

CATEGORY 1

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RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 96-009-00: on 961111, unplanned emergency diesel generator
w/9 ltr.

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WISCONSIN PUBLIC SERVICE CORPORATION

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NRC-96-134

December 11, 1996

10 CFR 50.73

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Ladies/Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
Reportable Occurrence 96-009-00

In accordance with the requirements of 10 CFR 50.73, "Licensee Event Report System," the attached Licensee Event Report (LER) for reportable occurrence 96-009-00 is being submitted.

Sincerely,

M. L. Marchi
Manager - Nuclear Business Group

JDD/jmf

Attach.

cc - INPO Records Center
US NRC Senior Resident Inspector
US NRC, Region III

9612170207 961211
PDR ADOCK 05000305
S PDR

160039

LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

Kewaunee Nuclear Power Plant

DOCKET NUMBER (2)

05000 305

PAGE (3)

1 OF 6

TITLE (4)

Unplanned Emergency Diesel Generator Start Due to Missed Procedure Step

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	11	96	96	009	00	12	11	96		05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)																		
N	000	20.402(b)	20.405(a)(1)(i)	20.405(a)(1)(ii)	20.405(a)(1)(iii)	20.405(a)(1)(iv)	20.405(a)(1)(v)	20.405(c)	50.73(a)(2)(i)	50.73(a)(2)(ii)	50.73(a)(2)(iii)	50.73(a)(2)(iv)	50.73(a)(2)(v)	50.73(a)(2)(vii)	50.73(a)(2)(viii)(A)	50.73(a)(2)(viii)(B)	50.73(a)(2)(x)	73.71(b)	73.71(c)	OTHER
																				(Specify in Abstract below and in Text, NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Jay Dressen - STA	414-388-2560 x2233

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	EK	DG	E147	Yes					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
X					

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

On November 11, 1996, with the plant in refueling shutdown mode, power supplies for the "A" train safeguards electrical bus were being transferred in accordance with operations procedure N-EHV-39, "4160V AC Supply and Distribution System Operation." During the performance of this procedure, power was lost to the "A" train safeguards electrical bus. Power was restored to the bus by the automatic voltage restoring circuitry. This circuitry restored power to the bus in approximately one second.

The loss of power to the "A" train safeguards electrical bus was caused by the Nuclear Control Operator (NCO) missing a step in the procedure and not verifying status lights associated with the incoming power supply breaker to the "A" train safeguards bus. The NCO was counseled and reminded of the importance of following procedures and ensuring that every step is performed.

When power was lost to the bus, the automatic voltage restoring circuitry actuated. As part of the restoring circuitry the "A" train Emergency Diesel Generator (EDG) receives an automatic start signal. As the EDG speed increased the governor control system did not sufficiently control speed and the EDG tripped due to an overspeed condition; the root cause of this was determined to be inadequate retest conditions/procedures after maintenance was performed. An evaluation is being performed to correct the retest method of the EDGs after maintenance has been performed on the governor control system.

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

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

Description of Event

On November 11, 1996, with the plant in refueling shutdown mode, power supplies for the "A" train safeguards electrical bus [BU] were being transferred in accordance with operations procedure N-EHV-39, "4160 V AC Supply and Distribution System Operation." During the performance of this procedure power was lost to the "A" train safeguards electrical bus for approximately one second.

N-EHV-39 directs the Nuclear Control Operator (NCO) to position the power supply breaker 43 switch [43] to "MANUAL", allowing manual switching of power supplies to the bus. The NCO is then directed to position the synchronizing switch [25] to "ON" and verify the voltage for the running power supply [JX] and the incoming power supply [JX] is matched. When the power supplies are synchronized the NCO closes the power supply breaker [BKR] for the incoming power supply. At this point the power supplies are in parallel supplying power to the bus. The NCO is then directed to verify status lights for the incoming power supply and open the power supply breaker [BKR] for the running power supply. The synchronizing switch is then placed in the "OFF" position and the power supply breaker 43 switch is returned to the "AUTO" position.

During the performance of N-EHV-39 on November 11, 1996, the NCO missed the step placing the power supply breaker 43 switch to the "MANUAL" position and failed to verify the status lights indicating that the incoming power supply breaker had closed onto the bus.

When the NCO opened the power supply breaker for the running power supply the "A" train safeguards bus experienced a loss of power. The voltage restoring circuitry automatically actuated and restored power to the bus in approximately one second. The "A" train Emergency Diesel Generator (EDG) [DG] receives an automatic start signal as part of the voltage restoring circuitry. As the EDG speed increased the governor [65]

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control system did not sufficiently control speed and the EDG tripped due to overspeed. The automatic voltage restoring circuitry restored power to the "A" train safeguards electrical bus, prior to sequencing to the "A" train EDG to supply power.

Cause of Event

The root cause of the loss of power event was determined to be the NCO missing the procedure step which allows the power supplies to be manually switched onto the "A" safeguards bus.

A contributing factor to this event was the NCO failed to verify the "close" status light for the incoming power supply, as required by procedure. The NCO was monitoring the load indication for the running power supply to verify the power supply change. There was no load change indicated during the switching procedure. The NCO did not think this was abnormal due to the small load on the electrical bus and attempted to perform the power supply switch.

The root cause of the "A" EDG tripping due to overspeed was determined to be inadequate retest conditions/procedures. During the current refueling outage maintenance was performed on the "A" EDG. The procedures used to return the "A" EDG to operable status, following maintenance, did not simulate the same conditions which would be present if the "A" EDG was needed to restore power to the "A" safeguards electrical bus.

A contributing factor to "A" EDG overspeed trip was the Governor High Speed Stop setpoint being set at 936 RPM rather than the documented setpoint of 925 RPM. It is believed that the Governor High Speed Stop setpoint was set at 936 RPM when the governor was replaced in 1990. After the scheduled maintenance was performed, conditions changed in the governor control system, and the higher setpoint allowed the "A" EDG

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to increase to the overspeed setpoint of 1038 RPM while the governor control system was performing its function.

Analysis of Event

This event is being reported in accordance with 10 CFR50.73(a)(2)(iv) as an unplanned ESF actuation. When power was lost to the "A" train safeguards electrical bus, the "A" train EDG automatically started as part of the voltage restoring circuitry for the bus. The "B" train Control Room Air Conditioning started due to the temporary loss of power to the "A" train Safeguards electrical bus. This event was also reported in accordance with 10 CFR50.72(b)(2)(ii) at 1139, on November 11, 1996.

Maintenance was performed on the "A" train EDG during the current scheduled refueling outage. This maintenance included flushing and changing oil in governor control system. When the "A" EDG was retested, after the scheduled maintenance was performed, a slow start was performed to monitor the "A" EDG. With the "A" EDG still warm, the retest was performed to fast start the "A" EDG under simulated loss of offsite power conditions and no abnormalities were noted. The "A" EDG was returned to operable status on October 6, 1996.

When the "A" EDG tripped due to overspeed on November 11, 1996, the diesel was not warm and the governor did not control the speed of the diesel, as required, before it reached the Mechanical Overspeed setpoint (1038 RPM). The "A" EDG was retested to try and recreate the failure. The "A" EDG tripped once again due to an overspeed condition. The governor was then adjusted to respond faster to control engine speed. The "A" EDG was then successfully retested. When the "A" EDG was retested, the maximum engine RPM noted was 1034 RPM. Since the maximum noted RPM was so close to the Mechanical Overspeed

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setpoint, an evaluation was performed and it was decided not to return the "A" EDG to service and reduce the Governor High Speed Stop to ensure the governor control system would control speed before it reached the Mechanical Overspeed setpoint.

The Governor High Speed setpoint was then lowered from 936 RPM, as found, to 923 RPM. The "A" EDG was retested and returned to service on November 13, 1996.

The "B" EDG was tested due to the inconsistencies noted in the Governor High Speed Stop setpoint for the "A" EDG. There were no abnormalities noted.

Power was restored to the "A" train Safeguards electrical bus in approximately one second and all systems functioned as designed, therefore, this event did not result in any increase risk to the health and safety of the public.

Corrective Actions

1. The NCO was counseled and reminded of the importance of following procedures and ensuring that every step is performed.
2. A team has been developed to investigate human performance problems and trend common causes of events caused by human performance.
3. An evaluation is being performed to correct the retest method of the EDGs after maintenance has been performed on the Governor control system.

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- An investigation is being performed to determine why the Governor High Speed Stop was found at 936 RPM.

Additional Information

None.

Equipment Failure

"A" train Emergency Diesel Generator.

Similar Events

None.