CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9609130042 DOC.DATE: 96/09/05 NOTARIZED: NO DOCKET #
FACIL:50-244 Robert Emmet Ginna Nuclear Plant, Unit 1, Rochester G 05000244
AUTH.NAME AUTHOR AFFILIATION
MARTIN,J.T. Rochester Gas & Electric Corp.
MECREDY,R.C. Rochester Gas & Electric Corp.
RECIP.NAME RECIPIENT AFFILIATION

VISSING,G.S.

SUBJECT: LER 96-010-00:on 960806,Latching main turbine while in mode 4 occurred,due to defective procedure,resulting in automatic start of auxiliary feedwater pump.Caused by defective maint procedure.Procedure revised.W/960905 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 7
TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:License Exp date in accordance with 10CFR2,2.109(9/19/72). 05000244

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ROBERT C. MECREDY
Vice President
Nuclear Operations

September 5, 1996

U.S. Nuclear Regulatory Commission
Document Control Desk
Attn: Guy S. Vissing
Project Directorate I-1
Washington, D.C. 20555

Subject: LER 96-010, Latching Main Turbine While in Mode 4, Due to Defective Procedure, Results in Automatic Start of Auxiliary Feedwater Pump
R.E. Ginna Nuclear Power Plant
Docket No. 50-244

Dear Mr. Vissing:

In accordance with 10 CFR 50.73, Licensee Event Report System, item (a) (2) (iv), which requires a report of, "Any event or condition that resulted in a manual or automatic actuation of any engineered safety feature (ESF), including the reactor protection system (RPS)", the attached Licensee Event Report LER 96-010 is hereby submitted.

This event has in no way affected the public's health and safety.

Very truly yours,

Robert C. Mecredy

xc: Mr. Guy S. Vissing (Mail Stop 14C7)
PWR Project Directorate I-1
Washington, D.C. 20555

U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Ginna Senior Resident Inspector

IE22

NRC FORM 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 04/30/98

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT

LICENSEE EVENT REPORT (LER)

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

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TITLE (4)

Latching Main Turbine While in Mode 4, Due to Defective Procedure, Results in Automatic Start of Auxiliary Feedwater Pump

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
08	06	96	96	-- 010	-- 00	09	05	96	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	4
POWER LEVEL (10)	000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	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 in 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)
John T. St. Martin - Technical Assistant	(716) 771-3641

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

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 August 6, 1996, at approximately 1315 EDST, the plant was in Mode 4 with the reactor coolant system being maintained at a temperature of 340 degrees F and a pressurizer pressure of 350 PSIG with a steam bubble in the pressurizer. As part of completion of a corrective maintenance activity, the main turbine was latched per a Maintenance procedure. Since the circuit breakers for both main feedwater pumps were already open, this created logic for an autostart of the "A" motor-driven auxiliary feedwater pump.

Immediate action was to secure the "A" auxiliary feedwater pump and stabilize auxiliary feedwater flow to both steam generators.

The underlying cause of the autostart was that the logic for autostart was created by latching the turbine, due to a defective Maintenance procedure.

This event is NUREG-1022 Cause Code (D).

Corrective action to prevent recurrence is outlined in Section V.B.

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

I. PRE-EVENT PLANT CONDITIONS:

On August 6, 1996, the plant was in Mode 4 as a result of a voluntary plant shutdown to upgrade motor-operated valves in the residual heat removal (RHR) system. During this shutdown an opportunity was identified by an Instrument and Control (I&C) planner to complete a corrective maintenance activity on main turbine control valve CV-2. The reactor coolant system (RCS) was being maintained at a temperature of approximately 340 degrees F and a pressurizer (PRZR) pressure of approximately 350 PSIG with a steam bubble in the PRZR. The "B" motor-driven auxiliary feedwater (AFW) pump was operating to maintain water inventory in both steam generators (S/G), and the "A" motor-driven AFW pump was not operating.

II. DESCRIPTION OF EVENT:

A. DATES AND APPROXIMATE TIMES OF MAJOR OCCURRENCES:

- August 6, 1996, 1315 EDST: The main turbine is latched.
- August 6, 1996, 1315 EDST: Event date and time.
- August 6, 1996, 1315 EDST: Discovery date and time.
- August 6, 1996, 1316 EDST: The second running AFW pump is secured.

B. EVENT:

On August 6, 1996, at approximately 1315 EDST, the plant was in Mode 4. I&C technicians were preparing to calibrate main turbine control valve CV-2, to complete a previously initiated corrective maintenance activity on this valve. I&C technicians requested the Control Room operators to latch the main turbine per Maintenance Procedure M-109 ("A" EH Governor High Pressure Fluid System Adjustment, Calibration and Maintenance). This is done to supply EH pressure to the control valves in order to stroke them. A Control Room operator latched the turbine as directed by procedure M-109. Both main feedwater (MFW) pump breakers were open. With this condition and the turbine latched, an autostart signal was supplied to both motor-driven AFW pumps, which caused an autostart of the "A" AFW pump. At this time the "B" AFW pump also received an autostart signal, but was already operating.

The Control Room operators observed the autostart of the "A" AFW pump and promptly secured the "A" AFW pump to minimize an expected cooldown of the reactor coolant system (RCS). AFW flow was controlled at the desired flow rate for Mode 4 conditions. During the time two AFW pumps were operating, there was a slight cooldown of the RCS of approximately three (3) degrees F.

C. INOPERABLE STRUCTURES, COMPONENTS, OR SYSTEMS THAT CONTRIBUTED TO THE EVENT:

None

D. OTHER SYSTEMS OR SECONDARY FUNCTIONS AFFECTED:

None

E. METHOD OF DISCOVERY:

This event was immediately apparent when the "A" AFW pump autostarted after the turbine was latched.

F. OPERATOR ACTION:

The Control Room operator followed the direction of procedure M-109 and latched the turbine. After the "A" AFW pump autostarted, the Control Room operators took prompt actions to minimize any RCS cooldown and control AFW flow. They promptly secured the "A" AFW pump. The Control Room operators subsequently notified higher supervision and notified the NRC per 10CFR50.72 (b) (2) (ii), non-emergency four hour notification, at approximately 1600 EDST on August 6, 1996.

G. SAFETY SYSTEM RESPONSES:

The "A" AFW pump autostarted as per design due to the main turbine being latched while both MFW pump breakers were open. The "B" AFW pump also received an autostart signal, but was already operating.

III. CAUSE OF EVENT:

A. IMMEDIATE CAUSE:

The immediate cause of the autostart of the "A" AFW pump was latching the main turbine with both MFW pump breakers open.

B. INTERMEDIATE CAUSE:

The intermediate cause of latching the main turbine was compliance with procedure M-109, which had technical inaccuracies and was not the correct procedure to be used in this plant condition.

C. ROOT CAUSE:

A Human Performance Enhancement System (HPES) evaluation was initiated because of this event. The HPES evaluation concluded that the underlying cause of the autostart of the "A" AFW pump was that procedure M-109 was a defective procedure. This event is NUREG-1022 Cause Code (D), "Defective Procedure".

Three causal factors were identified by the HPES. One of the causal factors is Written Communications (technical inaccuracies). The second causal factor is Work Organization and Planning (job scoping did not identify special circumstances/conditions and work planning was not coordinated with all departments involved in the task). The third causal factor is Work Practices (general equipment condition not checked before starting work and self-checking not applied to ensure intended action is correct).

The autostart of the AFW pump does not meet the NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants", definition of a "Maintenance Preventable Functional Failure".

IV. ANALYSIS OF EVENT:

This event is reportable in accordance with 10 CFR 50.73, Licensee Event Report System, item (a) (2) (iv), which requires a report of, "Any event or condition that resulted in a manual or automatic actuation of any engineered safety feature (ESF), including the reactor protection system (RPS)". The start of an AFW pump is an actuation of an ESF.

An assessment was performed considering both the safety consequences and implications of this event with the following results and conclusions:

There were no operational or safety consequences or implications attributed to the autostart of the "A" AFW pump because:

- The autostart of the "A" AFW pump occurred with the "B" AFW pump already operating and with acceptable levels in both S/Gs. AFW flow was controlled to maintain these levels.
- The "A" AFW pump was promptly secured to minimize any RCS cooldown.
- The limiting case for the supply of AFW is the Loss of Feedwater accident at 100% power. The plant condition at the time of this event was Mode 4 with feedwater being supplied by the "B" AFW pump.

- When the turbine is latched, the main turbine stop valves open and the main turbine control valves remain closed. With the MSIV bypass valves open, the only potential cooldown path through the turbine is leakage past the control valves. The amount of leakage was not sufficient to roll the turbine off the turning gear, and would not cause a major cooldown unless the control valves are subsequently opened.

- Normal operating procedures require boration to the cold shutdown boron concentration (boron concentration to ensure a shutdown margin (SDM) of 2.45% at 70 degrees F) prior to cooling down below 500 degrees F. During this event, RCS boron concentration was in excess of the 2.45% shutdown margin level by approximately 150 parts per million (PPM). Also note that the required boron concentration corresponding to the 2.45% SDM limit has an additional 100 PPM conservative allowance included. Thus, an RCS cooldown in this condition would not have challenged SDM requirements, nor would the reactor approach criticality.

- An RCS cooldown from this condition would add minimal positive reactivity. It is estimated that the isothermal temperature coefficient (ITC) is less negative than -1 pcm per degree F, and a major cooldown (from 340 degrees F to 212 degrees F) would add less than 128 pcm of positive reactivity. An excess boron concentration of only 12 to 13 PPM will compensate for this much reactivity. Thus, a potential cooldown of the RCS would not present a safety issue.

Based on the above, it can be concluded that the public's health and safety was assured at all times.

V. CORRECTIVE ACTION:

A. ACTION TAKEN TO RETURN AFFECTED SYSTEMS TO PRE-EVENT NORMAL STATUS:

- AFW flow was controlled as desired to maintain S/G level.

- The "A" AFW pump was promptly secured to minimize any RCS cooldown.

B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE:

- Procedure M-109 will be revised to ensure that latching of the main turbine is properly controlled and AFW pump concerns are addressed.

- Expectations will be reviewed with operators. Emphasis will be placed on fully understanding work plans and maintaining a questioning attitude throughout the pre-job briefing.

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

VI. ADDITIONAL INFORMATION:

A. FAILED COMPONENTS:

None

B. PREVIOUS LERs ON SIMILAR EVENTS:

A similar LER event historical search was conducted with the following results: No documentation of similar LER events with the same root cause could be identified. However, LERs 96-004 and 96-008 are similar events with different root causes.

C. SPECIAL COMMENTS:

None