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May 6, 2020

AEP-NRC-2020-28
10 CFR 72.48

Docket Nos.: 50-315
50-316

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

SUBJECT: Donald C. Cook Nuclear Plant Units 1 and 2, 10 CFR 72.48(d)(2) Summary Report
of 10 CFR 72.48 Evaluations

Dear Sir or Madam:

Indiana Michigan Power Company, the licensee for Donald C. Cook Nuclear Plant (CNP) Units 1 and 2, is providing as the enclosure to this letter, a summary report of completed changes, tests, and experiments, in accordance with the requirements of 10 CFR 72.48, "Changes, tests, and experiments," Paragraph (d)(2). There were two 10 CFR 72.48 evaluations completed for CNP during the time period of June 1, 2018 through May 31, 2020. Should you have any questions, please contact me at (269) 466-2649.

The enclosure to this letter contains the summaries of the evaluations performed during the reporting period.

There are no regulatory commitments contained in this submittal.

Sincerely,

A handwritten signature in black ink, appearing to read "M. K. Scarpello".

Michael K. Scarpello
Regulatory Affairs Director

MDS/kmh

TE47
NRR

Enclosure: 10 CFR 72.48(d)(2) Summary Report of 10 CFR 72.48 Evaluations

c: R. J. Ancona – MPSC
EGLE – RMD/RPS
J. B. Giessner – NRC Region, III
NRC Resident Inspector
S. P. Wall – NRC Washington, D.C.
A. J. Williamson – AEP Ft. Wayne, w/o enclosures

Enclosure to AEP-NRC-2020-28
10 CFR 72.48(d)(2) Summary Report of 10 CFR 72.48 Evaluations

Evaluation 2018-0139-02, dated 06/18/2018

Activity Description: HI-2177676, Revision 1, "Thermal Evaluation of Shielding Package around the HI-TRAC at DC Cook," September 14, 2017

In 2018, the Donald C. Cook Nuclear Plant (CNP) Dry Cask Loading Campaign 3 employed casks approved for storage of spent fuel as specified in Certificate of Compliance Number 1014 (CoC 1014), Amendment 9, Revision 1, and described in the corresponding Holtec Final Safety Analysis Report (FSAR), Revision 13. During the campaign, Indiana Michigan Power Company (I&M), the licensee for CNP Units 1 and 2, installed temporary shielding around the cask and the HI-TRAC to reduce radiation exposure to workers during certain short term multi-purpose canister (MPC) loading operations. The impact of the temporary shielding used was not considered in the Holtec FSAR analyses for heat removal. This necessitated a supplemental analysis (which employed suitable extensions of the Nuclear Regulatory Commission (NRC) approved thermal model) and restrictions on individual cask heat loads, shielding materials, and the shielding configuration. It was also necessary that the maximum allowed three day averaged ambient temperature for loading operations be reduced from 110 degree Fahrenheit (°F) (as limited by CoC 1014, Appendix B, 3.4 8.b) to 90°F.

It was determined that the use of the temporary shielding adversely affected the FSAR described design function of maintaining fuel cladding temperature < 400 degree Celsius (°C) because the shield package had a negative impact on the heat transfer out of the canister (i.e., heat transfer was less efficient).

Summary of the Evaluation:

HI-2177676, Revision 1, concluded that, during the use of the temporary shielding throughout the applicable MPC loading operations, with the restrictions and lower allowed ambient temperature described in the Activity Description above, the design function of maintaining fuel cladding temperature < 400°C would continue to be accomplished. The activity would involve no increase in the frequency of any accidents previously evaluated in the FSAR, or increase the likelihood of a malfunction of a system, structure, component (SSC) important-to-safety. There would be no impact of the activity upon the radiological consequences of any accident or malfunction of an SSC important-to-safety previously evaluated in the FSAR. Neither a new type of accident, nor a malfunction of an SSC important-to-safety with a different result than any previously evaluated in the FSAR was created by the activity. No change to, or exceedance of, a design basis limit for a fission product barrier would result from the activity. Finally, the activity involved no new method of evaluation used in establishing a design basis or in a safety analysis. Therefore, it was concluded that the activity could be implemented without prior NRC approval.

Evaluation 2019-0321-00, dated 02/19/2020

Activity Description: HI-2177975, Revision 0, "Thermal Evaluation of Work Platform Around HI-TRAC with MPCs Loaded Under Campaigns 1 and 2 at DC Cook," May 8, 2018

During CNP ISFSI Campaign 3, it was recognized that the impact of the use of temporary radiation shielding upon heat transfer out of the canisters during earlier campaigns had not been addressed. CNP Dry Cask Storage Campaigns in 2012 (Campaign 1) and 2015 (Campaign 2) employed casks approved for storage of spent fuel as specified in CoC 1014, Amendment 5, and described in the corresponding Holtec FSAR, Revision 7. During each campaign, I&M installed temporary shielding around the cask and the HI-TRAC to reduce radiation exposure to workers during certain short term loading operations. The thermal analysis in Revision 7 of the Holtec FSAR assumed that the airflow around the HI-TRAC with an MPC loaded with fuel was not hindered in any way that could affect radiation heat transfer from the cask. Because the impacts of the shielding packages used in Campaigns 1 and 2 are not considered in the Holtec FSAR, Revision 7, analyses for heat removal, HI-2177975, Revision 0, reflecting the impacts of the temporary shielding, and employing a more current analytical method, was performed in 2018 to demonstrate the safety of the loaded canisters at the time of loading. Condition Reports identifying the need for the thermal evaluation and a supporting 10 CFR 72.48 review were entered into the CNP corrective action program.

It was determined in the 10 CFR 72.48 screen that crediting a thermal evaluation (HI-2177975, Revision 0), that employed inputs which accounted for the shield package in place, constituted a change to an SSC that adversely affected the FSAR described design function of maintaining steady state peak fuel cladding temperature < 570°C because the shield package had a negative impact on the heat transfer (i.e., heat transfer was less efficient) out of the canister. In addition, the screen determined that the use of a more current analytical method (i.e., the thermal model from the later Holtec FSAR, Revision 13), in a thermal evaluation of short term operations performed subject to Holtec FSAR, Revision 7, involved a change to an FSAR described method of evaluation used in establishing a design basis or in a safety analysis.

Summary of the Evaluation:

Evaluation 2019-0321-00 concluded that, with the use of actual loading conditions (such as actual fuel heat load, MPC backfill temperature and pressure data, an ambient temperature of 90°F, and as-built shielding configurations), the FSAR described design function of maintaining steady state peak fuel cladding temperature < 570°C was accomplished for Campaigns 1 and 2 with the temporary shielding packages in place. Crediting HI-2177975, Revision 0, involved no increase in the frequency of any accidents previously evaluated in the FSAR, and no increase in the likelihood of a malfunction of an SSC important-to-safety. There was no impact of the activity upon the radiological consequences of any accident or malfunction of an SSC important-to-safety previously evaluated in the FSAR. Neither was a new type of accident, or a malfunction of an SSC important-to-safety with a different result than any previously evaluated in the FSAR created by the activity. No change to, or exceedance of, a design basis limit for a

fission product barrier would result from the activity. Finally, it was determined that the use of the more sophisticated three dimensional thermal models in the engineering evaluation was consistent with the NRC approved methodology in Holtec FSAR, Revision 13, and its use consistent with the intended purpose, therefore, the activity did not involve a departure from the method of evaluation described in the FSAR, Revision 7. Therefore, it was concluded that the performance of the activity did not require prior NRC approval.