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FACIL:50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315
AUTH.NAME AUTHOR AFFILIATION
WEBER,G.A. Indiana Michigan Power Co. (formerly Indiana & Michigan Ele
BLIND,A.A. Indiana Michigan Power Co. (formerly Indiana & Michigan Ele
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 92-002-01:on 920210,AB EDG tripped on overspeed while starting for routine operability test.Caused by sluggish governor operation.Design Change has been initiated to modify ventiliation supply damper linkage.W/920929 ltr.

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A0-4

Indiana Michigan
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INDIANA
MICHIGAN
POWER

September 29, 1992

United States Nuclear Regulatory Commission
Document Control Desk
Rockville, Maryland 20852

Operating Licenses 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:

92-002-01

Sincerely,

A. A. Blind
Plant Manager

/sb

Attachment

c: D. H. Williams, Jr.
A. B. Davis, Region III
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R. F. Kroeger
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NRC FORM 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92
ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
D. C. COOK NUCLEAR PLANT - UNIT 1	0 5 0 0 0 3 1 5	1 OF 0 4

TITLE (4)
INOPERABLE EMERGENCY DIESEL GENERATOR CAUSED BY LOW GOVERNOR OIL TEMPERATURE

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 NAMES	DOCKET NUMBER(S)
0 2	0 6	9 2	9 2	0 0 2	0 1	0 9	2 9	9 2	COOK PLANT - UNIT 2	0 5 0 0 0 3 1 6
										0 5 0 0 0

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
1	1 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
G. A. WEBER - PLANT ENGINEERING SUPERINTENDENT	AREA CODE 6 1 6 4 6 5 - 5 9 0 1

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
A	E K	D G	W 2 9 0	Y					

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 fifteen single space typewritten lines) (16)

This updated report is being submitted to provide additional information regarding the event, cause, and corrective action descriptions.

On February 10, 1992, with Unit 1 in Mode 1 (power operation) at 100 percent thermal power, the AB Emergency Diesel Generator (EDG) tripped on overspeed while starting for a routine operability test. The EDG could have been inoperable since February 6, 1992, when the supply ventilation damper malfunctioned and was de-energized in the open position to ensure adequate cooling for the EDG. The open supply fan damper allowed outside air, with temperatures between 15°F and 36°F to blow on the EDG governor warming line. This resulted in low governor oil temperatures and subsequently, sluggish governor operation which caused the overspeed trip. The ventilation damper was repaired and closed. After warming the EDG room and governor the EDG was started and functioned properly. The EDG was returned to service on February 10, 1992, at 1753 hours. The AB-EDG could have been inoperable for up to 96 hours and 5 minutes, exceeding the 72 hour action limit allowed by Technical Specifications.

Testing verified that adequate Jacket Water flow is available through the governor warming lines on the EDGs in both Unit 1 and 2. To prevent recurrence and ensure EDG operability, the governor warming lines have been insulated on both Unit 1 and 2 EDGs.

This updated report is being submitted to provide additional information regarding the event, cause, and corrective action descriptions.

Conditions Prior to Occurrence

Unit-1 in Mode 1 (Power Operation), at 100 percent power.

Description of Event

On February 10, 1992, at 0039 hours, the Unit 1 AB Emergency Diesel Generator (EDG) (EIIS:EK/65) was started for routine operability testing in accordance with Technical Specification 3.8.1.1. The EDG reached 514 RPM (normal operating speed) in 8.59 seconds and continued to increase to 540 RPM when the EDG tripped on overspeed. The overspeed trip functioned per design. The EDG was declared inoperable. In troubleshooting the event, another attempt to start the EDG was made at 0335 hours and resulted in another overspeed trip. During the second attempt, the response of the fuel injection linkage indicated that the governor was slow to respond to the speed increase.

Investigation revealed that the Jacket Water warming line to the governor (EIIS:EK/DG) was cold and the ventilation supply was blowing across the warming line. The Ventilation System was in an abnormal line-up since February 6, 1992 when EDG Room ventilation supply damper problems were encountered. Upon discovery of this condition on February 6, 1992 the supply damper was opened and the fuses for the damper operator were pulled to keep the damper in the open position. Between February 6 and 10, 1992, the outdoor temperatures ranged between 15 and 36 Degrees-F.

The ventilation supply damper repairs were completed and the damper was closed. After warming the EDG room and governor, the EDG started and functioned properly. The EDG was declared operable and returned to service on February 10, 1992 at 1753 hours.

Testing verified that Jacket Water flow is available through the governor warming lines on the EDGs in both Unit 1 and 2; and the temperature of each EDG governor could be maintained within the allowed operating range.

Cause of Event

The EDG overspeed trip was the result of sluggish governor operation. The open supply fan damper allowed low outside temperatures (15°F - 36°F) to blow on the governor warming line. The supply damper was intentionally disabled in the open position on February 6, 1992, to ensure EDG operability after the supply damper had malfunctioned. Prior to this event, the affect of prolonged exposure of the warming line to a very cold air temperature was not realized.

Analysis of Event:

The actual time the EDG became inoperable due to low warming line temperature cannot be determined. For reportability purposes we are assuming the EDG was inoperable from 1748 hours on February 6, 1992, when the ventilation supply damper was opened, until February 10, 1992 at 1753 hours, when the EDG was

Analysis of Event Continued:

returned to service. This spans a time of 96 hours and 5 minutes. This would be in violation of Technical Specification 3.8.1.1 requirements as the 72 hour limit for an inoperable EDG was exceeded and the Action Statement provisions were not met. There was limited potential impact on public health and safety and no actual impact.

This is based on the following:

1. The preferred offsite power source (reserve power) was available for the duration of the event. If normal power was lost, Unit 2 auxiliaries would have automatically transferred to reserve power.

2. The Unit 1 CD EDG was available for the duration of the event. If normal and reserve power were both lost, the 1CD EDG would have automatically started to supply power to one train of safeguards equipment. Each EDG is capable of supplying sufficient power to operate the engineered safety features (ESF) and protection systems required to avoid undue risk to public health and safety. EDG capacity is established on the basis of the operation of ESF during a maximum hypothetical incident concurrent with a loss of offsite power and is adequate for safe and orderly shutdown of the unit.

3. In the event normal and reserve power was lost, and the Unit 1 CD EDG failed, the 69KV alternate offsite power source would have been lined up to supply power to the safeguard buses. The 69/4.16KV transformer is sized to provide necessary capacity to operate the engineered safeguards equipment in one unit while supplying safe shutdown power in the other.

   The Cook Plant is designed to cope with a station blackout for four hours. This allows sufficient time to take the manual actions required to align the 69KV supply to the safeguard buses.

4. The EDG was probably not inoperable for the entire period between February 6 and 10, 1992. The environment the governor was subjected to was affected by wind direction and outside air temperatures. The EDG most likely became inoperable late in the period. The allowable outage times for inoperable equipment provided in the Technical Specifications were determined by the Atomic Energy Commission (AEC) based, in large part, on a qualitative assessment of the safety significance of the specified inoperability determination. As such, the allowance of an inoperable diesel for 72 hours has already been considered by the AEC from a risk perspective (and determined to be acceptable). This event could have exceeded the analyzed time of 72 hours, by 24 hours and 5 minutes.

Corrective Actions:

On the day of the EDG trip, the ventilation supply damper repairs were completed and the damper was closed. After warming of the EDG room and governor, the EDG started and functioned properly. The EDG was declared operable and returned to service on February 10, 1992 at 1753 hours.

Corrective Actions Continued:

To avoid creating a similar set of conditions which would result in a low governor oil temperature on another EDG, Operations Department personnel were advised of the condition and the need to maintain the diesel room temperatures to ensure EDG operability.

Testing revealed that adequate Jacket Water flow was available through the governor warming lines of all the EDGs. However, to prevent the Jacket Water from being cooled excessively while enroute to the governor, the governor warming lines associated with all four Diesel Generators on site, have been insulated. Upon completion of this work the low room temperature operating restriction was removed.

A Design Change has been initiated to modify the ventilation supply damper linkage for improved reliability.

Failed Component Identification:

Component I.D.: 1-DGAB-HYDACT

Manufacturer: Woodward Governor Co.

Model: 9903-190

Previous Similar Events:

There were no previous similar events.