INDIANA MICHIGAN POWER®
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Indiana Michigan Power
Cook Nuclear Plant
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August 12, 2015

AEP-NRC-2015-77
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 315/2015-003-00
Main Feed Pump Technical Specification 3.3.2 Violation

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, is submitting, as an enclosure to this letter, the following report:

LER 315/2015-003-00: "Main Feed Pump Technical Specification 3.3.2 Violation"

There are no commitments contained in this submittal.

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

Sincerely,

Joel P. Gebbie
Site Vice President

JEN/ams

Enclosure

c: A. W. Dietrich – NRC Washington, DC
J. T. King - MPSC
MDEQ – RMD/RPS
NRC Resident Inspector
C. D. Pederson – NRC Region III
A. J. Williamson - AEP Ft. Wayne

IE22
NRR

Enclosure to AEP-NRC-2015-77
LER 315/2015-003-00

NRC FORM 366 (02-2014) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 01/31/2017

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, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

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4. TITLE

Main Feed Pump Technical Specification 3.3.2 Violation

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
										05000
06	18	2015	2015	- 003	- 00	08	12	2015	FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*			
5	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
10. POWER LEVEL	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
000	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
	☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT	TELEPHONE NUMBER *(Include Area Code)*
Michael K. Scarpello, Regulatory Affairs Manager	(269) 466-2649

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO				

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On June 18, 2015, a review based on U. S. Nuclear Regulatory Commission (NRC) Information Notice (IN) 2015-05, "Inoperability of Auxiliary and Emergency Feedwater Auto-Start Circuits on Loss of Main Feedwater," identified that Unit 1 is susceptible to the subject of the IN. Limiting Condition for Operation (LCO) 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," does not have a Condition with a provision for two required channels to be inoperable at the same time, which is the case for normal startup and shutdown of the Unit 1 Main Feedwater (MFW) pumps and some types of maintenance and testing.

An evaluation concluded that the Unit 1 MFW system has been operated in a manner such that the automatic initiation of Auxiliary Feedwater on loss of all MFW pumps was disabled on multiple occasions over the past three years. This is contrary to U1 LCO 3.3.2, requirements.

This condition is a legacy discrepancy between Unit 1 Technical Specifications (TS) and the Unit 1 MFW pump design existing since the initial operation of Unit 1.

To correct this condition, the NRC has approved an amendment to Unit 1 LCO 3.3.2 which aligns the plant design and TS requirements.

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NARRATIVE

INTRODUCTION

On June 18, 2015, Donald C. Cook Nuclear Plant Unit 1 was in a forced maintenance outage for repairs to the U1 AB Emergency Diesel Generator [EK]. A review of U. S. Nuclear Regulatory Commission (NRC) Information Notice (IN) 2015-05, "Inoperability of Auxiliary and Emergency Feedwater Auto-Start Circuits on Loss of Main Feedwater," identified that Unit 1 is susceptible to the subject of the IN. Technical Specifications (TS) Limiting Condition for Operation (LCO) 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," [JE] does not have a Condition with a provision for two required channels to be inoperable at the same time, which is the case for normal startup, shutdown, and some types of maintenance and testing of the Unit 1 Main Feedwater (MFW) pumps [JB][P].

An evaluation concluded that the Unit 1 MFW system has been operated in a manner such that the automatic initiation of Auxiliary Feedwater (AFW) [BA] on loss of all MFW pumps was unavailable on multiple occasions over the past three years. This is contrary to U1 LCO 3.3.2, requirements, and is being reported pursuant to 10 CFR 50.73(a)(2)(i)(B), Operation or Condition Prohibited by Technical Specifications. Additionally, the unrecognized inoperability of both MFW pump trip channels should have resulted in entry into LCO 3.0.3 to remove the unit from a mode of applicability. Not performing the actions in the time required by LCO 3.0.3 is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B), Operation or Condition Prohibited by Technical Specifications.

EVENT DESCRIPTION

Following NRC IN 2015-15, "Inoperability of Auxiliary and Emergency Feedwater Auto-Start Circuits on Loss of Main Feedwater," review for applicability resulted in the determination that Unit 1 is susceptible to the subject of the IN. Analysis of Unit 1 operation for the past three years identified instances when the auto-start of AFW was unavailable due to MFW operation.

The following events and times were obtained through a review of unit de-rate logs and digital MFW pump control logs. Events were developed by trending MFW pump stop valve [JK] [V] position and evaluating when the MFW pump turbine stop valves were open with the associated MFW pump not feeding forward.

Events

October 29, 2012	Power reduction to 54 percent to remove East Main Feed Pump from service due to high vibrations. AFW auto-initiation for the East Main Feed Pump was bypassed when pump was removed from service while not feeding forward.
November 3, 2012	Restoration of East Main Feed Pump following power reduction for high vibrations. AFW auto-initiation for the East Main Feed Pump was bypassed when pump was placed in service while not feeding forward.
March 26, 2013	Downpower for the U1C25 Refueling Outage. AFW auto-initiation for the East Main Feed Pump was bypassed when pump was removed from service while not feeding forward.

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May 19, 2013	Restart following the U1C25 refueling Outage. AFW auto-initiation for the East Main Feed Pump was bypassed when pump was placed in service while not feeding forward.
May 22, 2013	East Main Feed Pump was being returned to service following a down power for repairs. AFW auto-initiation for the East Main Feed Pump was bypassed when pump was placed in service while not feeding forward.
December 15, 2013	Following a unit downpower the East Main Feed Pump was being returned to service when AFW auto-initiation for the East Main Feed Pump was bypassed when the pump was placed in service while not feeding forward.
September 20, 2014	Downpower for the U1C26 Refueling Outage. AFW auto-initiation for the East Main Feed Pump was bypassed when pump was removed from service while not feeding forward.
October 24, 2014	Restart following the U1C26 refueling Outage. AFW auto-initiation for the East Main Feed Pump was bypassed when pump was placed in service while not feeding forward.
November 3, 2014	Restart following unit trip. AFW auto-initiation for the East Main Feed Pump was bypassed when pump was placed in service while not feeding forward.

EVENT ANALYSIS

The trip of both MFW pumps (feed pump turbine stop valve limit switches signaling the trip) auto starting AFW is required by TS. The automatic initiation of the AFW system does not credit the MFW pump trip function for design basis accidents and transients that result in a loss of MFW and is not a safety function. The MFW pump trip auto starting AFW is an anticipatory function.

ASSESSMENT OF SAFETY CONSEQUENCES

NUCLEAR SAFETY

The ESFAS instrumentation function 6.g is an anticipatory start signal for which no credit is taken in any safety analysis. The design basis events for which operation of the AFW system is required are the loss of all AC power to the plant auxiliaries, loss of normal feedwater, loss of electrical load, and small break loss of coolant accident. The analyses presented in Donald C. Cook Nuclear Plant Updated Final Safety Analysis Report, Loss of Normal Feedwater and Loss of All AC Power to the Plant Auxiliaries, state that the Steam Generator (SG) [SG] water level low-low AFW start signal is specifically credited in the analyses. Since the primary success path for accident mitigation is provided by SG low-low level signals, loss of both anticipatory trip channels does not place the plant in an unanalyzed condition.

INDUSTRIAL SAFETY

There was no actual or potential industrial safety hazard resulting from the inoperable AFW Auto-Start Circuits.

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NARRATIVE

RADIOLOGICAL SAFETY

There was no actual or potential radiological safety hazard resulting from the inoperable AFW Auto-Start Circuits.

CAUSE

This is a legacy discrepancy between Unit 1 TS and the Unit 1 MFW pump design that has existed since the initial operation of Unit 1.

CORRECTIVE ACTIONS

Immediate Corrective Actions Taken

This issue was identified while Unit 1 was in Mode 5 for a forced outage, not in a mode of applicability, as such, no immediate corrective actions were required.

Corrective Actions to Preclude Repetition

To correct this condition, the NRC has approved an amendment to U1 LCO 3.3.2 which makes the plant design and TS requirements consistent. This amendment was made effective prior to Unit 1 ascending to a mode of applicability.

There are no further planned corrective actions.

PREVIOUS SIMILAR EVENTS

A review of the past three years Licensee Event Reports identified no similar events.