



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

December 4, 2015

Mr. Lawrence J. Weber  
Senior Vice President and Chief  
Nuclear Officer  
Indiana Michigan Power Company  
Nuclear Generation Group  
One Cook Place  
Bridgman, MI 49106

SUBJECT: DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2 – INTERIM STAFF  
RESPONSE TO REEVALUATED FLOOD HAZARDS SUBMITTED IN  
RESPONSE TO 10 CFR 50.54(f) INFORMATION REQUEST – FLOOD-  
CAUSING MECHANISM REEVALUATION (TAC NOS. MF6096 AND MF6097)

Dear Mr. Weber:

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 6, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15069A334), flood hazard reevaluation report (FHRR) submitted by Indiana Michigan Power Company (the licensee) for Donald C. Cook Nuclear Plant, Units 1 and 2 (D. C. Cook), 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 COM- SECY-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 D.C. Cook. 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 D.C. Cook 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).

L. Weber

- 3 -

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 V. Govan", with a long, sweeping horizontal line extending to the right.

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

Docket Nos. 50-315 and 50-316

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**

<b>Mechanism</b>	<b>Stillwater Elevation</b>	<b>Waves/ Runup</b>	<b>Design Basis Hazard Elevation</b>	<b>Reference</b>
<b>Local Intense Precipitation</b>	Not included in DB	Not included in DB	Not included in DB	FHRR Table 4-1
<b>Streams and Rivers</b>	Not included in DB	Not included in DB	Not included in DB	FHRR Table 4-1
<b>Failure of Dams and Onsite Water Control/Storage Structures</b>	Not included in DB	Not included in DB	Not included in DB	FHRR Table 4-1
<b>Storm Surge</b>	Not included in DB	Not included in DB	Not included in DB	FHRR Table 4-1
<b>Seiche</b> Seiche in Lake Michigan Shore	594.6 ft NGVD29	Not applicable	594.6 ft NGVD29	FHRR Table 4-1
<b>Tsunami</b>	Not included in DB	Not included in DB	Not included in DB	FHRR Table 4-1
<b>Ice-Induced Flooding</b>	Not included in DB	Not included in DB	Not included in DB	FHRR Table 4-1
<b>Channel Migrations/Diversions</b>	Not included in DB	Not included in DB	Not included in DB	FHRR Table 4-1

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**

<b>Mechanism</b>	<b>Stillwater Elevation</b>	<b>Waves/ Runup</b>	<b>Reevaluated Hazard Elevation</b>	<b>Reference</b>
<b>Local Intense Precipitation</b>				
1-DR-TUB201 (Turbine Building Unit 1 West Rollup Door)	594.8 ft NGVD29	Minimal	594.8 ft NGVD29	FHRR Table 3-2
2-DR-TUB220 (Turbine Building Unit 2 West Rollup Door)	596.0 ft NGVD29	Minimal	596.0 ft NGVD29	FHRR Table 3-2
2-DR-TUB260 (Turbine Building Unit 2 East Rollup Door)	609.2 ft NGVD29	Minimal	609.2 ft NGVD29	FHRR Table 3-2
Valve-Shed RWST 1-TK-33	609.9 ft NGVD29	Minimal	609.9 ft NGVD29	FHRR Table 3-2
Valve-Shed PWST/CST 1	609.9 ft NGVD29	Minimal	609.9 ft NGVD29	FHRR Table 3-2
Valve-Shed RWST 2-TK-33	609.5 ft NGVD29	Minimal	609.5 ft NGVD29	FHRR Table 3-2
Valve-Shed PWST/CST 2	609.6 ft NGVD29	Minimal	609.6 ft NGVD29	FHRR Table 3-2
Supplemental Diesel Generators	609.6 ft NGVD29	Minimal	609.6 ft NGVD29	FHRR Table 3-2
1-DR-TUB253 (Turbine Building Unit 1 East Rollup Door)	609.8 ft NGVD29	Minimal	609.8 ft NGVD29	FHRR Table 3-2
12-DR-AUX381 (Auxiliary Building North Rollup Door)	609.9 ft NGVD29	Minimal	609.9 ft NGVD29	FHRR Table 3-2

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.

L. Weber

-3-

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

Sincerely,

*/RA/*

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

Docket Nos. 50-315 and 50-316

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

cc w/encl: Distribution via Listserv

DISTRIBUTION:

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RidsRgn3MailCenter Resource	RidsNrrLASLent	RidsOgcMailCenter Resource
RidsOpaMail Resource	RidsAcrsAcnw_MailCtr Resource	CCook, NRO
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MShams, NRR	KQuinlan, NRR	

**ADAMS Accession No.: PKG ML15334A424 LTR: ML15334A413 ENCL: ML15327A184 \*via email**

OFFICE	NRR/JLD/JHMB/PM	NRR/JLD/LA	NRO/DSEA/RHM2/TR*
NAME	TGovan	SLent	KQuinlan
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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