



Nebraska Public Power District

"Always there when you need us"

NLS2016049
September 29, 2016

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Subject: Revision to Nebraska Public Power District's Flood Hazard Reevaluation Report
Cooper Nuclear Station, Docket No 50-298, DPR-46

- References:
1. NRC Letter, "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated March 12, 2012
 2. NPPD Letter to NRC, "Nebraska Public Power District's Response to Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Flooding Aspects of Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated February 3, 2015
 3. NPPD Letter to NRC, "Addendum to Nebraska Public Power District's Response to Nuclear Regulatory Commission Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Flooding Aspects of Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated July 31, 2015
 4. NPPD Letter to NRC, "Addendum to Nebraska Public Power District's Response to Nuclear Regulatory Commission Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Flooding Aspects of Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated October 29, 2015

Dear Sir or Madam:

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued Reference 1 to all power reactor licensees and holders of construction permits in active or deferred status. Enclosure 2 of Reference 1 requested that each licensee perform a reevaluation of external flooding sources and report the results in accordance with the NRC's prioritization plan. In Reference 2, Nebraska Public Power District (NPPD) submitted the flood hazard reevaluation report (FHRR) report for

COOPER NUCLEAR STATION
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NRR

**ENCLOSURE 1 TO THIS LETTER CONTAINS ~~SECURITY RELATED INFORMATION~~.
UPON SEPARATION FROM ENCLOSURE 1, THIS COVER LETTER IS DECONTROLLED.**

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Cooper Nuclear Station (CNS). In References 3 and 4, NPPD submitted Addendums A and B to the FHRR as a result of requests for information and the FHRR audit.

The purpose of this submittal is to submit a revised FHRR for CNS as discussed in Reference 4. This revised FHRR also incorporates the addendums previously submitted. The attachment to this submittal provides a summary description, per section, of the revisions to the FHRR.

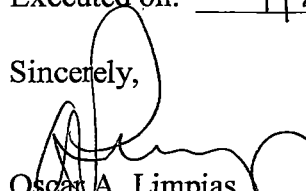
NPPD requests Enclosure 1, which contains security-related information, be withheld from public disclosure in accordance with 10 CFR 2.390. A redacted version of the FHRR is provided as Enclosure 2 and is suitable for public disclosure.

There are no new regulatory commitments contained in this submittal. Should you have any questions or if additional information is required, please contact Jim Shaw, Licensing Manager, at (402) 825-2788.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: 9/29/16

Sincerely,


Oscar A. Limpias

Vice President - Nuclear and Chief Nuclear Officer

/bk

Attachment: Flood Hazard Reevaluation Report, Revision 1 - Revision Summary Table

Enclosures: 1. Cooper Nuclear Station Flood Hazard Reevaluation Report, Revision 1
(Security-Related Version)
2. Cooper Nuclear Station Flood Hazard Reevaluation Report, Revision 1
(Redacted Version)

cc: Regional Administrator, w/attachment/enclosures NPG Distribution, w/o attachment/enclosures
USNRC - Region IV

CNS Records, w/attachment/enclosures

Director, w/attachment/enclosures
USNRC - Office of Nuclear Reactor Regulation

Cooper Project Manager, w/attachment/enclosures
USNRC - NRR Plant Licensing Branch IV-2

Senior Resident Inspector, w/attachment/enclosures
USNRC - CNS

**ENCLOSURE 1 TO THIS LETTER CONTAINS ~~SECURITY-RELATED INFORMATION~~.
UPON SEPARATION FROM ENCLOSURE 1, THIS COVER LETTER IS DECONTROLLED.**

ATTACHMENT

Flood Hazard Reevaluation Report, Revision 1 - Revision Summary Table

FHRR Section #	Description of Revision
Section 1.1.1	Capacity of 836 is revised to 835.5
Section 1.2.1	Description revised
Section 1.2.1.1	Minor text change
Section 1.2.1.4	Text modified
Section 1.7	Reference 1.7-4, USAR Revision xxvi7 revised to xxvi1
Section 1.7	References 1.7-18 and 1.7-19 are added
Section 2.1.4.2	Last paragraph "Figure 2.1-8 through Figure 2.1-10" is revised to "Figure 2.1-8 through Figure 2.1-11"
Section 2.1.4.3	First paragraph "Zone B and Zone D" is revised to "Zones B and D"
Table 2.1-6	An additional row for Cross-section D1450 added to the table
Table 2.1-7	An additional row for Cross-section D1450 added to the table
Figure 2.1-5	Figure revised to show addition of building
Figure 2.1-7	Figure is revised to show new cross section D1450
Figure 2.1-9	Figure is revised
Figure 2.1-10	Figure is revised
Figure 2.1-11	New figure is added in Revision 1
Section 2.2.5.4	Section is modified
Section 2.2.6	Reference 2.2-13 of provisions version is renumbered as Reference 2.2-4, Reference numbers are revised in the text accordingly
Section 2.2.6	New Reference 2.2-35 (AASHTO) added, reference numbers are revised in the text accordingly
Table 2.2-2	Reference numbers are updated
Table 2.2-2	Reference number is updated
Table 2.2-14	Table updated according to revised forces
Section 2.3	First paragraph, TUFLOW FV software for 2D analysis is added
Section 2.3.3	Section is revised to include 2D analysis
Section 2.3.3.2	Section title is revised to identify that it pertains to 1D analysis
Section 2.3.3.3	Section title is revised to identify that it pertains to 1D analysis
Section 2.3.3.4	New section added to address 2D analysis using TUFLOW FV
Section 2.3.5.1	Section is revised to include 2D analysis results
Section 2.3.5.2	Section is revised to include 2D analysis results
Section 2.3.5.3	Section is revised to include 2D analysis results
Section 2.3.5.4	Section is revised to include AASTHO method and 2D analysis results for Debris force
Section 2.3.6	New reference for TUFLOW FV software (Reference 2.3-3) is added, reference numbers are revised in the text accordingly

FHRR Section #	Description of Revision
Section 2.3.6	New reference for Chow, Open Channel Hydraulics (Reference 2.3-14) is added, reference numbers are revised in the text accordingly
Section 2.3.6	New reference for Fred, Danny L., Flood Routing Methods and Manning's n (Reference 2.3-15) is added, reference numbers are revised in the text accordingly
Section 2.3.6	New reference for AASHTO, LRFD Bridge Design Specification (Reference 2.3-27) is added, reference numbers are revised in the text accordingly
Table 2.3-7	New table for Manning's roughness coefficient is added, table numbers are revised accordingly
Table 2.3-9 (Old 2.3-8)	Table is revised according to revised analysis
Table 2.3-9 and Table 2.3-10 of Revision 0	These tables are deleted in new Revision 1 of FHRR
Table 2.3-10	New table Model Boundary for TUFLOW is added, table numbers are revised accordingly
Table 2.3-11	New table for Upstream boundary sensitivity analysis is added, table numbers are revised accordingly
Table 2.3-12	New table Monitoring Point Summary is added, table numbers are revised accordingly
Table 2.3-13	New table Monitoring Point Summary is added, table numbers are revised accordingly
Table 2.3-14	Table is same as Table 2.3-11 of Revision 0 FHRR
Table 2.3-15	Table (Table 2.3-12 of FHRR, Revision 0) is revised for new water levels using 2D analysis
Table 2.3-16	Table (Table 2.3-13 of FHRR, Revision 0) is revised for new water levels using 2D analysis, some new building locations are also added
Table 2.3-17	Table (Table 2.3-14 of FHRR, Revision 0) is revised for new water levels using 2D analysis, some new building locations are also added
Table 2.3-18	Table (Table 2.3-15 of FHRR, Revision 0) is revised for revised hydrostatic and hydrodynamic forces
Table 2.3-19	Table (Table 2.3-16 of FHRR, Revision 0) is revised for revised forces on Intake Structure
Table 2.3-20	Table (Table 2.3-17 of FHRR, Revision 0) is revised for revised debris impact loads
Figure 2.3-8	New Figure Land Use Classes for Manning's Roughness Coefficient is added, table numbers are revised accordingly
Figure 2.3-9	Figure is same as Figure 2.3-8 of Revision 0 FHRR
Figure 2.3-10	Figure is revised Figure of Figure 2.3-9 of Revision 0 FHRR for Peak stage at CNS due to System and Non-System dam failure
Figure 2.3-11	Figure is revised Figure of Figure 2.3-10 of Revision 0 FHRR for Peak discharge at CNS due to System and Non-System dam failure

FHRR Section #	Description of Revision
Figures 2.3-11 through 2.3-14 of Revision 0	Figures are deleted in Revision 1 of FHRR
Figure 2.3-12 through Figure 2.3-25	New figures based of 2D analysis are added
Figure 2.3-26	Figure is same as Figure 2.3-15 of Revision 0 FHRR
Figure 2.3-27	Figure is same as Figure 2.3-16 of Revision 0 FHRR
Figure 2.3-28	Figure is same as Figure 2.3-17 of Revision 0 FHRR
Figure 2.3-29	Figure is Revised from Figure 2.3-18 of Revision 0 FHRR
Figures 2.3-19 through 2.3-22 of Revision 0	Figures are deleted in Revision 1 of FHRR
Figure 2.3-30	New figure for ground cover is added
Figure 2.3-31	Figure is Revised from Figure 2.3-23 of Revision 0 FHRR
Figure 2.3-32	Figure is Revised from Figure 2.3-24 of Revision 0 FHRR
Figure 2.3-33	Figure is Revised from Figure 2.3-25 of Revision 0 FHRR
Figure 2.3-34	Figure is Revised from Figure 2.3-26 of Revision 0 FHRR
Section 2.4	Minor revision to the text
Section 2.5	Minor modification with one paragraph added
Section 2.6	One sentence added after first paragraph
Section 2.8.4	Text modified according to updated analysis results
Section 2.8.6	Maximum PMF flow revised
Section 3.3	Text modified as per revised Section 2.3
Section 3.10.1	Text modified as per revised Section 2.3
Section 3.10.2	Text modified as per revised Section 2.3
Section 3.11.1	Text modified for Reference to updated Tables of Section 2.3
Section 3.11.3	Text modified for Reference to updated Figure of Section 2.3
Table 3.14-1	Reevaluated flood levels for dam breach are revised
Table 3.14-2	Forces in the table are revised