



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

December 4, 2015

Mr. Bryan C. Hanson
President and Chief Nuclear Officer
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: R.E. GINNA NUCLEAR POWER PLANT – INTERIM STAFF RESPONSE TO
REEVALUATED FLOOD HAZARDS SUBMITTED IN RESPONSE TO
10 CFR 50.54(f) INFORMATION REQUEST – FLOOD-CAUSING MECHANISM
REEVALUATION (TAC NO MF6098)

Dear Mr. Hanson:

The purpose of this letter is to provide a summary of the U.S. Nuclear Regulatory Commission (NRC) staff's assessment of the re-evaluated flood-causing mechanisms described in the March 11, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15072A009, flood hazard reevaluation report (FHRR) submitted by R. E. Ginna Nuclear Power Plant, LLC (the licensee) for R. E. Ginna Nuclear Power Plant (Ginna), as well as supplemental information resulting from requests for additional information and audits.

By letter dated March 12, 2012, the NRC issued a request for information pursuant to Title 10 of the *Code of Federal Regulations*, Section 50.54(f) (hereafter referred to as the 50.54(f) letter) (ADAMS Accession No. ML12053A340). The request was issued as part of implementing lessons-learned from the accident at the Fukushima Dai-ichi nuclear power plant. Enclosure 2 to the 50.54(f) letter requested licensees to re-evaluate flood-causing mechanisms using present-day methodologies and guidance. Concurrently, with the reevaluation of flooding hazards, licensees were required to develop and implement mitigating strategies in accordance with NRC Order EA-12-049, "Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" (ADAMS Accession No. ML12054A735). On March 30, 2015, the Commission provided Staff Requirements Memoranda (SRM) (ADAMS Accession No. ML15089A236) to COMSECY-14-0037, "Integration of Mitigating Strategies for Beyond-Design-Basis External Events and the Reevaluation of Flooding Hazards," dated November 21, 2014 (ADAMS Accession No. ML14309A256), affirming that licensees need to address the reevaluated flooding hazards within their mitigating strategies for beyond-design-basis external events.

The NRC staff has reviewed the information submitted by the licensee and has summarized the results of the review in the tables provided as an Enclosure to this letter. Table 1 provides the current design-basis flood hazard mechanisms. Table 2 provides the reevaluated flood hazard mechanisms; however, the reevaluated flood hazard mechanisms bounded by the current design-basis (Table 1) are not included.

The NRC staff has concluded that the licensee's reevaluated flood hazards information, as summarized in the Enclosure, is suitable for the assessment of mitigating strategies developed in response to Order EA-12-049 (i.e., defines the mitigating strategies flood hazard information

described in guidance documents currently being finalized by the industry and NRC staff) for Ginna. Further, the NRC staff has concluded that the licensee's reevaluated flood hazard information is a suitable input for other assessments associated with Near-Term Task Force Recommendation 2.1 "Flooding." The NRC staff plans to issue a staff assessment documenting the basis for these conclusions at a later time.

In addition, Nuclear Energy Institute (NEI) guidance document NEI 12-06 "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide" is currently being revised. This revision will include a methodology to perform a Mitigating Strategies Assessment (MSA) with respect to the reevaluated flood hazards. Once this methodology is endorsed by the NRC, flood event duration parameters and applicable flood associated effects should be considered as part of the Ginna MSA. The NRC staff will evaluate the flood event duration parameters (including warning time and period of inundation) and flood-related associated effects developed by the licensee during the NRC staff's review of the MSA.

As stated above, Table 2 of the enclosure to this letter describes the reevaluated flood hazards that exceed the current design-basis. In order to complete its response to the information requested by Enclosure 2 to the 50.54(f) letter, the licensee is expected to submit an integrated assessment or a focused evaluation, as appropriate, to address these reevaluated flood hazards, as described in the NRC letter, "Coordination of Request for Information Regarding Flooding Hazard Reevaluation and Mitigating Strategies for Beyond-Design-Basis External Events" (ADAMS Accession No. ML15174A257). This letter describes the changes in the NRC's approach to the flood hazard reevaluations that were approved by the Commission in its SRM to COMSECY-15-0019, "Closure Plan for the Reevaluation of Flooding Hazards for Operating Nuclear Power Plants" (ADAMS Accession No. ML15209A682).

B. Hanson

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If you have any questions, please contact me at (301) 415-6197 or e-mail at Tekia.Govan@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Tekia Govan". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

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

Docket No. 50-244

Enclosure:
Summary of Results of Flooding
Hazard Re-Evaluation Report

cc w/encl: Distribution via Listserv

ENCLOSURE:
SUMMARY TABLES OF
REEVALUATED FLOOD HAZARD LEVELS

Table 1. Current Design Basis Flood Hazards for Use in the MSA

Mechanism	Stillwater Elevation	Waves/ Runup	Design Basis Hazard Elevation	Reference
Local Intense Precipitation				
Screen House	254.5 ft NGVD29	Minimal	254.5 ft NGVD29	FHRR Section 1.3
Streams and Rivers				
PMF - Reactor Building	272.0 ft NGVD29	Not applicable	272.0 ft NGVD29	FHRR Table 2.2-6
PMF - Auxiliary Building	273.8 ft NGVD29	Not applicable	273.8 ft NGVD29	FHRR Table 2.2-6
PMF - Turbine Building	256.6 ft NGVD29	Not applicable	256.6 ft NGVD29	FHRR Table 2.2-6
PMF - Control Building	272.0 ft NGVD29	Not applicable	272.0 ft NGVD29	FHRR Table 2.2-6
PMF - All-Volatile-Treatment Building	272.0 ft NGVD29	Not applicable	272.0 ft NGVD29	FHRR Table 2.2-6
PMF - Standby Auxiliary Feedwater Pump Building	273.0 ft NGVD29	Not applicable	273.0 ft NGVD29	FHRR Table 2.2-6
PMF - Screen House	256.6 ft NGVD29	Not applicable	256.6 ft NGVD29	FHRR Table 2.2-6
PMF - Diesel Generator Building	256.6 ft NGVD29	Not applicable	256.6 ft NGVD29	FHRR Table 2.2-6
Failure of Dams and Onsite Water Control/Storage Structures				
	Not included in DB	Not included in DB	Not included in DB	FHRR Section 3.1.3

Table 1. Current Design Basis Flood Hazards for Use in the MSA

Mechanism	Stillwater Elevation	Waves/Runup	Design Basis Hazard Elevation	Reference
Storm Surge Tropical Storm and Associated phenomena	253.3 ft NGVD29	7.7 ft	260.9 ft NGVD29	FHRR Section 1.3
Seiche	Not included in DB	Not included in DB	Not included in DB	FHRR Section 3.1.5
Tsunami	Not included in DB	Not included in DB	Not included in DB	FHRR Section 3.1.6
Ice-Induced Flooding	No Impact on the Site Identified	No Impact on the Site Identified	No Impact on the Site Identified	FHRR Section 3.1.7
Channel Migrations/Diversions	Not included in DB	Not included in DB	Not included in DB	FHRR Section 3.1.8

Note 1: Reported values are rounded to the nearest one-tenth of a foot.

Table 2. Reevaluated Flood Hazards for Flood-Causing Mechanisms for Use in the MSA

Mechanism	Stillwater Elevation	Waves/ Runup	Reevaluated Hazard Elevation	Reference
Local Intense Precipitation				
LIP 6-h event: Reactor Containment	270.9 ft NGVD29	Minimal	270.9 ft NGVD29	FHRR Table 2.1-1
LIP 6-h event: Auxiliary Building	270.7 ft NGVD29	Minimal	270.7 ft NGVD29	FHRR Table 2.1-1
LIP 6-h event: Turbine Building	255.8 ft NGVD29	Minimal	255.8 ft NGVD29	FHRR Table 2.1-1
LIP 6-h event: Control Building	270.9 ft NGVD29	Minimal	270.9 ft NGVD29	FHRR Table 2.1-1
LIP 6-h event: All-Volatile-Treatment Building	270.8 ft NGVD29	Minimal	270.8 ft NGVD29	FHRR Table 2.1-1
LIP 6-h event: Standby Auxiliary Feedwater Pump Building	270.2 ft NGVD29	Minimal	270.2 ft NGVD29	FHRR Table 2.2-1
LIP 6-h event: Proposed Standby Auxiliary Feedwater Pump Building Annex	270.5 ft NGVD29	Minimal	270.5 ft NGVD29	FHRR Table 2.1-1
LIP 6-h event: Screen House	255.8 ft NGVD29	Minimal	255.8 ft NGVD29	FHRR Table 2.1-1
LIP 6-h event: Diesel Generator Building	255.8 ft NGVD29	Minimal	255.8 ft NGVD29	FHRR Table 2.1-1
Streams and Rivers				
Reactor Building (stillwater: PMF; total water level: PMF, H.1, H.4.2)	272.4 ft NGVD29	Not applicable	272.4 ft NGVD29	FHRR Table 2.2-6 FHRR Sections 2.9.3 and 3.1.9
Turbine Building (stillwater: PMF; total water level: H.4.2)	258.2 ft NGVD29	Not applicable	258.2 ft NGVD29	FHRR Sections 2.9.3, 3.1.9 and FHRR Enclosure 1 Table 4

Table 2. Reevaluated Flood Hazards for Flood-Causing Mechanisms for Use in the MSA

Mechanism	Stillwater Elevation	Waves/Runup	Reevaluated Hazard Elevation	Reference
Control Building (stillwater: PMF; total water level: PMF, H.1, H.4.2)	272.4 ft NGVD29	Not applicable	272.4 ft NGVD29	FHRR Table 2.2-6 FHRR Section 2.9.3 and 3.1.9
Standby Auxiliary Feedwater Pump Building (stillwater: PMF; total water level: H.1)	272.8 ft NGVD29	0.9 ft	273.7 ft NGVD29	FHRR Table 2.2-6 FHRR Enclosure 1 Tables 2 and 3
Proposed Standby Auxiliary Feedwater Pump Building Annex (stillwater: PMF; total water level: H.1)	273.5 ft NGVD29	0.9 ft	274.4 ft NGVD29	FHRR Enclosure 1 Tables 2 and 3
Screen House (stillwater: PMF; total water level: H.4.2)	258.2 ft NGVD29	Not applicable	258.2 ft NGVD29	FHRR Sections 2.9.3, 3.1.9 and FHRR Enclosure 1 Table 4
Diesel Generator Building (stillwater: PMF; total water level: H.4.2)	258.4 ft NGVD29	Not applicable	258.4 ft NGVD29	FHRR Sections 2.9.3, 3.1.9 and FHRR Enclosure 1 Table 4

Note 1: The licensee is expected to develop flood event duration parameters and applicable flood associated effects to conduct the MSA. The staff will evaluate the flood event duration parameters (including warning time and period of inundation) and flood associated effects during its review of the MSA.

Note 2: Reevaluated hazard mechanisms bounded by the current design basis (see Table 1) are not included in this table

Note 3: Reported values are rounded to the nearest one-tenth of a foot.

B. Hanson

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If you have any questions, please contact me at (301) 415-6197 or e-mail at Tekia.Govan@nrc.gov.

Sincerely,

/RA/

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

Docket No. 50-244

Enclosure:
Summary of Results of Flooding
Hazard Re-Evaluation Report

cc w/encl: Distribution via Listserv

DISTRIBUTION:

PUBLIC	JLD R/F	RidsNRRJLD Resource
TGovan, NRR	LQuinn-Willingham, NRO	RidsNroDsea Resource
RidsNrrDorLpl1-1 Resource	RidsNrrDorl Resource	RidsNrrPMGinna Resource
RidsRgn1MailCenter Resource	RidsNrrLASLent	RidsOgcMailCenter Resource
RidsOpaMail Resource	RidsAcrsAcnw_MailCtr Resource	CCook, NRO
ARivera-Varona, NRO	KErwin, NRO	ACampbell, NRO
MWillingham, NRO	RRivera-Lugo, NRO	BHarvey, NRO
MShams, NRR	LHibler, NRR	

ADAMS Accession Nos.: PKG ML15334A451; LTR: ML15334A453; ENCL: ML15327A204 *via email

OFFICE	NRR/JLD/JHMB/PM	NRR/JLD/LA	NRO/DSEA/RHM2/TR*
NAME	TGovan	SLent	LHibler
DATE	12/2/2015	12/2/2015	11/24/2015
OFFICE	NRO/DSEA/RHM2/TL*	NRR/JLD/JHMB/BC	NRR/JLD/JHMB/PM
NAME	ARivera-Varona	MShams	TGovan
DATE	11/24/2015	12/4/2015	12/4/2015

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