

**Indiana Michigan
Power Company**
500 Circle Drive
Buchanan, MI 49107 1395



May 26, 2004

AEP:NRC:2573-19

Docket No. 50-316

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

**Donald C. Cook Nuclear Plant Unit 2
LICENSEE EVENT REPORT 316/2004-001-00, AUTOMATIC RPS
ACTUATION, CAUSED BY HUMAN ERROR, WHILE MANIPULATING
REACTOR TRIP BYPASS BREAKER**

In accordance with the criteria established by 10 CFR 50.73, "Licensee Event Report System," the following report is being submitted:

LER 316/2004-001-00: "Automatic RPS Actuation, Caused by Human Error, While Manipulating Reactor Trip Bypass Breaker."

Attachment 1 identifies the commitments contained in this submittal.

Should you have any questions, please contact Mr. Toby Woods, Compliance Supervisor, at (269) 466-2798.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jensen', with a long horizontal flourish extending to the right.

Joseph N. Jensen
Site Vice President

RAJ/jen

Attachments

IE22

c: J. L. Caldwell – NRC Region III
K. D. Curry – AEP Ft. Wayne
J. T. King – MPSC
J. G. Lamb – NRC Washington DC
MDEQ – WHMD/HWRPS
NRC Resident Inspector
Records Center - INPO

ATTACHMENT 1 TO AEP:NRC:2573-19

REGULATORY COMMITMENTS

The following table identifies those actions committed to by Indiana Michigan Power Company (I&M) in this document. Any other actions discussed in this submittal represent intended or planned actions by I&M. They are described to the Nuclear Regulatory Commission (NRC) for the NRC's information and are not regulatory commitments.

Commitment	Date
Revise peer checking requirements for DB-50 racking activities to require a peer check by a qualified operator.	July 30, 2004
Post an operator aid at the DB-50 breakers in both units providing a photographic representation of the breaker, with components important to the racking activity labeled.	June 28, 2004

LICENSEE EVENT REPORT (LER)

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

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@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 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.

1. FACILITY NAME Donald C. Cook Nuclear Plant Unit 2	2. DOCKET NUMBER 05000-316	3. PAGE 1 of 4
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4. TITLE
Automatic Reactor Trip Due to RPS Actuation, While Manipulating Reactor Trip Bypass Breaker

5. EVENT DATE			6. LER NUMBER				7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER	
03	29	2004	2004	-- 001 --	00	05	26	2004	FACILITY NAME	DOCKET NUMBER	

9. OPERATING MODE	1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)								
10. POWER LEVEL	100	20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)					
		20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)					
		20.2203(a)(1)	50.36(c)(1)(i)(A)	X 50.73(a)(2)(iv)(A)	73.71(a)(4)					
		20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)					
		20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER Specify in Abstract below or in NRC Form 366A					
		20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)						
		20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)						
		20.2203(a)(2)(v)	50.73(a)(2)(i)(B)	50.73(a)(2)(vii)						
		20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)						
		20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)						

12. LICENSEE CONTACT FOR THIS LER

NAME Toby Woods, Compliance Supervisor	TELEPHONE NUMBER (Include Area Code) (269) 466-2798
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE		
YES (If Yes, complete EXPECTED SUBMISSION DATE).	X	NO				

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

On March 29, 2004, at 1404 hours, Unit 2 received an automatic actuation of the Reactor Protection System (RPS). The RPS actuation occurred while an operator was attempting to rack out the train A Reactor Trip Bypass Breaker (RTBB) during restoration from Solid State Protection System (SSPS) testing. The direct cause of the event was human error. The operator who performed the breaker manipulation incorrectly inserted the breaker racking bar, causing a momentary ground of one phase of the rod control motor-generator set 260 VAC output. This de-energized the stationary gripper coils for multiple control rods, causing them to drop into the core, resulting in a Power Range Nuclear Instrument Hi-Negative rate RPS actuation. The Auxiliary Feedwater (AFW) System automatically started and functioned as designed.

The reactor shutdown and automatic start of the AFW System was reported in accordance with 10 CFR 50.72(b)(2)(iv)(B) and 10 CFR 50.72(b)(3)(iv)(A) respectively (EN #40622).

Corrective actions included inspection and repair of the RTBB and associated indicator circuits, and verification of operator proficiency with breaker operation prior to manipulation of an RTBB in the plant.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

1. FACILITY NAME Donald C. Cook Nuclear Plant Unit 2	2. DOCKET NUMBER 05000-316	6. LER NUMBER			3. PAGE 2 of 4
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
		2004	-- 001	-- 00	

17. TEXT (If more space is required, use additional copies of NRC Form (366A))

Conditions Prior to Event

Unit 1 = 80% power
Unit 2 = 100% power

Description of Event

On March 29, 2004, at 1404 hours, Unit 2 received an automatic actuation of the Reactor Protection System (RPS) [JD]. The RPS actuation occurred while an operator was attempting to rack out the train A Reactor Trip Bypass Breaker (RTBB) [BKR] during restoration from Solid State Protection System (SSPS) [JG] testing. At the time of the trip, Unit 2 was at 100% power with systems aligned for steady state operation.

On March 29, 2004, at approximately 1200 hours, preparations were made for conduct of SSPS testing. The train A RTBB was in the closed position; however, the plant process computer did not indicate closed. SSPS testing was interrupted to investigate and correct train A RTBB closure indication.

On March 29, 2004, at approximately 1400 hours, an operator was dispatched to remove the control power fuses and rack out the train A RTBB. The operator located what he thought was the racking bar alignment pin on the left side of the breaker cubicle. With the left side of the bar inserted into the cubicle near the left pin, the operator turned his attention to the right side of the cubicle in an effort to align the right side of the bar with the alignment pin on the right side. While doing this, he moved the bar to the right, contacted an energized component and shorted one phase of the rod control motor-generator set 260 VAC output to ground. This de-energized the stationary gripper coils for multiple control rods, causing them to drop into the core, which in turn resulted in an automatic RPS actuation on Power Range Nuclear Instrument Hi-Negative rate. The Auxiliary Feedwater (AFW) System [BA] automatically started as designed and functioned correctly.

In accordance with 10 CFR 50.72(b)(2)(iv)(B) (EN #40622), the reactor shutdown was reported as a valid actuation of the reactor protection system. In accordance with 10 CFR 50.72(b)(3)(iv)(A), the automatic start of the AFW System was reported as a valid actuation of an Engineered Safety Feature System. This LER is being submitted in accordance with 10 CFR 50.73(a)(2)(iv)(A).

Cause of Event

The root cause of the trip was human error and inadequate task management. The operator incorrectly inserted the racking bar while manipulating the RTBB for testing.

Analysis of Event

A review of this event found that it was bounded by the existing accident analysis associated with unplanned reactor trips with the main condenser available. The change in risk with respect to core damage and large early release frequency due to inadvertently tripping the control rods, and subsequent plant trip, have been qualitatively assessed and judged no different than any other unplanned reactor trips with the main condenser available. This assessment is based on the following considerations:

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

1. FACILITY NAME	2. DOCKET NUMBER	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
		2004	-- 001 --	00	
Donald C. Cook Nuclear Plant Unit 2	05000-316				3 of 4

17. TEXT (If more space is required, use additional copies of NRC Form (366A))

- The automatic plant trip, due to Power Range Nuclear Instrument Hi-Negative rate, functioned properly. Automatic post-trip features also functioned dependably, with the operators taking procedurally-directed actions to control reactor coolant system T-avg following the trip. The plant and operators responded in an appropriate and timely manner, resulting in a safe and stable plant configuration.
- The inadvertent cause of the trip, due to shorting out the control rod drive power supply, does not contribute to the increased likelihood of any initiators other than transients that result in or from a reactor trip.
- Neither the human error which faulted the control rod drive power supply, or the subsequent unit trip, degraded any system used to prevent core damage, assure containment integrity, or maintain defense-in-depth and safety margins.

This event was significant with respect to industrial safety, as the incident involved unintended contact with an energized electrical circuit. This was mitigated by the use of proper personal protective equipment. Because safety systems operated as designed and no significant difficulties were experienced during the trip recovery and plant stabilization, the event had no actual nuclear safety significance, but it had potential nuclear safety significance in that the transient stressed plant components and challenged safety systems.

Corrective Actions

The following corrective actions were completed:

- The affected breaker cubicle and breaker mechanism were examined for damage. Minor electrical arc traces and a bent auxiliary contact arm were found. The bent contact arm was identified as the source of the failed plant process computer indication of breaker position. (Condition Report (CR) 04089033).
- The DB-50 breaker was replaced. (CR 04089033)

The following interim actions were initiated:

- Operations management implemented a program of direct management oversight of control room activities including monitoring of pre-job briefs, communication, peer checking quality, and confirmation that task level supervision is provided for "medium" or higher risk level tasks. (CR 04089034)
- Operators are prohibited from racking DB-50 breakers until their proficiency to properly perform the task has been verified. (CR 04089034-02)

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

1. FACILITY NAME	2. DOCKET NUMBER	6. LER NUMBER				3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Donald C. Cook Nuclear Plant Unit 2	05000-316	2004	-- 001 --	00	4 of 4	

17. TEXT (If more space is required, use additional copies of NRC Form (366A))

The following actions are planned to prevent recurrence:

- Procedures will be revised to require that racking of DB-50 breakers receive a peer check by another operator who is also qualified for this operation. The due date for this action is July 30, 2004. (CR 04089034-03)
- An operator aid will be posted at the breakers in both units providing a photographic representation of the breaker, with components important to the racking activity labeled. The due date for this action is June 28, 2004. (CR 04089034-08)

Previous Similar Events

None