From:	Guzman, Richard
To:	Tate, Travis
Subject:	Memo Email to File - Summary of September 1, 2016, Meeting with Exelon Generation Company to Discuss Calvert Cliffs Units 1 and 2 - GSI-191 Resolution and Closure of GL 2004-02
Date:	Thursday, September 29, 2016 1:11:49 PM

Travis – for your information, shown below is a summary of the September 1, 2016, Category 1 public meeting with Exelon regarding the Calvert Cliffs Units 1 and 2 resolution of GSI-191 and planned closure of GL 2004-02.

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LICENSEE: Exelon Generation Company, LLC
FACILITY: Calvert Cliffs Nuclear Power Plant, Units 1 and 2
SUBJECT: Summary of September 1, 2016, Meeting with Exelon Generation Co., LLC to discuss Calvert Cliffs Units 1 and 2 – Generic Safety Issue (GSI)-191 and Generic Letter (GL) 2004-02 (CAC Nos. MC4672 and MC4673)

On September 1, 2016, a Category 1 public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) staff and representatives of the Exelon Generation Company, LLC (Exelon, the licensee). The purpose of this meeting was for the licensee to provide an update to the NRC staff on the schedule for the Calvert Cliffs Nuclear Power Plant, Units 1 and 2 (CCNPP) closure submittal for addressing GSI-191, "Assessment of Debris Accumulation on Pressurized-Water Reactor Sump Performance," in response to the NRC's Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized Water Reactors." Specifically, the licensee presented information regarding the proposed treatment of longitudinal welds and a description of its proposed centroid calculation.

The meeting notice and agenda, dated August 12, 2016, is available in the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML16225A764. The licensee's slides are available in ADAMS at Accession No. ML16242A178. The licensee presented a summary of the following:

- Analysis of Longitudinal Welds and Zones of Influence (ZOIs)
- Debris Generation Centroid Approach
- Response to Open Items from December 2015 Public Meeting
- Chemical Head Loss Tests, Plot Comparisons
- Reactor Coolant System Materials and Welds with Degradation Mechanisms
- Proposed Schedule for Closure Submittal and Future Meetings

The licensee provided an overview of its risk-informed approach for resolving GSI-191 which largely focused on its analysis of the subject longitudinal welds and a description of the methodology for calculating debris size distribution as a function of the average
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distance of insulation in the ZOI from the weld break (i.e., the centroid distance). The licensee then presented example results of the debris characteristic data for various insulation types on a butt weld (spherical ZOI) in comparison to a longitudinal weld (hemispherical ZOI). The thermal wrap insulation resulted in the highest debris size volume (in cubic feet). Example results for purpose of comparing the debris quantities of the various insulation types from double-ended guillotine breaks versus longitudinal weld breaks was also presented which yielded the thermal wrap insulated longitudinal weld break as the worst case (highest volume of debris). Exelon also provided a number of chemical head loss vs. time test plots in response to the open items discussed during the December 1, 2015 update meeting. The licensee stated that they intend to use Test no. 5 (i.e., "Chemical Head Loss Test for Fines Only") as their submitted analysis. Other open items that were discussed involved various topics including the largest debris load and the critical break (smallest) debris load that exceed strainer performance criteria for aluminum concentrations; justification for chemical precipitates not forming until after a single core spray pump is secured; RCS materials and welds with degradation mechanisms additional to design and construction flaws; discussion of non-piping loss of coolant accident initiators; basis for fiber fines as a performance criterion for strainers; and discussion of representative top sequences leading to core damage in the GSI-191 risk assessment.

The licensee requested feedback from the staff on its review and schedule of the South Texas Project (STP) Risk Informed GSI-191 pilot submittal and topical report WCAP-17788, "Comprehensive Analysis and Test Program for GSI-191." The staff responded that it expects to issue the STP SE prior to Exelon's proposed timing for issuing it final supplemental response for CCNPP closure of GSI-191 and that the staff's safety evaluation will follow the format specified in the Regulatory Guide 1.229, "Risk-Informed Approach for Addressing the Effects of Debris on Post-Accident Long Term Core Cooling." The licensee's current regulatory commitment is to submit its final supplemental response for closure of GL 2004-02 for CCNPP no later than three months after NRC's issuance of the safety evaluations on the STP risk-informed GSI-191 pilot project and the WCAP-17788; however, the licensee indicated that they do not plan to necessarily wait for the three-month date, and intend to submit it appropriately upon completion of the applicable analyses (current projection 2nd quarter 2017.

Next steps: The next public meeting will be targeted for 4th quarter 2016; the licensee plans finalize and update its analysis and calculations and present its final chemical head loss tests and proposed formal risk-informed GSI-191 analysis during the next update meeting.

There was one member of the public in attendance via phone conference; he did not have any comments or questions. No feedback forms were received. No decisions were made regarding the acceptability of Exelon's proposed submittals.

LIST OF ATTENDEES:

U.S. NUCLEAR REGULATORY COMMISSION
Joe Giitter
CJ Fong
Paul Klein
Richard Guzman
Candace Pfefferkorn
Ashley Smith

Steve Smith
Juan Peralta
Marioly Diaz Colon
John Tsao
Rob Tregoning
Mehdi Reisi Fard
Matt Yoder*
Andy Rosebrook*

EXELON GENERATION COMPANY, LLC
Andre Drake
Ken Greene
John Haydin
Jim Landale

ENERCON
Craig Sellers
Tim Sande*

MPR ASSOCIATES, INC.
Eric Federline

OTHER
Ron Holloway (PM, Wolf Creek)*

MEMBER OF THE PUBLIC
Paul Leonard*

*Participated via conference line