associates

NAME	AFFILIATION	NAME	AFFILIATION
Michael Spencer	NRC/OGC	Jamel Hamond	Self
Marcia Carpentier	NRC/OGC	Ling Chen Mong	Self
Derek Widmayer	NRC/ACRS		