

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8708250166 DOC. DATE: 87/08/21 NOTARIZED: NO DOCKET #
 FACIL: 50-220 Nine Mile Point Nuclear Station, Unit 1, Niagara Powe 05000220
 AUTH. NAME AUTHOR AFFILIATION
 MAZZAFERRO, P. Niagara Mohawk Power Corp.
 MANGAN, C. V. Niagara Mohawk Power Corp.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-012-00: on 870724, both emergency diesel generators temporarily lost. Caused by equipment failure & personnel error. Returning emergency diesel generator 103 to svc & preventive maint insp points incorporated. W/870821 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 6
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
	PD1-1 LA	1 1	PD1-1 PD	1 1
	BENEDICT, R	1 1	HAUGHEY, M	1 1
INTERNAL:	ACRS MICHELSON	1 1	ACRS MOELLER	2 2
	AEOD/DOA	1 1	AEOD/DSP/NAS	1 1
	AEOD/DSP/ROAB	2 2	AEOD/DSP/TPAB	1 1
	DEDRO	1 1	NRR/DEST/ADS	1 0
	NRR/DEST/CEB	1 1	NRR/DEST/ELB	1 1
	NRR/DEST/ICSB	1 1	NRR/DEST/MEB	1 1
	NRR/DEST/MTB	1 1	NRR/DEST/PSB	1 1
	NRR/DEST/RSB	1 1	NRR/DEST/SGB	1 1
	NRR/DLPQ/HFB	1 1	NRR/DLPQ/QAB	1 1
	NRR/DOEA/EAB	1 1	NRR/DREP/RAB	1 1
	<u>NRR/DREP/RPB</u>	2 2	NRR/PMAS/ILRB	1 1
	REG FILE 02	1 1	RES DEPY GI	1 1
	RES TELFORD, J	1 1	RES/DE/EIB	1 1
	RGN1 FILE 01	1 1		
EXTERNAL:	EG&G GROH, M	5 5	H ST LOBBY WARD	1 1
	LPDR	1 1	NRC PDR	1 1
	NSIC HARRIS, J	1 1	NSIC MAYS, G	1 1



LICENSEE EVENT REPORT (LER)

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TITLE (4)
Temporary Loss of Both Emergency Diesel Generators

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 7	2 4	8 7	8 7	0 1 2	0 0	0 8	2 1	8 7			0 5 0 0 0
DOCKET NUMBER(S) 0 5 0 0 0											

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)											
POWER LEVEL (10) 0 8 5	20.402(b)			20.405(c)			50.73(a)(2)(iv)			73.71(b)		
	20.405(a)(1)(i)			50.38(c)(1)			50.73(a)(2)(v)			73.71(c)		
	20.405(a)(1)(ii)			50.38(c)(2)			50.73(a)(2)(vii)			OTHER (Specify in Abstract below and in Text, NRC Form 366A)		
	20.405(a)(1)(iii)			50.73(a)(2)(ii)			50.73(a)(2)(viii)(A)					
	20.405(a)(1)(iv)			50.73(a)(2)(iii)			50.73(a)(2)(viii)(B)					
	20.405(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(ix)					

LICENSEE CONTACT FOR THIS LER (12)

NAME Peter Mazzaferro, Assistant Supervisor Technical Support	TELEPHONE NUMBER 3 1 5 3 4 9 - 2 1 9 0
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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
X	E K	6 5	W 2 9 0	Y					
E	E K	M 0	R 1 6 5	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

ABSTRACT

On July 24, 1987, with Nine Mile Point Unit 1 at 85% power, both Emergency Diesel Generators were inoperable for forty minutes. Emergency Diesel Generator (EDG) 103 was administratively declared inoperable following the failure of a prelubrication system circulating oil pump motor. EDG 102 was declared inoperable at approximately 0730 hours due to its failure to shutdown automatically. The equipment markup issued at 0710 hours for EDG 103 was cleared at approximately 0810 hours and EDG 103 was started and loaded. Therefore, during the time period between 0730 and 0810, both EDG's were inoperable.

Root causes for the event are equipment failure and personnel error. Immediate corrective action involved returning EDG 103 to service, affecting repairs to the governor of EDG 102, and then replacement of the circulating oil pump motor of EDG 103. Long term corrective actions are as follows. Preventive maintenance inspection points will be incorporated into existing procedures to inspect the governor shutdown solenoid and prelubrication system oil pump motors. Procedural guidance will also be implemented to further clarify the responsibility for identifying maintenance activities to equipment following plant modifications.

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

DESCRIPTION OF EVENT

On July 24, 1987, with Nine Mile Point Unit 1 at 85% power, it was discovered that for approximately forty minutes both Emergency Diesel Generators were inoperable for different reasons. Emergency Diesel Generator (EDG) 103 was administratively declared inoperable following an investigation into the cause of a prelubrication system low bearing lube oil pressure alarm received at approximately 0510 hours. At approximately 0700 hours, the redundant component operability test (one hour run at rated load), which was begun at 0550, for EDG 102 was completed. This allowed for the issuance of the equipment markup at 0710 hours to repair the circulating oil pump motor for bearing prelubrication on EDG 103. The application of the markup physically rendered EDG 103 inoperable due to its output breaker being removed from service.

At approximately 0712 hours, Operations personnel attempted to shutdown EDG 102 after it failed to shutdown automatically following a three minute coast-down period. The operators on duty at the time did this by placing the control room control switch to "emergency stop" and by pushing the local "fast stop" pushbutton. These attempts, either of which would deenergize the diesel governor solenoid, failed to stop EDG 102. The EDG was finally secured at 0730 hours by manually forcing the fuel rack closed and tripping the emergency fuel cut-out valve. EDG 102 was then declared inoperable.

Technical Specification 3.6.3.e.(1) requires the initiation of a normal orderly shutdown within one hour, and be in cold shutdown within ten hours, if less than one EDG is operable. However, at approximately 0810, the equipment markup for EDG 103 was cleared and the EDG declared operational. It was then run at full load for one hour to prove redundant component operability in accordance with Technical Specification requirements. Thus for the time period from 0730 to 0810 hours, Nine Mile Point Unit 1 was without Emergency Diesel Generator backup power.

The failure of the prelubrication system circulating oil pump motor does not in itself render an EDG inoperable at Nine Mile Point Unit 1. This pump was installed for enhanced reliability in response to NRC Generic Letter 84-15. The only prelubrication system oil pump required for operability is the turbo oil pump for turbocharger prelubrication. Therefore, the issued maintenance markup could be cleared and would enable EDG 103 to be declared operable.

The failure of the diesel governor solenoid to provide a shutdown mechanism does not, render EDG 102 inoperable in that it would not prevent the EDG from starting and assuming load. However, during the preparation for starting maintenance activities to repair and then restart EDG 102 at 1200, it was discovered that the emergency fuel cut-out valve was not reset. This caused the EDG to be physically inoperable. The fuel cut-out valve was manually reset at 0730 but did not reset completely. At 1200 hours, this was discovered while preparing the EDG for its post maintenance test to prove



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DESCRIPTION OF EVENT (Cont'd)

operability. At 0730, because the cause for the failure of the diesel to shutdown was not known, EDG 102 was considered inoperable. Operator action was then focused on providing an operable EDG at Nine Mile Point Unit 1 and compliance to Technical Specifications. This was accomplished at 0810 hours by starting and loading EDG 103. From 0810 until 1200, activities were concentrated on determining the cause of the failure of EDG 102 to shutdown automatically and arranging for the proper corrective maintenance.

CAUSE OF EVENT

For EDG 103, the equipment failure was motor burnout due to a scored commutator from worn brushes in the DC motor for the prelubrication system circulating oil pump. Brush wear is expected in a DC machine. The reason the motor burned out is because the brushes were never inspected, wore out, and caused the commutator damage. The root cause for this motor burnout is attributable to personnel error in the program for modifications and additions. The error arises in the program's lack of identifying specific responsibility for specifying equipment maintenance requirements following installation of new equipment. The vendor requirement to periodically inspect the brushes did not get included in the plant preventive maintenance program.

For EDG 102, the equipment failure was due to a loose set screw for the adjusting nut of the governor shutdown solenoid. This allowed the adjusting nut to move and prevented the solenoid plunger from repositioning when the solenoid deenergized for EDG shutdown. The root cause for the set screw coming loose is due to engine vibration resulting from normal operation.

ANALYSIS OF EVENT

There were no adverse safety consequences due to this event. Normal offsite power for emergency power boards 102 and 103 was always available during the forty minutes both Emergency Diesel Generators were inoperable. Normal station service and emergency DC power supplies were also available during this time period. EDG 103 was returned to service before the action statement of Technical Specification 3.6.3.e(1) was required to be effected.

With respect to the EDG 102 fuel cut-out valve not being completely reset at 0730, this did not result in any adverse safety consequences. As with any other piece of equipment at Nine Mile Point Unit 1 that is declared inoperable, EDG 102 could not have been returned to service without successfully completing a Post-Maintenance Test in accordance with Station Administrative Procedure 5.0, "Procedure for Repair". It was while performing the prerequisites for this test that it was discovered that the fuel cut-out valve was not completely reset. Therefore, without satisfying the prerequisites and successfully completing the post maintenance test, EDG 102 could not have been returned to service with the fuel cut-out valve not reset.



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ANALYSIS OF EVENT (Cont'd)

With a complete loss of station AC power, eight hours of core cooling would be automatically provided from the Emergency Cooling System. Without restoration of AC power, Operating Procedures outline steps to provide makeup through the use of the Diesel Fire Pump. With the restoration of AC power, additional makeup to the Emergency Cooling System is provided from the Condensate Storage Tanks. Thus any potential safety consequences are within the design basis of the plant.

CORRECTIVE ACTION

Following the failure of the prelubrication system circulating oil pump motor immediate actions were taken as follows. Operations conservatively declared EDG 103 inoperable. EDG 102 was then run to prove redundant component operability in accordance with Technical Specifications. Subsequently a markup was issued to enact repairs to the circulating oil pump motor. Before this work could be done, EDG 102 was administratively declared inoperable due to the failure of the shutdown solenoid to reposition, and subsequently rendered physically inoperable in that the emergency fuel cut-out was not completely reset. Following the determination that the failure of the circulating oil pump motor does not render an EDG inoperable at Nine Mile Point Unit 1, Operations then cleared the markup on EDG 103 to run it and prove redundant component operability. This action provided an operable EDG at Nine Mile Point Unit 1 and compliance to Technical Specification 3.6.3.e(1). The shutdown solenoid was then repaired, the fuel cut-out valve properly reset, and EDG 102 returned to service. The circulating oil pump motor for EDG 103 was then replaced and the EDG was then returned to service.

Long term corrective actions are identified as follows. An inspection of the governor solenoid set screw and adjusting nut will be incorporated into a Mechanical Maintenance Preventive Maintenance Procedure. An inspection of the brushes for the prelubrication system pump motors will be incorporated into an Electrical Maintenance Preventive Maintenance Procedure. A Lessons Learned Transmittal has been issued to engineering, and site technical and maintenance groups. This transmittal identifies the need to clarify the responsibilities for specifying the requirements for equipment maintenance following installation. Procedural guidance will then be implemented to incorporate these requirements. In addition, a Training Modification Recommendation has been issued to provide Operator training on the proper operation of the EDG emergency fuel cut-out, including resetting, and additional criteria for verification of the reset function.



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ADDITIONAL INFORMATION

Component identifiers of failed equipment are as follows:

Component	Cause Code	IEEE 803 Function ID	IEEE 803 System ID
Governor	X	65	EK
Motor	E	MO	EK

There are no previous Nine Mile Point Unit 1 LER's similar to this event.



NIAGARA MOHAWK POWER CORPORATION/301 PLAINFIELD ROAD, SYRACUSE, N.Y. 13212/TELEPHONE (315) 474-1511

August 21, 1987

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

RE: Docket No. 50-220
LER 87-12

Gentlemen:

In accordance with 10 CFR 50.73, we hereby submit the following Licensee Event Report:

LER 87-12 Which is being submitted in accordance with 10 CFR 50.73 (a)(2)(v), "Any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to: (D) mitigate the consequences of an accident."

Telephone notification per 10 CFR 50.72 was made at 1430 hours on July 24, 1987.

This report was completed in the format designated in NUREG-1022, Supplement No. 2, dated September 1985.

Very truly yours,

Cernanza
C. V. Mangar
Senior Vice President

CVM/meh

Enclosure

cc: William T. Russell
Regional Administrator

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