

October 25, 2012

MEMORANDUM TO: Amy E. Cabbage, Chief
Policy Branch
Division of Advanced Reactors and Rulemaking
Office of New Reactors

FROM: Russell E. Chazell, Project Manager */RA/*
Policy Branch
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SUBJECT: Revised SUMMARY OF SEPTEMBER 19-20, 2012, PUBLIC MEETINGS
ON NEXT GENERATION NUCLEAR PLANT LICENSING BASIS EVENT
SELECTION AND SITING SOURCE TERM

On September 19-20, 2012, U.S. Nuclear Regulatory Commission (NRC) staff held public meetings as part of its ongoing pre-application interactions with staff from U.S. Department of Energy (DOE) and Idaho National Laboratory (INL) for DOE's Next Generation Nuclear Plant (NGNP) Project. The meetings were held at the NRC Headquarters One White Flint North office building in Rockville, MD. The meetings consisted of continuing discussions associated with the NGNP Project's proposed risk-informed, performance-based licensing approach. The respective meetings focused on the Project's proposed approaches to the selection of licensing basis events (LBEs) and the determination of siting source terms.

The associated meeting notice and meeting presentation materials are available at NRC's Agencywide Documents Access and Management System (ADAMS) under accession numbers ML12243A412, ML12262A090, and ML12263A086, respectively. Following is a brief summary of the two meetings.

On October 16, 2012, a meeting summary was issued for the September 19-20, 2012 meetings under ADAMS accession number ML12290A236. Subsequent public feedback informed the NRC that some aspects of the meeting summary were inaccurate. This revision is intended to correct those inaccuracies.

Summary

Dr. Donald Carlson, Policy Branch, Division of Advanced Reactors and Rulemaking (DARR), Office of New Reactors (NRO), opened the meetings with an introduction and brief summary of the meeting agendas. Those in attendance then introduced themselves, indicating their respective roles in the NGNP effort.

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DOE/INL staff then presented an overview of the meeting objectives as they relate to the larger NGNP pre-licensing focus topics of: 1) containment functional performance, 2) LBE selection, 3) radiological source terms, and 4) emergency planning. A more in-depth discussion of the topics covered in the respective meetings follows.

LBE Selection Methodology

DOE/INL staff presented the NGNP Project's proposed LBE selection methodology. The presented material reflected the associated contents of the Project's earlier LBE white paper submittal with the following exception: Based on related discussions in previous public meetings, the frequency-based event sequence category called Anticipated Operational Occurrences (AOO) in LBE white paper submittal has been renamed Anticipated Events (AE).

The stated purpose of the presentation was to solicit staff feedback and identify areas of consensus with regard to (a) the placement of top level regulatory criteria (TLRC) on a frequency-consequence (F-C) curve, and (b) the frequency ranges for Design Basis Events (DBE) and Beyond Design Basis Events (BDBE).

Related discussion topics included the following:

- Establishment of frequency ranges based on mean event sequence frequency
- The "per plant-year" method for addressing risk at plants with multiple reactor modules
- Terminology and naming conventions for the event categories
- The overall process for performing assessments against TLRC, including:
 - evaluation and treatment of uncertainties in probabilistic risk assessment (PRA),
 - conservative versus best-estimate analysis methods, and
 - incorporation of deterministic elements
- The use event-based consequence criteria in the DBE range versus integrated consequence criteria in the AE and BDBE ranges.

Proposed Approach to Siting Source Term (SST)

DOE/INL staff introduced the SST issue as a key element in the proposed approach to NGNP functional containment. The issue concerns how LBEs will be considered for the purposes of plant siting and functional containment evaluations.

DOE/INL staff opened the discussion with a brief overview of the passive safety features of modular high temperature gas-cooled reactors (MHTGRs). This was followed by more detailed discussion of the proposed NGNP functional containment approach and related studies on alternative reactor building designs. Included in the presentations by DOE/INL were examples of past analyses of containment functional performance performed on a set of bounding events deterministically selected by NRC staff during the MHTGR pre-application activities with DOE and General Atomics in the late 1980s and early 1990s.

NRC staff noted that evaluating postulated extreme events, such as noted by the Commission for the MHTGR in response to SECY-93-092, would help address the fundamental "safety terrain" question of: What would it take to get a large fission product release from this type of reactor? In general, a basic understanding of the potential for any "cliff edge" effects associated with postulated extreme events, and the time scales over which such events and effects evolve, should be established to help inform the consideration and selection of bounding SST events deemed credible or plausible for any new reactor design.

During the siting source term discussion, an extensive discussion occurred regarding the applicability of footnote 5 to 10 CFR 52.79(a) to the siting source terms proposed for NGNP. At the end of that discussion, the staff agreed to present the NGNP interpretation of the footnote to the Office of General Counsel for consideration.

The meetings concluded with brief discussions of potential needs for follow-up discussions in future public meetings or public conference calls. There were no comments or questions from the public at either meeting.

Project No. 0748

Enclosure:
Attendance List

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(Revised 09/26/2012)

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**NEXT GENERATION NUCLEAR PLANT
PUBLIC MEETINGS TO DISCUSS LICENSING BASIS EVENT SELECTION
AND SITING SOURCE TERM**

September 19-20, 2012

Attendance List Name	Organization	September 19	September 20
Donald E. Carlson	NRC/NRO/DARR	x	x
Russell Chazell	NRC/NRO/DARR	x	x
Jonathan DeGange	NRC/NRO/DARR	x	x
James Shea	NRC/NRO/DARR	x	x
Arlon Costa	NRC/NRO/DARR	x	x
Tom Kevern	NRC/NRO/DARR		x
Maitri Banerjee	NRC/ACRS	x	x
George Thomas	NRC/NRO/DSRA	x	x
John McKirgan	NRC/NRO/DSRA		x
Danny Chien	NRC/NRO/DSRA	x	x*
David Brown	NRC/NRO/DSEA	x	x
Mark Caruso	NRC/NRO/DSRA	x	
Michelle Hart	NRC/NRO/DSEA	x	x
Steve Williams	NRC/NRO/DSEA	x	
Sud Basu	NRC/RES/DSA	x*	
Jan Rataj	Foreign Assignee, NRC/NRO/DARR	x	x
Tom O'Connor	DOE/NE		x*
Carl Sink	DOE/NE		x
Madeline Feltus	DOE/NE	x	x
Jim Kinsey	INL/NGNP	x	x
Pete Jordan	INL/NGNP	x*	x*
Mark Holbrook	INL/NGNP	x	x
Fred A. Silady	INL/NGNP-Tech Insights	x	x
Pete Lowry	INL/NGNP	x*	x*
David Alberstein	INL/NGNP-Tech Source	x	x
Thomas Hicks	INL/NGNP	x	x
Wayne Moe	INL/NGNP	x*	x*
Phil Mills	INL/NGNP	x*	
Steve Shapiro	Bechtel	x*	x*
Farshid Shahrokhi	Areva	x*	x*
George Zinke	Entergy	x*	x*

*On teleconference bridge line