



Nebraska Public Power District

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NLS2016053

September 14, 2016

U.S. Nuclear Regulatory Commission

ATTN: Document Control Desk

11555 Rockville Pike

Rockville, MD 20852

Subject: Nebraska Public Power District's Spent Fuel Pool Evaluation Report - Response to Nuclear Regulatory Commission Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Seismic Aspects of Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident
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. NRC letter, "Final Determination of Licensee Seismic Probabilistic Risk Assessments Under the Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendation 2.1 "Seismic" of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated October 27, 2015
 3. NEI letter, "Request for Endorsement of Seismic Evaluation Guidance: Spent Fuel Pool Integrity Evaluation (EPRI 3002007148)," dated February 23, 2016
 4. EPRI 3002007148, "Seismic Evaluation Guidance: Spent Fuel Pool Integrity Evaluation," dated February 2016
 5. NRC letter, "Endorsement of Electric Power Research Institute Report 3002007148, Seismic Evaluation Guidance: Spent Fuel Pool Integrity Evaluation," dated March 17, 2016
 6. EPRI 1025287, "Seismic Evaluation Guidance - Screening, Prioritization and Implementation Details (SPID) for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic," February 2013

COOPER NUCLEAR STATION

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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 1, Item (9), of Reference 1 requested addressees to provide limited scope spent fuel pool (SFP) evaluations. By letter dated October 27, 2015 (Reference 2), the NRC transmitted final seismic information request tables which identified that Nebraska Public Power District is to conduct a limited scope SFP evaluation for Cooper Nuclear Station (CNS). By Reference 3, Nuclear Energy Institute (NEI) submitted an Electric Power Research Institute (EPRI) report entitled, Seismic Evaluation Guidance: Spent Fuel Pool Integrity Evaluation (EPRI 3002007148) (Reference 4) for NRC review and endorsement. NRC endorsement of the EPRI report was provided in Reference 5.

EPRI 3002007148 provides criteria for evaluating the seismic adequacy of a SFP to the reevaluated ground motion response spectrum (GMRS) hazard levels. This report supplements the guidance in the Seismic Evaluation Guidance - Screening, Prioritization and Implementation Details (SPID) (Reference 6), for plants where the GMRS peak spectral acceleration is less than or equal to 0.8g. Section 3.3 of EPRI 3002007148 lists the parameters to be verified to confirm that the results of the report are applicable to CNS, and that the SFP is seismically adequate in accordance with Near Term Task Force 2.1 Seismic evaluation criteria.

The enclosure to this letter provides the data for CNS that confirms applicability of EPRI 3002007148 criteria, confirms that the SFP is seismically adequate, and provides the requested information in response to Reference 1.

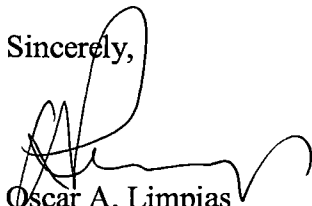
There are no new regulatory commitments and no revisions to existing regulatory commitments contained in this letter. Should you have any questions or if additional information is required, please contact Jim Shaw, Licensing Manager, at (402) 825-2788.

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

Executed On

9/14/16
(Date)

Sincerely,



Oscar A. Limpias
Vice President - Nuclear and
Chief Nuclear Officer

/bk

Enclosure: Cooper Nuclear Station - Spent Fuel Pool Evaluation for Fukushima R2.1

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cc: Regional Administrator, w/ enclosure
USNRC - Region IV

Director, w/ enclosure
USNRC - Office of Nuclear Reactor Regulation

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

Senior Resident Inspector, w/ enclosure
USNRC - CNS

CNS Records, w/ enclosure


NPG Distribution, w/o enclosure

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Enclosure

ENCLOSURE

Cooper Nuclear Station - Spent Fuel Pool Evaluation for Fukushima R2.1

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ATTACHMENT 9.1

ENGINEERING REPORT COVER SHEET & INSTRUCTIONS

SHEET 1 OF 2

Engineering Report No. ER 2016-029 Rev 0
Page 1 of 7

Engineering Report Cover Sheet

Engineering Report Title:
Spent Fuel Pool Evaluation for Fukushima R2.1

Engineering Report Type: (3)

New ☒ Revision ☐ Cancelled ☐ Superseded ☐
Superseded by: _____

(6)
ECR No. NA EC No. EC 16-039

(4) Report Origin: ☐ CNS ☒ Vendor
Vendor Document No.: 16C4384-RPT-003

(5) Quality-Related: ☐ Yes ☒ No

Prepared by: *Derek Helmick* Date: 8/1/2016
Responsible Engineer (Print Name/Sign)

Design Verified: N/A Date: _____
Design Verifier (if required) (Print Name/Sign)

Reviewed by: *Peter Breglio* Date: 8/2/2016
Reviewer (Print Name/Sign)

Approved by: *Marshall Van Winkle* Date: 8-4-16
Supervisor / Manager (Print Name/Sign)




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Revision	Record of Revision
0	Initial issue.

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Scope and Objective

In responding to the Fukushima Near-Term Task Force Recommendation 2.1 Seismic; Cooper Nuclear Station (CNS) contracted Stevenson & Associates (S&A) as a subject matter expert to develop the Spent Fuel Pool Evaluation Report in accordance with Electrical Power Research Institute (EPRI) "Seismic Evaluation Guidance: Spent Fuel Pool Integrity Evaluation" (Reference 4).

This Engineering Report will review and accept the Spent Fuel Pool Evaluation Report prepared by Stevenson & Associates.

Design Inputs

Design Inputs are stated in the body of S&A Report.

Assumptions


None not stated in the body of the vendor report.

Detailed Discussion

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued a Request for Information per 10 CFR 50.54(f) (Reference 1) to all power reactor licensees. Enclosure 1, Item (9) of the 50.54(f) letter requested addressees to provide limited scope spent fuel pool (SFP) evaluations. By letter dated October 27, 2015 (Reference 2), the NRC transmitted final seismic information request tables which identified that Cooper Nuclear Station is to conduct a limited scope SFP Evaluation. By Reference 3, Nuclear Energy Institute (NEI) submitted an Electric Power Research Institute (EPRI) report entitled, Seismic Evaluation Guidance Spent Fuel Pool Integrity Evaluation (EPRI 3002007148) (Reference 4) for NRC review and endorsement. NRC endorsement was provided by Reference 5.

EPRI 3002007148 provides criteria for evaluating the seismic adequacy of a SFP to the reevaluated ground motion response spectrum (GMRS) hazard levels. This report supplements the guidance in the Seismic Evaluation Guidance, Screening, Prioritization and Implementation Details (SPID) (Reference 8), for plants where the GMRS peak spectral acceleration is less than or equal to 0.8g. Section 3.3 of EPRI 3002007148 lists the parameters to be verified to confirm that the results of the report are applicable to Cooper Nuclear Station, and that the SFP is seismically adequate in accordance with NTF 2.1 Seismic evaluation criteria.

The evaluation performed in Section 5 of the vendor report (Attachment 1) provides the data for Cooper Nuclear Station that confirms applicability of the EPRI 3002007148 criteria, confirms that the SFP is seismically adequate, and provides the requested information in


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response to Item (9) of the 50.54 (f) letter associated with NTTF Recommendation 2.1 Seismic evaluation criteria.

Conclusions and Recommendations


The Cooper Nuclear Station SFP in its current configuration is seismically adequate based on all criteria identified in Section 3.3 of Reference 4 being satisfied per the requirements of the guidance. The methodology presented in the guidance has been accepted by the NRC per Reference 5. No vulnerabilities have been identified.

Stevenson and Associates Report 16C4384-RPT-003 is acceptable for use at CNS.

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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 ADAMS Accession Number ML12053A340 (Letter) ML12056A046 (Pkg)
- 2 NRC Letter, "Final Determination of Licensee Seismic Probabilistic Risk Assessments Under the Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendation 2.1 "Seismic" of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident", dated October 27, 2015, ADAMS Accession Number ML15194A015
- 3 NEI Letter, "Request for Endorsement of Seismic Evaluation Guidance: Spent Fuel Pool Integrity Evaluation (EPRI 3002007148)", dated February 23, 2016, ADAMS Accession Number ML16055A017
- 4 EPRI 3002007148, "Seismic Evaluation Guidance: Spent Fuel Pool Integrity Evaluation", February 2016
- 5 NRC Letter, "Endorsement of Electric Power Research Institute Report 3002007148, *Seismic Evaluation Guidance: Spent Fuel Pool Integrity Evaluation*", dated March 17, 2016, ADAMS Accession Number ML15350A158
- 6 Seismic Hazard Evaluation and Screening Report for Cooper Nuclear Station, March 31, 2014, ADAMS Accession Number ML14094A042
- 7 Cooper Nuclear Station - Staff Assessment of Information provided Pursuant to Title 10 of the Code of Federal Regulations Part 50, Section 50.54(f), Seismic Hazard Reevaluations for Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima DAI-ICHI Accident (TAC NO. MF3734), dated September 8, 2015, ADAMS Accession Number ML15240A030
- 8 EPRI 1025287, "Seismic Evaluation Guidance, Screening, Prioritization and Implementation Details [SPID] for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic", February 2013
- 9 Cooper Nuclear Station, "Updated Safety Analysis Report", December 14, 2015
- 10 Cooper Nuclear Station drawings:
 - 2030 Sh. 1 Rev. N33, Flow Diagram – Fuel Pool Cooling and Clean-Up System
 - 2038 Sh. 1 Rev. N54, Flow Diagram – Reactor Building Floor & Roof Drain Systems
 - 4228 Rev. N01, Structural – Reactor Building – Fuel Storage Pool Plan & Elevations
 - 4230 Sh. 1 Rev. 14 Structural – Reactor Building – Misc. Pool Sections and Dets.
 - 2706-1 Rev. N05, 8" FC-1S to Fuel Storage Pool
 - 2707-6 Rev. 8, 4" FC-2 to Skimmer Surge Tank 1-A From Fuel Storage Pool
 - 2707-7 Rev. 9, 4" FC-2 From Fuel Storage Pool to Skimmer Surge Tank 1-B
 - X2709-210 Rev. 1, FDR-2 Radioactive Floor Drains
 - 2066 Rev. N05, General Arrangement – Reactor Building – Section B-B
- 11 CED 6036741, Reliable Spent Fuel Pool Level Instrumentation

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Attachments

- 1 Stevenson & Associates Report 16C4384-RPT-003: Spent Fuel Pool Evaluation for Fukushima R2.1