INDIANA MICHIGAN POWER
An AEP Company
BOUNDLESS ENERGY™

Indiana Michigan Power
Cook Nuclear Plant
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April 29, 2021

AEP-NRC-2021-23
10 CFR 50.73

Docket No.: 50-315

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

Donald C. Cook Nuclear Plant Unit 1
LICENSEE EVENT REPORT 315/2021-001-00
Condition Prohibited by Technical Specifications Due to Loss of Train B Reserve Power

In accordance with 10 CFR 50.73, Licensee Event Report (LER) System, Indiana Michigan Power Company, the licensee for Donald C. Cook Nuclear Plant Unit 1 and Unit 2, is submitting as an enclosure to this letter the following report:

LER 315/2021-001-00: Condition Prohibited by Technical Specifications Due to Loss of Train B Reserve Power

There are no commitments contained in this submittal.

Should you have any questions, please contact Mr. Michael K. Scarpello, Regulatory Affairs Director, at (269) 466-2649.

Sincerely,

Q. Shane Lies
Site Vice President

SJM/mll

Enclosure: Licensee Event Report 315/2021-001-00: Condition Prohibited by Technical Specifications Due to Loss of Train B Reserve Power

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

Enclosure to AEP-NRC-2021-23

Licensee Event Report 315/2021-001-00: Condition Prohibited by Technical Specifications Due to Loss of Train B Reserve Power

NRC FORM 366 (08-2020) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

(See Page 3 for required number of digits/characters for each block)
(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2023

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Library, and Information Collections Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk ail: oira_submission@omb.eop.gov. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

1. Facility Name	2. Docket Number	3. Page
Donald C. Cook Nuclear Plant Unit 1	05000315	1 OF 4

4. Title

Condition Prohibited by Technical Specifications Due to Loss of Train B Reserve Power

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Revision No.	Month	Day	Year	Facility Name	Docket Number
02	26	2021	2021	001	00	04	29	2021	DC Cook Nuclear Plant Unit 2	05000316
									Facility Name	Docket Number 05000

9. Operating Mode	10. Power Level
1	100

11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: *(Check all that apply)*

10 CFR Part 20	☐ 20.2203(a)(2)(vi)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(A)	**10 CFR Part 73**
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.69(g)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(4)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(i)	**10 CFR Part 21**	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(1)(i)
☐ 20.2203(a)(2)(ii)	☐ 21.2(c)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(i)
☐ 20.2203(a)(2)(iii)	**10 CFR Part 50**	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)	☐ 73.77(a)(2)(ii)
☐ 20.2203(a)(2)(iv)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)	
☐ 20.2203(a)(2)(v)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)	

☐ **OTHER** (Specify here, in abstract, or NRC 366A).

12. Licensee Contact for this LER

Licensee Contact	Phone Number (Include area code)
Michael K. Scarpello, Regulatory Affairs Director	(269) 466-2649

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to IRIS	Cause	System	Component	Manufacturer	Reportable to IRIS
B	EA	BU	Powell	Y					

14. Supplemental Report Expected		15. Expected Submission Date	Month	Day	Year
☒ No	☐ Yes (If yes, complete 15. Expected Submission Date)				

16. Abstract (Limit to 1560 spaces, i.e., approximately 15 single-spaced typewritten lines)

On February 26, 2021, Donald C. Cook Nuclear Plant Unit 1 and Unit 2 were operating at 100 percent power when an electrical fault occurred between the high side of the Reserve Feed Auxiliary Transformer (RAT) and associated breaker on the Train B Reserve Feed for both units. This caused the circuit breakers to open, removing access to one of the two immediate offsite power sources, and Unit 1 and Unit 2 Train B Reserve Feed was declared inoperable. The Train A Reserve Feed offsite power source, all four Emergency Diesel Generators, and the backup offsite power source remained fully functional.

Field investigations resulted in finding a failed bus structure in a loop feed enclosure, which supplied both units. Due to the extensive troubleshooting time required to identify the cause of the problem, enforcement discretion was requested to allow exceeding the 72 hour completion time of Required Action A.3 of Technical Specification 3.8.1 AC Sources – Operating, by an additional 48 hours to complete repairs. Enforcement discretion was granted and repairs were completed on March 2, 2021, within the period of enforcement discretion. The cause of the issue was due to insulator contamination and moisture inside the enclosure. Heaters were installed to prevent condensation of moisture inside the enclosure.

The event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B), Operation or Condition Prohibited by Technical Specifications.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Donald C. Cook Nuclear Plant Unit 1	05000315	2021	- 001	- 00

NARRATIVE

EVENT DESCRIPTION

On February 26, 2021, at 1008, Donald C. Cook Nuclear Plant Unit 1 and Unit 2 were operating at 100 percent power when multiple alarms indicated in both control rooms that 1-TR101AB and 2-TR201AB, Units 1 and 2 Train B Reserve Feed Auxiliary Transformers (RATs) [EA][XFMR] electrically isolated and de-energized. Operators entered alarm response procedures and suspected the condition was due to an electrical transient. Operations staff declared Train B Reserve Feed inoperable for both units, entering required actions for Limiting Conditions of Operation (LCO) 3.8.1 AC Sources – Operating, Condition A and Condition D. The Train A Reserve Feed offsite power source, all four Emergency Diesel Generators [EK][DG], and the backup offsite power source remained fully functional. Essential Service Water cross-tie valves [BI][V] were closed by operators at 1154, exiting LCO 3.8.1 AC Sources – Operating, Condition D.

Initial investigations by station staff found no external visual abnormalities near either unit's RATs or in the switchyard. Transformer 1-TR101AB and 2-TR201AB Phase 1 Lead Differential Relay 12-87-TABLD-1 [EA][87] was found tripped.

A clearance for reserve feed power was implemented to facilitate additional testing and inspections. Oil samples were obtained and tested from the RATs and indicated satisfactory results. Tan Delta testing was performed of the Phase A cables from the switchyard to the 12AB Loop Feed Enclosure and from the 12AB Loop Feed Enclosure to the RATs with satisfactory results. The 12AB Loop Feed Enclosure upper bus was megger tested with unsatisfactory results. A borescope visual inspection of the upper bus duct was performed and indicated physical evidence of an electrical fault. After removing the top of the upper bus duct, a visual inspection of the inside portion revealed signs of a phase to ground fault and indications of arc tracking along the insulating boots. Additionally, there was evidence of insulator contamination and moisture within the enclosure.

Due to the extensive troubleshooting time required to identify the cause of the problem and the scope of repairs, enforcement discretion was requested to allow exceeding the 72 hour completion time of Required Action A.3 of Technical Specification 3.8.1 AC Sources – Operating, by an additional 48 hours to complete repairs. Without enforcement discretion, Unit 1 and Unit 2 were required to be in MODE 3 by 0408 on March 1, 2021, and Mode 5 by 1008 on March 2, 2021. Enforcement discretion (EA-21-04; ADAMS Accession Number: ML21063A568) was granted per phone conversation, for an additional 48 hours on February 28, 2021, which would expire on March 3, 2021 at 1008.

Temporary heaters were installed at the 12AB and 12CD Loop Feed Enclosures, to prevent condensation of moisture inside of the enclosures. The faulted bus was splice-repaired, successfully post-maintenance tested, and the loop feed enclosure was re-terminated. Power was restored and Train B Reserve Feed was declared operable and exited the LCO on March 2, 2021, at 0522 within the period of enforcement discretion.

The event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B), Operation or Condition Prohibited by Technical Specifications, due to exceeding the 72 hour completion time of Required Action A.3 of Technical Specification 3.8.1 AC Sources – Operating.

NARRATIVE

CAUSE OF THE EVENT

The loss of both Unit 1 and Unit 2 Train B Reserve Feed from an electrical fault was due to contamination and moisture inside 12AB Loop Feed Enclosure.

A causal evaluation is ongoing at the time of this report. A supplement to this LER will be provided if the results of the evaluation significantly change the perception of the course, significance, implications, or consequences of the event or if it results in substantial changes in corrective actions planned.

CORRECTIVE ACTIONS

Prompt Corrective Actions

In addition to completing repairs to the damaged electrical bus, temporary heaters were installed at the 12AB and 12CD Loop Feed Enclosures, to prevent moisture condensation inside of the enclosures.

Planned Corrective Actions

Install permanent heaters in 12AB and 12CD Loop Feed Enclosures.

Implement revised preventive maintenance frequency and scope of 12AB and 12CD Loop Feed Enclosures.

ASSESSMENT OF SAFETY CONSEQUENCES

NUCLEAR SAFETY

There was no actual nuclear safety hazards resulting from the loss of Unit 1 and Unit 2 Train B Reserve Feed. The Train A Reserve Feed offsite power source, all four Emergency Diesel Generators, and the backup offsite power source remained fully functional during the event.

INDUSTRIAL SAFETY

There was no actual or potential industrial safety hazard resulting from the event.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Donald C. Cook Nuclear Plant Unit 1	05000315	2021	- 001	- 00

NARRATIVE

PROBABILISTIC RISK ASSESSMENT

A PRA was performed for a fault current observed between high side of the RAT and associated breaker on the Train B Reserve Feed for both Unit 1 and Unit 2. This condition caused the associated circuit breakers to open, removing access to the Train B Reserve Feed offsite power sources at both units. During the event, neither unit tripped, so, the safety impact from this event results only from having one train of reserve feed unavailable for each unit for the period the event persisted. The duration of the event was approximately 91.25 hours. A measure of the overall safety impact was estimated using CNP's internal events and Fire PRA models. Comparing the model results to the thresholds in IMC 0609 showed that the impact of the event was of Very Low Safety Significance for both Unit 1 and Unit 2.

PREVIOUS SIMILAR EVENTS

A review of Licensee Event Reports for the past five years found no events due to similar causes.