



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

August 18, 2016

LICENSEE: Exelon Generation Company, LLC

FACILITIES: Calvert Cliffs Nuclear Power Plant, Units 1 and 2
LaSalle County Station, Units 1 and 2
Oyster Creek Nuclear Generating Station
Peach Bottom Atomic Power Station, Units 2 and 3
Quad Cities Nuclear Power Station
R. E. Ginna Nuclear Power Plant
Three Mile Island Nuclear Station, Unit 1

SUBJECT: SUMMARY OF JULY 26, 2016, PUBLIC MEETING ON STATUS OF ASSOCIATED EFFECTS SUBMITTALS RELATED TO THE REEVALUATED FLOOD HAZARDS AT EXELON GENERATION COMPANY, LLC SITES AS PART OF THE RESPONSE TO NEAR-TERM TASK FORCE RECOMMENDATION 2.1, "FLOODING"

On July 26, 2016, the U.S. Nuclear Regulatory Commission (NRC) staff held a Category 2 public meeting¹ with stakeholders to discuss with Exelon Generation Company, LLC (Exelon, the licensee) the current status of their associated effects submittals related to the reevaluated flood hazards at Calvert Cliffs Nuclear Power Plant, Units 1 and 2; LaSalle County Station, Units 1 and 2; Oyster Creek Nuclear Generating Station; Peach Bottom Atomic Power Station, Units 2 and 3; Quad Cities Nuclear Power Station; R. E. Ginna Nuclear Power Plant; and Three Mile Island Nuclear Station, Unit 1; and the paths forward for the NRC staff's review of the associated effects.

During this meeting, Exelon presented slides² that provided a summary of the parameters, for each site, that will be submitted to address associated effects and/or flood event duration. The presentation and slide material allowed the NRC staff the opportunity to provide feedback to the licensee to ensure each site submittal covered the parameters needed to complete the mitigation strategies assessment review. Based on the NRC staff's input to the proposed submittal information, the licensee provided a path forward for each site and committed to provide the associated effects information for each site by August 30, 2016.

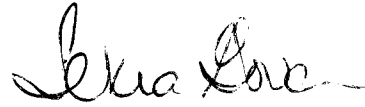
Enclosure 1 of this letter summarizes the NRC staff comments, concerns, and questions for each site presented by the licensee and the agreed upon path forward for each site.

Prior to concluding the meeting, an opportunity for public comment and questions was afforded.

¹ The original meeting notice is available via the Agencywide Documents Access and Management System (ADAMS) under Accession No. ML16195A331.

² The Exelon presentation can be found at ADAMS Accession No. ML16228A051.

Please direct any inquiries to me at 301-415-6197 or Tekia.Govan@nrc.gov.



Tekia Govan, Project Manager
Hazards Management Branch
Japan Lessons-Learned Division
Office of Nuclear Reactor Regulation

Docket Nos: 50-317 and 50-318 (Calvert Cliffs)
Docket No: 50-244 (Ginna)
Docket Nos: 50-373 and 50-374 (LaSalle)
Docket No: 50-219 (Oyster Creek)
Docket Nos: 50-277 and 50-278 (Peach Bottom)
Docket Nos: 50-254 and 50-265 (Quad Cities)
Docket No: 50-289 (Three Mile Island)

Enclosures:

1. Summary of the Discussion with Exelon on
Flood Event Duration and Associate Effects Issues
2. Lists of Attendees

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ENCLOSURE 1: Summary of the Discussion with Exelon on Flood Event Duration and Associate Effects Issues

NRC Staff's Concerns Discussed during Meeting	Licensee Proposed Path Forward
Calvert Cliffs	
<p>The NRC staff noted that the flood hazard reevaluation report (FHRR) does not contain storm surge inundation time and period of recession.</p>	<p>The licensee stated that the September 2015 FHRR submittal for Calvert Cliffs shows a bounding current design-basis (CDB) and therefore no additional information is required for storm surge.</p> <p>However, storm surge will be addressed in the G.2 and G.3 portions of the mitigation strategies assessment (MSA) and follow Path 1 in the focused evaluation (FE).</p>
Ginna	
<p>The NRC staff noted that the FHRR does not contain:</p> <ul style="list-style-type: none"> 1) warning time for local intense precipitation (LIP), and 2) associated effect (AE) parameters for LIP and probable maximum flooding (PMF). 	<p>The licensee stated that:</p> <ul style="list-style-type: none"> 1) Nuclear Energy Institute (NEI) 15-05 guidance will be used for LIP warning time. 2) The AE for LIP will be addressed in the MSA and FE and that PMF AEs will be redefined in a supplemental report to address site-specific revision to rivers/stream flooding mechanism by the end of September 2016.
LaSalle	
<ul style="list-style-type: none"> 1) The NRC staff noted that the FHRR does not contain warning time and period son inundation for LIP and recession is defined differently in the FHRR than in the guidance provided in NEI 16-05. 2) The licensee should clarify how the maximum LIP hydrodynamic loads were calculated for different locations. Are they based on maximum inundation depth or velocity? 3) For storm surge in the cooling pond, provide detail on why debris load was not considered. FHRR Table 4 states air-borne tornado missile load bounds water-borne debris load. The NRC staff noted that the two loads are different in origin and be used differently in structural 	<p>1, 2, 3) The licensee said they will look into these issues and address them in the associated effects supplemental letter which will be submitted to NRC by the end of August 2016.</p>

NRC Staff's Concerns Discussed during Meeting	Licensee Proposed Path Forward
<p>analyses. Therefore, water-borne debris load must be defined or discussed.</p>	
Oyster Creek	
<p>The NRC staff noted that the FHRR does not contain warning time and periods of recession for LIP and dam failure flood information is also missing.</p>	<p>The licensee said they will clarify/address this issue in the associated effects supplemental letter which will be submitted to NRC by the end of August 2016.</p>
Peach Bottom	
<ol style="list-style-type: none"> 1) The NRC staff noted that periods of inundation and recession are defined differently in the FHRR than in the guidance provided in NEI 16-05. 2) The NRC staff noted that AE parameters for storm surge, ice, and seiche events are missing in the FHRR. The AE parameters were provided for a bounding combined dam failure which is not bounded by the CDB. Some AE parameters for these controlling events may not be bounded by respective AE parameters for a combined dam failure event (e.g., effects of ice jam/load, low temperature, or other adverse weather, etc.). Provide additional AE parameters (if applicable) for these controlling events, or justify why they are not applicable. 	<ol style="list-style-type: none"> 1) The licensee stated that they will clarify/address this issue in the associated effects supplemental letter which will be submitted to NRC by the end of August 2016. 2) The licensee stated that the AE for surge, ice, and seiche would be minimal. However, in the August 2016 AE submittal, they will include discussions of the AE for surge, ice, or seiche qualitatively (with some calculations as needed), or justifications why they are not applicable.
Quad Cities	
<ol style="list-style-type: none"> 1) The NRC staff noted that LIP flood event duration parameters were not included in the FHRR. 2) The NRC staff also noted that the warning time for hydrologic dam failure flood does not include storm forecasting time which may be an important parameter for triggering flood protection and mitigation actions. Information pertaining to recession time for dam failure flood is also missing. 	<ol style="list-style-type: none"> 1) The NEI 15-05 guidance will be used for LIP warning time. Both the licensee and the NRC staff agree that periods of inundation and recession for LIP are not significant, thus be addressed in the MSA/FE stage. 2) The licensee stated that the dam failure warning time of 172 hours does not include storm forecasting time as the warning time is sufficiently long enough to prepare flood preparation. The August 2016 AE submittal will clarify this issue in addition to discussing the period of recession.
Three Mile Island	
<ol style="list-style-type: none"> 1) The NRC staff noted that periods of inundation and recession are defined 	<ol style="list-style-type: none"> 1) The licensee stated that they will clarify/address this issue in the associated

NRC Staff's Concerns Discussed during Meeting	Licensee Proposed Path Forward
<p data-bbox="310 304 718 359">differently in the FHRR than in the guidance provided in NEI 16-05.</p> <p data-bbox="261 390 814 720">2) The NRC staff also noted that the AE for ice is missing from the FHRR, while the AE parameters for a bounding combined dam failure are provided. Some AE parameters for ice may not be bounded by respective AE parameters for a combined dam failure event (e.g., effects of ice jam/load, low temperature, or other adverse weather, etc.). Provide additional AE parameters (if applicable) for ice, or justify why they are not applicable.</p>	<p data-bbox="938 304 1414 390">effects supplemental letter which will be submitted to NRC by the end of August 2016.</p> <p data-bbox="888 422 1417 636">2) The licensee stated that the AE for ice would be minimal. However, in the August 2016 AE submittal, they will include discussions of the AE for surge, ice, or seiche qualitatively (with some calculations as needed), or justifications why they are not applicable.</p>

ENCLOSURE 2

PUBLIC MEETING TO DISCUSS STATUS OF ASSOCIATED EFFECTS SUBMITTALS
RELATED TO THE REEVALUATED FLOOD HAZARDS AT EXELON GENERATION
COMPANY, LLC SITES

July 26, 2016

List of Attendees

Name:	Organization:	Name:	Organization:
Tekia Govan	U.S. Nuclear Regulatory Commission (NRC)	Chuck Merritt	Exelon, Calvert Cliffs
Greg Bowman	NRC	Sheldon Waiters	Exelon, Calvert Cliffs
Anthony Minarik	NRC	Dustin Damhoff	Exelon, Quad Cities
Hosung Ahn	NRC	Chuck Behrend	Exelon
Ken See	NRC	Vinod Aggarwal	Exelon
Lyle Hibler	NRC	Joe Bellini	Exelon
Chris Cook	NRC	David Distel	Exelon
Aida Rivera	NRC	Greg Engels	Exelon, LaSalle
Jana Bergman	Curtis Wright	William McSorley	Exelon, Three Mile Island
Brenda Kovarik	AEP - Cook	Val Samlal	Exelon, Oyster Creek
Curtis Smith	Idaho National Laboratory	John Traynor	Exelon, Ginna
		George Wrobel	Exelon, Ginna

Please direct any inquiries to me at 301-415-6197 or Tekia.Govan@nrc.gov.

Sincerely,

/RA/

Tekia Govan, Project Manager
Hazards Management Branch
Japan Lessons-Learned Division
Office of Nuclear Reactor Regulation

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RidsNrrDorlLpl1-2Resource	RidsNrrDorl Resource	MLee, NRO
RidsNrrPMOysterCreek Resource	MShams, NRR	CCook, NRO
RidsRgn1MailCenter Resource	RidsNrrLASLent	RidsOpaMailResource
RidsRgn3MailCenter Resource	MWillingham, NRO	ARivera-Varona, NRO
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RidsOgcMailCenter Resource	TGovan, NRR	RidsNrrDorlLpl3-1Resource
RidsNrrDorlLpl3-2Resource	ACampbell, NRO	Gbowman, NRR

ADAMS Accession Package No.: ML16228A030 Meeting Summary ML16228A062 * via e-mail

OFFICE	NRR/JLD/JHMB/PM	NRR/JLD/ LA	NRR/JLD/JHMB/BC	NRR/JLD/JHMB/PM
NAME	TGovan	SLent	GBowman	TGovan
DATE	08/18/2016	08/16/2016	08/18/2016	08/18/2016

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