February 24, 2015

MEMORANDUM TO: Anna Bradford, Chief
Advanced Reactors and Policy Branch
Division of Advanced Reactors & Rulemaking
Office of New Reactors

FROM: Jan Mazza, Project Manager ***/RA/***
Advanced Reactors and Policy Branch
Division of Advanced Reactors & Rulemaking
Office of New Reactors

SUBJECT: SUMMARY OF JANUARY 21, 2015 MEETING TO DISCUSS THE DEPARTMENT OF ENERGY REPORT, "GUIDANCE FOR DEVELOPING PRINCIPAL DESIGN CRITERIA FOR ADVANCED (NON-LIGHT WATER) REACTORS"

On January 21, 2015, a category 2 public meeting was held between the U.S. Nuclear Regulatory Commission (NRC), representatives of the U.S. Department of Energy (DOE), and members of the public, at U.S. NRC Headquarters Three White Flint North, 11601 Landsdown Street, Room 1C05, Rockville, MD. The purpose of the meeting was to discuss the Department of Energy (DOE) report titled, "Guidance for Developing Principal Design Criteria for Advanced (Non-Light Water) Reactors," issued in December 2014.

After introductory remarks, the meeting opened with an NRC overview of the DOE-NRC Advanced Reactor Licensing Initiative. Mr. Craig Welling, DOE Office of Nuclear Energy (DOE-NE) made a presentation on the overview of the Advanced Reactor Licensing Initiative from the DOE perspective. Mr. Jim Kinsey, DOE Idaho National Laboratory (DOE-INL) presented a summary of the Advanced Reactor Development Process and the Advanced Reactor Design Criteria (ARDC) content and format.

The NRC staff asked clarifying questions and made comments on several areas covered in the DOE presentations. Prior to developing the ARDC, the DOE discussed a proposed definition for "Important to Safety". The NRC staff questioned how the ARDC's would be impacted if this definition should change. The DOE responded that depending on the change, the ARDC's could be heavily impacted. The DOE report asserted that the ARDC's were generally applicable to six advanced reactor designs, Sodium-cooled Fast

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Reactors (SFRs), Lead Fast Reactors (LFRs), Gas-cooled Fast Reactors (GFRs), High Temperature Gas-cooled Reactors (HTGRs), Fluoride High Temperature Reactors (FHRs), and Molten Salt Reactors (MSRs). The NRC asked if the ARDCs were robust enough to be applied to SFRs and HTGRs even though the DOE report included specific design criteria for SFRs and HTGRs (SRC-DC and HTGR-DC). The DOE clarified that the ADRCs are specific enough for SFRs and HTGRs. The SFR-DCs and HTGR-DCs incorporate the publicly available design information. It was also noted that the DOE followed 10 CFR 50 Appendix A while developing the ARDCs and SFR-DCs and used a functional analysis approach to develop the HTGR-DCs.

There was a discussion regarding why the DOE report did not include regulatory requirements other than 10 CFR 50 Appendix A (physical security, emergency planning, aircraft impact, etc.). The NRC and DOE responded that this was beyond the scope of this initiative but could be a future endeavor. It was noted that the naming convention of modular is prefixed for mHTGRs but not for SFRs, when in reality some SFR designs (e.g. 4S, PRISM) allow a significant degree of modularity and factory construction. NRC staff also noted that there may be additional infrastructure that would need to be modified as part of the advanced reactor regulatory framework (regulatory guides, staff guidance, etc.).

During the public participation portion of the meeting, there was a healthy dialogue between the NRC and industry regarding what steps and guidance are needed for advanced reactor designers to develop applications for licensing or certification. NRC encouraged industry to respond to the upcoming Regulatory Information Summary for Small Modular Reactor Designs and to engage the NRC in pre-application interactions prior to submitting an application for an advanced reactor design.

The meeting agenda and meeting attendees are included in Enclosures 1 and 2. The NRC's meeting announcement is available through Agencywide Documents Access and Management System (ADAMS). The ADAMS accession number for the NRC's meeting announcement is ML15006A339. ADAMS is the system that provides text and image files of NRC's public documents. Documents are available electronically at the NRC's Electronic Reading Room at http://www.nrc.gov/reading-rm/adams.html. If you do not have access to ADAMS or have problems accessing the documents located in ADAMS, contact the NRC Public Document Room (PDR) staff at 1-800-397-4209, 301-415-4737, or pdr@nrc.gov.

Project No.: 0814

Enclosure:
1. Agenda
2. List of Attendees

Reactors (SFRs), Lead Fast Reactors (LFRs), Gas-cooled Fast Reactors (GFRs), High Temperature Gas-cooled Reactors (HTGRs), Fluoride High Temperature Reactors (FHRs), and Molten Salt Reactors (MSRs). The NRC asked if the ARDCs were robust enough to be applied to SFRs and HTGRs even though the DOE report included specific design criteria for SFRs and HTGRs (SRC-DC and HTGR-DC). The DOE clarified that the ADRCs are specific enough for SFRs and HTGRs. The SFR-DCs and HTGR-DCs incorporate the publicly available design information. It was also noted that the DOE followed 10 CFR 50 Appendix A while developing the ARDCs and SFR-DCs and used a functional analysis approach to develop the HTGR-DCs.

There was a discussion regarding why the DOE report did not include regulatory requirements other than 10 CFR 50 Appendix A (physical security, emergency planning, aircraft impact, etc.). The NRC and DOE responded that this was beyond the scope of this initiative but could be a future endeavor. It was noted that the naming convention of modular is prefixed for mHTGRs but not for SFRs, when in reality some SFR designs (e.g. 4S, PRISM) allow a significant degree of modularity and factory construction. NRC staff also noted that there may be additional infrastructure that would need to be modified as part of the advanced reactor regulatory framework (regulatory guides, staff guidance, etc.).

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ADAMS ACCESSION NO.: ML15044A081 **NRO-002**

OFFICE	PM:NRO/DARR/ARPB	BC:NRO/DARR/ARPB
NAME	JMazza	ABradford
DATE	02/24/2015	02/24/2015

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AGENDA
FOR PUBLIC MEETING TO DISCUSS DEPARTMENT OF ENERGY REPORT "GUIDANCE FOR DEVELOPING PRINCIPAL DESIGN CRITERIA FOR ADVANCED (NON-LIGHT WATER) REACTORS"
JANUARY 21, 2015

TIME	TOPIC	LEAD
8:30 am – 8:40 am	Opening Remarks and Introductions	NRC
8:40 am – 8:50 am	Overview of DOE-NRC Advanced Reactor Licensing Strategy Initiative	NRC
8:50 am – 10:20 am	Advanced Reactor Design Criteria (ARDC) Development Process	DOE/Labs
10:20 am – 10:40 am	Break	ALL
10:40 am – 11:45 am	Summary of ARDC Technical Report Content and Format	DOE/Labs
11:45 am – 12:00 pm	Opportunity for Public Comment	NRC
12:00 pm	Adjourn	ALL

Enclosure 1

ATTENDANCE LIST
PUBLIC MEETING TO DISCUSS DEPARTMENT OF ENERGY REPORT "GUIDANCE FOR DEVELOPING PRINCIPAL DESIGN CRITERIA FOR ADVANCED (NON-LIGHT WATER) REACTORS"
JANUARY 21, 2015

NAME	AFFILIATION
John Adams	NRC/DPR
Steve Everard	NRC/NMSS
Boyce Travis	NRC/NRO
Craig Welling	DOE-NE
Jim Kinsey	Idaho National Lab
Patti Swain	NRC/NSIR
Michael Garrett	Terra Power
Anna Bradford	NRC/NRO
Jim Saldarini	Bechtel power Corp
Michelle Hart	NRR/DSEA
Fred Silady	Technology Insights
David Alberstein	Tech Source/INL
George Flanagan	Team Source ONRL
Willis Poore	Team Source ORNL
Randall Belles	Team Source ORNL
Tanju Sofu	Argonne National Lab
Jonathan DeGange	NRC/NRO
Mark Holbrook	INL
Ann Hove	NRC/OGC
Dimitri Lutchenkov	X-energy
Brian Meadors	SNC
Matthew Mitchell	NRO/DE
Jeff Schwartz	NRO/DSRA
Mark Caruso	NRO/DSRA/SPRA
Nabuyuki Tsukabe	Japan Atomic Energy Agency
Kazosnuri Hirao	Japan Atomic Energy Agency
N.P. Kadambi	PUBLIC
Chang Li	NRC/NRO
Linda Delar	GE-Hitachi
Y.C. (Renee) Li	NRC/NRO/DE
Ngola Otto	NRC/NRR/DE
Charles C. Harbuck	NRO/DSRA/SPSB
Neil Ray	NRO/DE
Mike Jones	NRO/DARR
Wendolyn Holland	Transatomic Power
Tom Sowinski	DOE/NE
Jan Mazza	NRC/NRO
Benjamin Cardarelli	PUBLIC
Michael Butterworth	Tetra Tech, Inc.
Steven Dolley	Platts

Michael Blake	ANS
Madeline Feltus	DOE
Jerald Head	GE
Rodger Magness	SNC
Marv Lewis	PUBLIC
Edward Orazine	PUBLIC
Per Peterson	UC Berkeley
Erica Quarrick	Tetra Tech, Inc
Camille Zozula	Westinghouse
Farshid Shahrokhi	AREVA
Asano Kazhito	Toshiba