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

December 24, 2015

Mr. Adam C. Heflin
President, Chief Executive Officer,
and Chief Nuclear Officer
Wolf Creek Nuclear Operating Corporation
P.O. Box 411
Burlington, KS 66839

SUBJECT: WOLF CREEK GENERATING STATION – INTERIM STAFF RESPONSE TO REEVALUATED FLOOD HAZARDS SUBMITTED IN RESPONSE TO 10 CFR 50.54(f) INFORMATION REQUEST – FLOOD-CAUSING MECHANISM REEVALUATION (CAC NOS. MF3648)

Dear Mr. Heflin:

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 10, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14077A281), flood hazard reevaluation report (FHRR) submitted by Wolf Creek Nuclear Operating Corporation (WCNOC, the licensee) for Wolf Creek Generating Station (Wolf Creek), as well as supplemental information resulting from requests for additional information and audit interactions.

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.

Enclosure two transmitted herewith contains Security-Related Information. When separated from the Enclosure, this document is decontrolled.

The NRC staff has reviewed the information submitted by the licensee and has summarized the results of the review in the tables provided as Enclosure 1 to this letter. Table 1 provides the current design-basis flood hazard mechanisms. Table 2 provides reevaluated flood hazard mechanisms; however, reevaluated hazard mechanisms bounded by the current design-basis (Table 1) are not included. Because Table 2 includes security-related information, Enclosure 1 contains the redacted version of Table 2. Enclosure 2 is withheld from public disclosure and restores the security-related information to Table 2.

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 Wolf Creek. 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 Wolf Creek 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).

If you have any questions, please contact me at (301) 415-6185 or e-mail at anthony.minarik@nrc.gov.

Sincerely,

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

Docket No. 50-482

Enclosures:
1. Summary of Results of Flooding Hazard Re-Evaluation Report (Redacted Version)
2. Summary of Results of Flooding Hazard Re-Evaluation Report (Non-Public Version)

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ENCLOSURE 1:

SUMMARY TABLES OF
REEVALUATED FLOOD HAZARD LEVELS
[REDACTED VERSION]

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				
Powerblock Area	1,099.9 ft MSL	Minimal	1,099.9 ft MSL	FHRR Section 2.2 & Table 4-3
Streams and Rivers				
WCGS Shoreline	1,095.0 ft MSL	0.8 ft	1,095.8 ft MSL	FHRR Table 4-3
ESWS Pumphouse	1,095.0 ft MSL	5.2 ft	1,100.2 ft MSL	FHRR Table 4-3
Failure of Dams and Onsite Water Control/Storage Structures				
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
Storm Surge	Not included in DB	Not included in DB	Not included in DB	FHRR Table 4-3
Seiche	Not included in DB	Not included in DB	Not included in DB	FHRR Table 4-3
Tsunami	Not included in DB	Not included in DB	Not included in DB	FHRR Table 4-3
Ice-Induced Flooding	Not included in DB	Not included in DB	Not included in DB	FHRR Table 4-3

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

Mechanism	Stillwater Elevation	Waves/ Runup	Design Basis Hazard Elevation	Reference
Channel Migrations/Diversions	Not included in DB	Not included in DB	Not included in DB	FHRR Table 4-3

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

Note 2: The licensee indicated in their revised FHRR that the CDB site elevation changed due to regrading. The new site elevation is 1,099.92 ft. This change was captured in Wolf Creek's UFSAR Rev. 28.

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				
Areas Away from the Powerblock (ESW Manhole MHE1B)	1,099.9 ft MSL	Minimal	1,099.9 ft MSL	FHRR Table 3-3
Areas Around the Powerblock (Turbine Building)	1,100.5 ft MSL	Minimal	1,100.5 ft MSL	FHRR Table 3-1
Failure of Dams and Onsite Water Control/Storage Structures				
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]

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.

If you have any questions, please contact me at (301) 415-6185 or e-mail at anthony.minarik@nrc.gov.

Sincerely,

/RA by Mohamed Shams for/

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

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ADAMS Accession Nos.: PKG ML15357A180; LTR: ML15357A179; ENCL 1: ML15355A545 (PUBLIC)
ENCL 2: ML15355A546 (NON_PUBLIC) ***via email**

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