Indiana Michigan
Power Company
Cook Nuclear Plant
One Cook Place
Bridgman, MI 49106
616-465-5901

January 17, 2000

United States Nuclear Regulatory Commission
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Operating License DPR-58
Docket No. 50-315

Document Control Manager:

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

LER 315/99-028-00, "ESF Actuation and Start of Emergency Diesel Generator 1CD During Transformer Maintenance".

The following commitments were identified in this submittal:

- Implement an Interface Agreement between Cook Nuclear Plant and AEP Division including assignment of responsibilities and transmission boundaries. Completion of this item is expected by February 18, 2000.

If you have any questions, please contact Mr. Robert C. Godley, Director, Regulatory Affairs, at 616/465-5901, extension 2698.

Sincerely,

A. Christopher Bakken, III
Site Vice President

/mbd
Attachment

c: J. E. Dyer, Region III
R. C. Godley
D. Hahn
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NRC Resident Inspector
Records Center, INPO

IE22

NRC Form 366 (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

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

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Cook Nuclear Plant Unit 1	05000-315	1 of 4

TITLE (4)

ESF Actuation and Start of Emergency Diesel Generator 1CD During Transformer Maintenance

EVENT DATE (5)			LER NUMBER (6)					REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER			REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
12	16	1999	1999	--	28	--	00	01	17	2000	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	-	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)	00		20.2201 (b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
			20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)
			20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
			20.2203(a)(2)(ii)		20.2203(a)(4)	X	50.73(a)(2)(iv)		OTHER
			20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below or n NRC Form 366A
			20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
M. B. Depuydt, Regulatory Compliance	616/465-5901, x1589

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

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

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

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

On December 16, 1999, at 2052 hours EST with Units 1 and 2 in a defueled condition, reserve power was lost to the Unit 1 "CD" 4kV safeguards busses due to the inadvertent actuation of a protective relay on the Unit 2 Reserve Auxiliary Transformer during a maintenance activity. This caused the start and loading of the Unit 1 CD Emergency Diesel Generator (EDG). At 0030 hours EDT on December 17, 1999, this event was reported in accordance with 10CFR50.72(b)(2)(ii), as a valid actuation of an Engineered Safety Feature. This LER is submitted in accordance with 10CFR50.73(a)(2)(iv), for "any event that resulted in an automatic actuation of any Engineered Safety Feature."

The cause of this event was inadequate ownership of the interface between Donald C. Cook Nuclear Plant (CNP) Maintenance Department and the American Electric Power (AEP) Division (transmission and distribution) personnel. Within an hour of the event Spent Fuel Pool Cooling was re-established. Offsite power was restored to the affected busses through the Unit 1 RAT, the Unit 1 CD EDG was secured by 0044 hours on December 17. A Stop Work order was issued for all AEP Division activities performed at CNP, and the transformer maintenance activity was completed under CNP Maintenance supervision. Corrective actions will involve improvements in the CNP/AEP Division interface to clarify that CNP personnel will have primary responsibility for all work performed at CNP by AEP Division personnel.

The safety significance of this event was minimal. All equipment required to function during a loss of power to a bus operated as expected, with the minor exception of a lighting transformer which failed to properly strip during the initial load shed. This did not challenge the Emergency Power System capability. Spent Fuel Pool temperature remained stable throughout this event, and the health and safety of the public was not jeopardized.

FACILITY NAME (1)	DOCKET NUMBER(2)	LER NUMBER (6)					PAGE (3)
		YEAR	SEQUENTIAL NUMBER			REVISION NUMBER	
Cook Nuclear Plant Unit 1	05000-315	1999	--	28	--	00	2 of 4

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

Conditions Prior to Event
Unit 1 was defueled

Description of Event
On December 16, 1999, at 2052 hours, the sudden pressure relay for the Unit 2 Reserve Aux Transformer (RAT) was actuated during a maintenance evolution to replace fill oil and nitrogen cover gas. Actuation of the relay caused a lockout (through the TR101CD HEA relay) of the Unit 1 Reserve Aux Transformer, which is located electrically in the same protection zone. The lockout resulted in a trip of incoming breaker 12CD, de-energizing the Unit 1 RAT, and a trip of the normal reserve feeder breakers on station service busses 1C and 1D. The subsequent loss of voltage on the safeguards busses T11C and T11D, supplied from busses 1C and 1D, resulted in the start and loading of the Unit 1 CD Emergency Diesel Generator (EDG).

The station procedure for coping with a Loss of Offsite Power was immediately entered and subsequently completed at 0044 hours on December 17, with the restoration and re-alignment of the Unit 1 RAT and the securing of the Unit 1 CD EDG. The loss of power to the Unit 1 safeguards busses caused a brief interruption of Spent Fuel Pool Cooling which was restored at 2140 hours, December 16. Spent Fuel Pool temperature remained stable throughout this event at 85 deg. F.

The Unit 2 4kV distribution system was unaffected because required electrical loads were supplied from a "backfeed" arrangement which had been necessary to allow isolation of the Unit 2 RAT for maintenance.

Required Unit 1 electrical equipment functioned as expected with the exception of a 600V Bus 11D breaker, which failed to trip during the initial load shed.

Cause of Event
The cause of this event was inadequate ownership of the interface between CNP Maintenance Department and the American Electric Power Division (transmission and distribution) personnel who perform work on CNP electrical equipment.

The event resulted from a failure to properly disable the Unit 2 RAT sudden pressure protective relay prior to conducting the maintenance activity. During the planning of this activity, both involved groups noted the requirement to disable this device. However, due to unclear lines of responsibility and inadequate work package review, neither group verified that this prerequisite activity was complete prior to beginning the transformer maintenance. As a result, during the addition of the nitrogen cover gas, a pressure transient actuated the connected relay and initiated the partial loss of offsite power.

A review of this event determined that there was no clear ownership of this overall activity, and that several opportunities to identify and disconnect the relay were missed as a result of weaknesses in the group interface. These weaknesses will be addressed as a part of the corrective actions for this report.

A previous opportunity to resolve the lack of interface with Division transmission and distribution personnel occurred in July 1999. During the energization of a temporary transformer to supply power to trailers near the Site Engineering Service Building outside the protected area, a 12KV line sectionalizer was tripped. The subsequent power outage resulted in the loss of Supplemental Containment Cooling units for both Unit 1 and Unit 2, but was not reportable under 10CFR50.72 or 50.73. The corrective actions for the July event were similar to those that will be implemented for this event, in that the oversight of AEP Division personnel was determined to be in need of improvement. However, the improvements made to the interface following the July event resulted in a level of involvement by CNP Supervision which was insufficient to preclude further occurrences. The corrective actions created from the current event will result in a significantly higher level of ownership and will place responsibility for the overall activities directly with CNP Electrical Maintenance Management.

FACILITY NAME (1)	DOCKET NUMBER(2)	LER NUMBER (6)					PAGE (3)
		YEAR	SEQUENTIAL NUMBER			REVISION NUMBER	
Cook Nuclear Plant Unit 1	05000-315	1999	--	28	--	00	3 of 4

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

Analysis of Event

The automatic responses to this event were correct and in accordance with plant design. The actuation of the sudden pressure relay caused the lockout of the RAT bus segment and resulted in the loss of offsite supply to the Unit 1 CD station service and safeguards busses. Upon operation of the undervoltage relays on the T11C and T11D (CD) safeguards busses, load shed and starting of the Unit 1 CD EDG occurred. The CD EDG output breakers to both affected CD safeguards busses closed as designed, re-energizing the CD busses and beginning load sequencing. A summary of operations that outlines the expected and actual sequence of events is provided.

The trip of the operating Unit 1 Spent Fuel Pool Cooling (SFPC) pump which had been supplied from 600V bus 11C, connected to 4kV bus T11C, did not result in an increase in pool temperature. This was due to the low level of decay heat present. The Unit 2 SFPC pump was started at 2140 hours and cooling promptly restored. Pool temperature remained stable throughout this event at approximately 85 deg. F.

Summary of Equipment Operations During 12/16/99 Event

Expected	Actual
Nitrogen addition causes pressure transient in Unit 2 RAT	Event Initiator
Sudden pressure detected	As expected
Operation of T101CD and T201CD Lockout relays	As expected
Tripping of 34kV incoming CB 12CD	As expected
Tripping of 4kV CBs 1C4 and 1D3	As expected
Operation of UV relays on T11C and T11D Safeguards busses	As expected
Load shed and start of Unit 1 Emergency Diesel Generator CD	As expected*
Auto loading of Unit 1 CD Safeguards busses	As expected: Auto start of the following pumps- East Component Cooling Water East Essential Service Water North Non-essential Service Water

The Motor Driven Auxiliary Feedwater pumps were removed from service and, therefore, did not auto-start during the LOOP sequence.

*The only unexpected response was the performance of 600V Bus 11D breaker 1-11D3 which failed to trip during the initial load shed. This breaker supplies the Unit 1 Containment Lighting transformer and is a relatively small load on the safeguards distribution system. Its failure to trip properly did not challenge the capability of the CD EDG to re-energize or maintain the required loads. As such, this condition did not have a significant impact on EDG performance and, therefore, plant safeguards effectiveness during this event.

The safety significance of this event was minimal and the health and safety of the public was never jeopardized.

Corrective Actions

Within an hour of the event Spent Fuel Pool Cooling was re-established. Offsite power was restored to the affected busses through the Unit 1 RAT, and the Unit 1 CD EDG was secured by 0044 hours on December 17. A Stop Work order was issued for all AEP Division activities performed at the Cook Plant and the Unit 2 RAT maintenance activity was completed under CNP Maintenance Supervision.

FACILITY NAME (1)	DOCKET NUMBER(2)	LER NUMBER (6)					PAGE (3)
		YEAR	SEQUENTIAL NUMBER			REVISION NUMBER	
Cook Nuclear Plant Unit 1	05000-315	1999	--	28	--	00	4 of 4

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Corrective actions will involve improvements in the CNP/AEP Division interface to clarify responsibilities and to strengthen the work review process. The designation of a CNP Supervisor as single-point of contact for activities involving the AEP Division at CNP has been completed. This single-point of contact will be the overall owner of all AEP Division activities performed at CNP and will be responsible for all aspects of job planning, establishment of required equipment clearances and job performance oversight. This will address the issue of interface infrastructure and clarify that CNP personnel will have primary responsibility for all work performed at CNP by AEP Division personnel. Completion is expected by February, 18, 2000.

The circuit breaker, which failed to open on the load shed signal, will be refurbished to ensure proper future operation.

Previous Similar Events
315/98-040-00