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Kulesa, Gloria

From: Khanna, Meena *me*
Sent: Saturday, August 27, 2011 8:38 PM
To: Manoly, Kamal; Thomas, George; Li, Yong; Franke, Mark
Cc: Wilson, George; Hiland, Patrick; Giitter, Joseph; Kulesa, Gloria; Martin, Robert
Subject: Final Talking Points for North Anna NPP Seismic Event
Attachments: Talking Points for North Anna NPP Seismic Event.docx

Kamal, George, Yong, and Mark, thanks for your comments on the talking points. Attached is the latest version with all comments incorporated. This will be used in support of our briefing to Eric at 7:30 am on Monday morning.

Pat, George, Joe, et. al, pls let us know if you have any comments.

Thanks,
Meena

Talking Points for North Anna NPP Seismic Event

Design Basis

- North Anna Nuclear Power Plant (NANPP) has two Design Basis Earthquake (DBE) ground motion, one for structures, systems, and components (SSCs) founded on top of rock, which is anchored at 0.12 g, and the other is for SSCs founded on top of soil, which is anchored at 0.18 g.
- NANPP has two corresponding Operating Basis Earthquake (OBE) ground motion, anchored at 0.06 g for rock and 0.09 g for soil.

Seismic Event

- Earthquake of August 23 occurred at a close distance (approx. 19 km) to the plant with a magnitude of 5.8 at a relatively shallow depth. Approximately 11 aftershocks have followed since then, the worst one of which was of magnitude 4.5.

Seismic Impact at NANPP

- The USGS estimates, as of August 23, indicate the ground motion peak ground acceleration (PGA) at the North Anna site between 0.20g and 0.27g. The response spectrum corresponding to these estimated ground motion PGA values exceed the NANPP DBE spectrum over some frequency range. Initial interpretation of data obtained from the licensee's seismic Response Spectrum Recorder (scratch plates) located in the auxiliary building (at top of basemat (EL 241 ft) and at EL 273 ft) indicate that the acceleration experienced at the NANPP Auxiliary Building could have exceeded the corresponding DBE spectrum in at frequencies above 8 Hz, by a factor of approximately 1.5 to 2, in the vertical and horizontal directions.
- Data from the seismic response spectrum recorders in the Unit 1 containment are currently being interpreted.
- 25 of 27 vertical casks at the ISFSI have displaced horizontally 0.5 to 3 inches.
- On August 26, the licensee declared all safety-related SSCs of Units 1 and 2 inoperable, based on growing pieces of evidence that the DBE may have been exceeded at the site.

NRC Evaluations

- NRC staff performed an independent analysis using the best estimate of the earthquake location and magnitude together with the EPRI ground motion prediction equations.
- It can be seen that the 84th percentile ground motions calculated by the staff are close to the USGS predictions (see attached Figure).
- The staff will confirm that the licensee is performing plant walk downs in accordance with RG 1.166, "Pre-earthquake Planning and Immediate Nuclear Power Plant Operator Post-earthquake Actions," which endorses sections of EPRI NP-6695, "Guidelines for Nuclear Plant Response to an Earthquake," with certain exceptions.
- Information from NANPP's seismic recordings will provide the basis for the staff's assessment of the licensee's operability determination of the affected structures and components.
 - The staff will confirm that the licensee is following the guidance in RG 1.167, "Restart of a Nuclear Power Plant Shutdown by a Seismic Event," regarding the exceptions to the EPRI NP-6695 document prior to recommending plant restart.

Significant Information Outstanding for Assessing Seismic Motions and Effects

- Results from seismic response spectrum recorders (scratch plates) and other seismic instrumentation in Unit 1 containment.
- Validation of onsite instrumentation and outputs
- ISFSI response
- Results of initial walkdowns inside containment

Actions for Seismic Spectrum Beyond Design Basis

- RG 1.167, "Restart Of A Nuclear Power Plant Shut Down By A Seismic Event"
- Appendix S to Part 100—Paragraph a.2, "Determination of Operating Basis Earthquake," states, *"If vibratory ground motion exceeding that of the Operating Basis Earthquake occurs, shutdown of the nuclear power plant will be required. Prior to resuming operations, the licensee will be required to demonstrate to the Commission that no functional damage occurred to those features necessary for continued operation without undue risk to the health and safety of the public."* (However, this regulation does not address beyond design basis events.)

NRC Actions

- Region II with NRR/NRO support will be conducting an AIT at the North Anna site, in accordance with MD 8.3, "NRC Incident Investigation Program." The AIT will be led by Mark Franke. The entrance meeting is scheduled for August 30. The AIT is being chartered to collect data and determine the facts and circumstances related to the North Anna Nuclear Power Plant seismic event associated with the August 23 earthquake. Upon completion of the inspection, the NRC will issue an inspection report, which will be publically available.

Licensee Actions

- As of August 26, the licensee was in the process of coming down to a safe shutdown condition.
- The licensee will begin making the 50.72 reports (at least one 1 hr call) that are required now that this determination has been made and ensuring compliance with the applicable TS action statements.
- Licensee is currently in the process of developing plans and procedures for detailed walkdowns and other evaluations and actions to be taken prior to restart.

Plant Restart

NRR agrees with OGC that the NRR Director would be the authorized official to approve plant restart.

Potentially Affected Plants

The list below provides the plants and the associated distance from the Epicenter:

North Anna is 18 km from the Epicenter

Surry is 139 km from the Epicenter

Calvert Cliffs is 141 km from the Epicenter

DE will work with DORL Project Managers to confirm that the OBE was not exceeded at Surry and Calvert Cliffs.

Note: The potential for the occurrence of an earthquake larger than the recent event is within the scope of GI-199 Generic Letter (GL), where licensees are requested to perform seismic risk evaluation based on latest seismic hazard estimates. The GL provides a systematic process to perform the requested evaluations and determine the delta increase in seismic core damage frequency.

