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**Cc:** Shea, James  
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## **U.S. Nuclear Regulatory Commission Public Meeting Summary**

**Title:** General Electric Hitachi (GEH) public teleconference to discuss technical issues related to the Boiling Water Reactor (BWR)X-300 small modular reactor (SMR) design, Pre-Application License Topical Report (LTR), NEDO-33914, Revision 0, “BWRX-300 Advanced Civil Construction and Design Approach.”

**Meeting Notice:** Agency Document Accession Management System (ADAMS) Accession No. ML21195A027.

**Date of Meeting:** Wednesday, July 21, 2021.

**Location:** Via teleconference Microsoft Teams.

**Type of Meeting:** Observation.

### **Purpose of the Meetings:**

To discuss matters related to GEH “BWRX–300 Advanced Civil Construction and Design Approach” licensing topical report, Revision 0 (ADAMS Accession No. ML21020A137).

### **Summary of Meeting:**

On July 21, 2021, an Observation public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) staff and GEH concerning Pre-Application LTR, NEDO-33914, Revision 0, “BWRX-300 Advanced Civil Construction and Design Approach.” The LTR was submitted on January 20, 2021 (ADAMS Accession No. ML21020A135) and was accepted for review by the staff in a letter dated March 4, 2021 (ADAMS Accession No. ML21048A245).

The meeting commenced with a brief introduction by the NRC licensing project manager Alina Schiller, who explained the purpose of the meeting, asked participants to introduce themselves, and described how the meeting would be conducted, followed by NRC’s and GEH’s opening remarks.

The NRC staff provided a list of LTR review issues (ADAMS Accession No. ML21194A431) and asked additional LTR clarifying questions, and GEH provided the information requested by the NRC staff. A summary of the discussion follows.

- With respect to the parameter values for the foundation interface analysis (FIA) model using information from the site investigation and laboratory testing programs, GEH stated that only some examples were provided, because the parameters would be site-specific in nature and, based on the available data and site-specific conditions, different approaches would be employed.

- Regarding samples collection for rock joints and standards to be used for determining the rock joint properties, GEH stated the interface model would be calibrated and a site monitoring program would be proposed. GEH noted the intent would be to recover cores of the rock interface, which depends on the type of materials, how well the rock interface could be recovered, how intact the rock joints are, etc.
- GEH agreed with the NRC staff that rock joint parameters are difficult to characterize. GEH stated the joint roughness would be measured in the field and in the laboratory using the joint roughness coefficient (JRC) approach, and noted references are cited in the proposed LTR.
- With respect to the disadvantageous fracture zones, joints, bedding planes, discontinuities, and other zones of weakness discussed in the LTR Section 5.1.2, Soil-Structure Interaction Modeling Assumptions, GEH clarified one of the assumptions made that the rock mass is self-supporting. GEH stated that if joints, fractures, or other features may make the rock mass not self-supporting, they would move to another area with stable rock mass.
- Detailed discussion followed on the LTR Figure 5-1: Force Equilibrium Model for Rock Wedge Analysis and Figure 4-7: Modeling During Operation. GEH clarified the model in Figure 4.7 would not provide the demands for the design and is used to calibrate the results. Further, GEH stated Figure 5-1 would give the demand on the structure, which is the approach both for seismic and static analyses.
- NRC staff stated that the rock mass modeling approach addressed in LTR Section 3.1.3, Characterization of Rock Mass and Rock Mass Properties may need additional discussion since the LTR mostly describes only borehole (one-dimensional) information.
- With respect to the maximum required drilling depth in LTR Section 3.1.1, Site Investigation Program, GEH acknowledged that the drilling depths are primarily based on the vertical stress from the load of the structures, and also acknowledged the potential for a higher than vertical stresses that are initially locked in the rock (higher horizontal stresses). GEH referred to the geotechnical borings, consistent with Regulatory Guide 1.132 ("Site Characterization Investigations for Nuclear Power Plants"), to measure the in-situ stresses.
- GEH stated that the commercial computer software currently used in FIA modeling cannot simulate intersecting interfaces. GEH also stated that the calculation of the interface stiffnesses depends on the adjacent soil and rock.
- GEH clarified that there is no preferred method of shaft sinking, especially in rock.

At the conclusion of the discussion, there was an opportunity for the public to provide comments and ask questions. There were no comments or questions from the public.

**Meeting participants:** See the following page.

July 21, 2021, Meeting Attendees

Open	Name	Affiliation
X	Joseph Colaccino	NRC
X	Amitava Ghosh	NRC
X	Alina Schiller	NRC
X	Getachew Tesfaye	NRC
X	James Shea	NRC
X	Frederick Sock	NRC
X	David Heeszal	NRC
X	Madhumita Sircar	NRC
X	Weijun Wang	NRC
X	Zuhan Xi	NRC
X	Lisa Schichlein	GEH
X	George Wadkins	GEH
X	Frostie White	GEH
X	Luben Todorovski	GEH
X	Ossama Ali	GEH
X	Lamia Chouha	GEH
X	Jordan Supler	GEH
X	Brandon Gomer	Black & Veatch
X	Mark Gake	Black & Veatch
X	Tom Bergman	NuScale Power, LLC
X	Dominik Muszynski	NCBJ, Poland