July 20, 2011

COMPANY: Westinghouse Electric Company

DESIGN: Westinghouse Small Modular Reactor

SUBJECT: SUMMARY OF NRC STAFF VISIT TO WESTINGHOUSE HEADQUARTERS TO DISCUSS SMALL MODULAR REACTOR DESIGN

On July 12, 2011, staff from the U.S. Nuclear Regulatory Commission's (NRC) Office of New Reactors (NRO) met with representatives from Westinghouse Electric Company (WEC) at their headquarters in Cranberry Township, PA. The purpose of the meeting was to discuss the Westinghouse small modular reactor (SMR) design in advance of the planned meeting between WEC executives and the NRC Commissioners on July 18, 2011. In addition, NRC staff discussed the licensing approach identified in SECY-11-0024 for review of integral pressurized water reactors (iPWRs) and the anticipated process for pre-application interactions. The meeting agenda and participants are identified in Enclosure 1 and the Westinghouse SMR overview presentation is provided in Enclosure 2. This meeting summary and enclosures do not contain proprietary information.

WEC representatives presented a comprehensive overview of the SMR design. The one-day meeting included informative presentations by WEC vice presidents, managers, and senior design engineers. The WEC SMR is an iPWR design with power rating of 800 MW (~225 MWe). The design incorporates multiple passive design features and many of the features incorporated in the AP1000 design. Additionally, the design incorporates lessons learned from the International Reactor Innovative and Secure (IRIS) reactor program. WEC indicated intent for the reactor to exhibit full modularity, to be factory fabricated, rail shipped, and installed on site.

WEC discussed a number of on-going activities. A phenomena/process identification and ranking table (PIRT) is being developed for safety analysis and LOCA analysis using 'full spectrum' LOCA code and initial efforts at a probabilistic risk assessment (PRA) have commenced. It is anticipated that the SMR will have a similar core damage frequency (CDF) to the AP1000. WEC identified several innovative aspects of the design. For example, the SMR is designed for shutdown with no AC power or operator action necessary for 7 days in event of station blackout (SBO).

In response to NRC's 2011 Regulatory Issue Summary (RIS), WEC identified the intent to submit an application for design certification as early as December 2012. WEC reiterated this position at this meeting. In addition, WEC expressed willingness to work with NRC in pre-application activities prior to application submittal.

This meeting summary and enclosures are available through the Agencywide Documents Access and Management System (ADAMS). 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/readingrm/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 staff at 1-800-397-4209, 301-415-4737, or pdr@nrc.gov.

Please direct inquiries to Jonathan DeGange at 301-415-6992 or Johathan.DeGange@nrc.gov.

/RA/

Jonathan DeGange, Project Manager
Advanced Reactor Branch 1
Advanced Reactor Program
Office of New Reactors

Enclosures:
1. Meeting Agenda/Participants
2. Westinghouse SMR Overview Presentation [ML111920208]

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OFFICE	NRO/ARP/ARB1	NRO/ARP/ARB1
NAME	JDegange	TKevern
DATE	7/20/11	7/20/11

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Meeting Agenda with the NRC
July 12th, 2011
LOCATION: CWHQ-1, 444A
8:00 AM – 3:00 PM

Topic	Lead	Time
Introductions / Welcome	R. Wright	8:00 – 8:05
Opening Remarks	J. Goossen	8:05 – 8:20
NRC Remarks	T. Kevern	8:20 – 8:50
Overview of the SMR Program	M. Anness	8:50 – 9:20
SMR Design:		
Introduction to the SMR Design Team	S. Harsche	9:20 – 9:25
Overview of the SMR Design	E. Cummins	9:25 – 9:40
Integral Reactor Design	A. Harkness	9:40 – 10:10
Fuel/Core Design	R. Fetterman	10:10 – 10:25
Steam Generator	C. Taylor	10:25 – 10:40
Containment Vessel	B. Laskewitz	10:40 – 10:55
Plant Layout & Refueling Sequence	A. Harkness	10:55 – 11:25
Licensing and Safety:		
SMR Licensing Basis	R. Wright	11:25 – 11:45
PIRT / Testing	C. Frepoli	11:45 – 12:00
Lunch		12:00 – 12:30
Preliminary Safety Analysis – LOCA	C. Frepoli	12:30 – 1:15
Preliminary Safety Analysis – non-LOCA	R. Wright	1:15 – 1:45
PRA Development	R. Lichtenstein	1:45 – 2:00
Licensing Schedule	R. Wright	2:00 – 2:15
Wrap-up	T. Kevern	2:15 – 2:30
Adjourn		2:30 PM

Enclosure 1

Westinghouse Participants:

- **Dr. Fatih Aydogan**, Pressurizer Lead
- **Ryan Blinn**, SMR Product Strategy Project Manager
- **John Goossen,** VP, Innovation Hub & SMR Development
- **Ed Cummins**, Vice President and SMR Chief Technology Lead
- **Robert Fetterman**, Fuel/Core Design Lead
- **Alex Harkness**, SMR Design Lead
- **Stephanie Harsche**, SMR Technical Development Manager
- **Dr. Bernd Laskewitz**, Containment Vessel Lead
- **Creed Taylor**, SG Lead
- **Charles Brinkman,** Director, Regulatory Affairs
- **Ed Burns,** Regulatory Affairs
- **Dr. Richard Wright,** SMR Licensing Lead
- **Dr. Cesare Frepoli,** SMR Safety Analysis Lead
- **Robert Lichtenstein,** PRA Lead
- **Jurie Van Wyk,** SMR Requirements Management Lead
- **Baofu Lu,** SMR I&C Lead
- **Edward Siegel,** SMR Internal CRDM Lead

NRC Participants:

- **Tom Kevern**, Acting Branch Chief, NRO/Advanced Reactor Program/ARBI
- **Arlon Costa**, Senior Project Manager, NRO/Advanced Reactor Program/ARBI
- **Jonathan DeGange**, Project Manager, NRO/Advanced Reactor Program/ARBI
- **John Budzynski**, Senior Engineer, NRO/Division of Safety Systems & Risk Assessment/SRSB
- **Neil Ray**, Senior Engineer, NRO/Division of Engineering/ CIB2