

Commonwealth Edison Company
LaSalle Generating Station
2601 North 21st Road
Marseilles, IL 61341-9757
Tel 815-357-6761



September 11, 1996

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Subject: LaSalle County Station Units 1 and 2
10CFR Part 21 Notification 9603
General Electric
GE Type RMS-9 Overcurrent Trip Device Programmers
NRC Docket Numbers 50-373 and 50-374

Enclosed in Exhibit B is ComEd's 10CFR Part 21 Notification of the deficiency of GE Type RMS-9 Overcurrent Trip Device Programmers, manufactured by General Electric Company and in use at LaSalle Station. This notification is submitted in accordance with the requirements of 10CFR 21, Section 21.1(b), 21.3a(3), and 21.3d(4).

If there are any questions or comments concerning this letter, please refer them to me at (315) 357-6761, extension 3600.

Respectfully,

A handwritten signature in dark ink, appearing to read 'W. T. Subalusky', is written over a horizontal line.

W. T. Subalusky
Site Vice President
LaSalle County Station

Enclosure

cc: A. B. Beach, NRC Region III Administrator
M. P. Huber, NRC Senior Resident Inspector - LaSalle
D. M. Skay, Project Manager - NRR - LaSalle
F. Niziolek, Office of Nuclear Facility Safety - IDNS
DCD - Licensing (Hardcopy: Electronic:)
Central File

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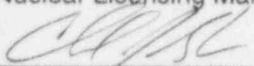
Memorandum

ComEd

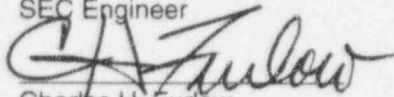
Date: September 11, 1996

To: Nuclear Licensing Manager

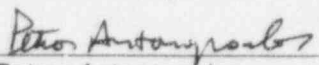
From:


Charles J. Bohan
SEC Engineer

9/11/96
Date


Charles H. Furlow
SEC E/I&C Supervisor

9/11/96
Date


Petros Antonopoulos
SEC Manager

9-11-96
Date

Subject: Part 21 Notification 9603-GE Type RMS-9 Overcurrent Trip Device
Programmers

LaSalle Site Support Engineering has evaluated the subject document and determined that the defect/noncompliance is reportable under the requirements of 10CFR Part 21. The attached report has been prepared for submittal to the NRC, and should be submitted by 9-13-96 to the NRC Operations Center.

Questions regarding this report should be directed to Lawrence Bukantis, ext. 2576.

Enclosure

cc: President and Chief Operating Officer
Senior Vice President, Nuclear Operations
Vice President BWR Operations
Vice President PWR Operations
Vice President Nuclear Engineering and Construction
General Manager Nuclear Services
General Manager Quality Programs and Assessments
Nuclear Station Managers
Nuclear Engineering Manager
Safety Assessment Manager
Manager of Quality Assurance/Nuclear Safety
Part 21 Coordinator
ENC Regulatory Assurance Supervisor

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10CFR Part 21 Notification

Possible Failure of GE Type RMS-9 Overcurrent Trip Device Programmers with Instantaneous Trip Function

Applicability This notification is submitted in accordance with the requirements of 10CFR Part 21, Section 21.1 (b), 21.3a(3), and 21.3d(4)

Identification of Facility and Component LaSalle County Station, Units One and Two
Commonwealth Edison
Chicago, Illinois

GE Type RMS-9 Overcurrent Trip Device Programmers

Identification of Component Manufacturer General Electric

Nature of Defect

On May 28th, 1996, LaSalle County Station reported to General Electric Nuclear Energy (GE-NE) that a number of GE Type RMS-9 Overcurrent Trip Device Programmers were failing to operate as expected. The Instantaneous Trip Function was tripping the circuit breakers at values less than the RMS-9 Programmer switch settings would have implied. LaSalle County Station sent three of these RMS-9 Programmers to GE-NE for testing, evaluation and failure analysis.

General Electric's SC96-04, 10CFR Part 21 Notification Letter of August 12, 1996, states that the cause of the problem with the instantaneous pickup switch to be a polyester epoxy film on the internal switch contacts. This film acts as an insulator and consequently, when the switch position is changed, the contacts are prevented from making full contact and the RMS-9 Programmer fails to a lower Instantaneous Pickup setting. This film is apparently the result of insufficient curing of the conformal coating (polyester epoxy) applied to the RMS-9 Programmer circuit board during final assembly.

Safety Significance

An RMS-9 Programmer with the Instantaneous Pickup Function failed to it's lowest value or at some value lower than anticipated could result in the inability to start a safety significant motor due to the starting current of the motor being above the Instantaneous Pickup setpoint of the RMS-9 Programmer. This could potentially affect the operation of safety related loads required for safe shutdown and mitigating accidents.

Time of Discovery

August 19th, 1996 (Receipt of GE-NE SC96-04)

Corrective Actions

Use of the GE TVRMS2 digital tester, to assess as found settings of RMS-9 units currently installed and confirm the as left RMS-9 settings. The GE TVRMS2 digital tester provides confirmation of the proper settings of the RMS-9 Programmer.

Number and Location of All Defective Components

A summary of the safety related breakers equipped with RMS-9 programming units and their service is provided in the table below.

Cubicle	Service
236X-303C	RHR SW Pump 2C
236X-302A	AEER Air Cooled Condenser Fan 0B

236X-302B	AEER Supply Fan 0B
236X-302C	2A DGCW Pump
236X-302D	AEER Supply System Refrig Compressor 0B
236X-301B	MCC 236X-3 Feed Breaker
236X-301C	MCC 236X-2 Feed Breaker
236X-301D	MCC 236X-1 Feed Breaker
236Y-403B	Main Feed to 236Y
236Y-403C	RHR SW Pump 2D
236Y-401A	Control Room HVAC Air Cooled Condenser Fan 0B
236Y-402C	Fuel Pool Emergency Makeup Pump 2B
236Y-402D	Control Room HVAC Refrig Unit 2B
236Y-401B	MCC 236Y-3 Feed Breaker
236Y-401C	MCC 236Y-1 Feed Breaker
236Y-401D	MCC 236Y-2 Feed Breaker
136X-302B	Main Feed to 136X
136X-302C	RHR SW Pump 1C
136X-303A	1A DGCW Pump
136X-303B	AEER Supply System Compressor. 0A
136X-303C	AEER Air Cooled Condenser Fan 0A
136X-303D	AEER Supply Fan 0A
136X-304B	MCC 136X-1 Feed Breaker
136X-304C	MCC 136X-2 Feed Breaker
136X-304D	MCC 136X-3 Feed Breaker
136Y-402B	Main Feed to 136Y
136Y-402C	RHR SW Pump 1D
136Y-403A	Control Room Air Cooled Condenser Fan 0A
136Y-403B	Control Room Refrig. Unit 0A
136Y-403C	Primary Containment Vent Supply Fan 1B
136Y-403D	Fuel Pool Emergency Makeup Pump 1B
136Y-404A	Hydrogen Recombiner Power Cabinet
136Y-404B	MCC 136Y-1 Feed Breaker
136Y-404C	MCC 136Y-2 Feed Breaker
136Y-404D	MCC 136Y-3 Feed Breaker
135X-102B	Main Feed to 135X
135X-102C	RHR SW Pump 1A
135X-103A	0 DGCW Pump
135X-103B	MCC 135X-1 Feed Breaker
135X-103C	MCC 135X-2 Feed Breaker
135X-103D	MCC 135X-3 Feed Breaker
135Y-202B	Main Feed to 135Y
135Y-202C	RHR SW Pump 1B
135Y-203A	Primary Containment Vent Supply Fan 1A
135Y-203B	Fuel Pool Emergency Makeup Pump 1A
135Y-203C	Cleanup Recirc Pump 1C
135Y-203D	MCC 135Y-1 Feed Breaker
135Y-204B	MCC 135Y-2 Feed Breaker
235X-103B	Main Feed to 235X
235X-103C	RHR SW Pump 2A
235X-102A	0 DGCW Pump
235X-102B	MCC 235X-1 Feed Breaker
235X-102C	MCC 235X-2 Feed Breaker
235X-102D	MCC 235X-3 Feed Breaker
235Y-203B	Main Feed to 235-Y

235Y-203C	RHR SW Pump 2B
235Y-202A	Cleanup Recirc Pump 2C
235Y-202C	Primary Containment Vent Supply Fan 2A
235Y-201A	Fuel Pool Emergency Makeup Pump 2A
235Y-201B	MCC 235Y-1 Feed Breaker
235Y-201C	MCC 235Y-2 Feed Breaker
235Y-201D	MCC 235Y-3 Feed Breaker

Contacts

Larry Bukantis
Auxiliary Power System Engineer
LaSalle County Station
Commonwealth Edison
2601 North 21st Road
Marseilles, Illinois 61341
(815) 357-6761



RECEIVED

AUG 19 1996

Rommel

10 CFR PART 21 NOTIFICATION

GE Nuclear Energy

SC96-04

August 12, 1996

TO: Baltimore Gas & Electric Co.
Boston Edison Co.
ComEd
Duquesne Light Co.
Entergy Operations, Inc.
GPU Nuclear Corp.
Maine Yankee Atomic Power Co.

Northeast Utilities
Omaha Public Power District
Rochester Gas & Electric Corp.
Southern Nuclear Operating Co.
Tennessee Valley Authority
Vermont Yankee Nuclear Power Corp.

**SUBJECT: Possible Failure of GE Type RMS-9 Overcurrent Trip Device Programmers
with Instantaneous Trip Function**

<input type="checkbox"/> Reportable Condition [21.21 (c)]	<input type="checkbox"/> 60 Day Interim Report [21.21 (a)(2)]
<input checked="" type="checkbox"/> X Transfer of Information [21.21 (b)]	<input type="checkbox"/> Safety Information Communication

SUMMARY:

This Notification provides the results of an evaluation by GE Nuclear Energy (GE-NE) of failures reported in the Instantaneous Trip Function of GE Type RMS-9 Overcurrent Trip Device Programmers. These devices were manufactured by GE Electrical Distribution and Control, and supplied by GE-NE as Safety Related components for balance-of-plant or unspecified applications. Since the applications and associated safety functions of RMS-9 Programmers supplied by GE-NE are not known, it is not possible for GE-NE to evaluate the safety significance of a possible failure to determine if a defect exists in the context of 10CFR Part 21. We are therefore transferring the information to the affected utilities for evaluation.

Issued by:

M. A. Smith

M. A. Smith, Manager
Safety Evaluations Project
GE Nuclear Energy, M/C 187
175 Curtner Avenue, San Jose, CA 95125

Notice: This 10 CFR Part 21 Notification pertains only to the plants or facilities specifically indicated as being affected. GE Nuclear Energy (GE-NE) has not considered or evaluated the applicability, if any, of this information to any plants or facilities other than those specifically indicated as being affected and for which GE-NE supplied the equipment or services addressed in the Notification. Determination of applicability of this information to a particular plant or facility, and the decision of whether or not to take action based on the Notification, are the responsibilities of the Owner of that plant or facility.

Background

A domestic BWR licensee has reported to GE Nuclear Energy (GE-NE) that a number of GE Type RMS-9 Overcurrent Trip Device Programmers were failing to operate as expected. The Instantaneous Trip Function was tripping the circuit breaker at values less than the RMS-9 Programmer switch setting would have implied.

The licensee sent three (3) of these RMS-9 Programmers to GE-NE for testing, evaluation, and failure analysis. Subsequent testing confirmed that the Instantaneous Pickup Switches sometimes failed to their lowest value (1.5X). At other times, changing the switch setting had no apparent effect on the RMS-9 Programmer setting. Only the Instantaneous Pickup Switch appears to be affected. GE-NE has not identified any problem with the other switches on the RMS-9 Programmers.

GE-NE has determined the cause of the problem with the Instantaneous Pickup Switch to be a polyester epoxy film on the internal switch contacts. This film acts as an insulator and consequently, when the switch position is changed, the contacts are prevented from making full contact and the RMS-9 Programmer fails to it's lowest Instantaneous Pickup setting (1.5X). This film is apparently the result of insufficient curing of the conformal coating (polyester epoxy) applied to the RMS-9 Programmer during final assembly. Testing has shown that some of the conformal coating ran under the switch when it was applied and was not cured because it was shadowed by the switch during the ultraviolet curing process. Over a period of time the external contacts of the switch acted as wicks and drew some of the uncured conformal coating into the switch where it then formed the film on the internal switch contacts. Since the thickness of the film on the internal contacts varies, the effect is to cause the switch to fail to it's lowest setting. At this setting the film is thick enough to act as an open circuit and to cause the switch to operate erratically.

While this same action may have occurred at other switches in the RMS-9 Programmer, the higher current through the other switches allowed the film to "burn off". This is why only the Instantaneous Pickup Switch is being affected.

Based on the testing performed by GE-NE the film does not appear to form between the movable contacts and the stationary contacts in the switch. This means that if the switch is operating properly and is not moved from the position verified to have proper operation, the switch will continue to operate properly.

The affected RMS-9 Overcurrent Trip Device Programmers were manufactured by GE Electrical Distribution and Control, and supplied by GE-NE as Safety Related components for balance-of-plant or unspecified applications. They were variously provided as spare parts or as components of either refurbished circuit breakers or new AK7/AKR7 circuit breakers.

Safety Basis

An RMS-9 Programmer with the Instantaneous Pickup Function failed to its lowest value or at some value lower than anticipated could result in the inability to start a motor due to the starting current of the motor being above the Instantaneous Pickup setpoint of the RMS-9 Programmer. Likewise, if the Instantaneous Pickup setpoint is at some value higher than expected, it is possible that a circuit fault could result in the circuit breaker not tripping in accordance with the selective tripping scheme of the power system. This could result in losing significant portions of the power system due to the circuit breaker failing to trip when expected and thus forcing upstream circuit breakers to isolate a fault.

Corrective Actions and Preventative Measures

GE-NE recommends that as the final step in any procedure requiring the repositioning of the Instantaneous Pickup Switch, the proper operation of the Instantaneous Trip Function be verified by testing. This testing may be performed by Primary Current Injection or by using the GE TVRMS Test Set to verify the "electronic" position of the Instantaneous Pickup Switch. This recommendation is based on the evidence that a properly operating switch will continue to operate properly unless and until the switch position is changed such that the film (if present) comes into play.

ATTACHMENT 1
AFFECTED PLANTS

UTILITY	PLANT	AFFECTED
Baltimore Gas & Electric Co.	Calvert Cliffs 1	x
Baltimore Gas & Electric Co.	Calvert Cliffs 2	x
Boston Edison Co.	Pilgrim	x
Carolina Power & Light Co.	Brunswick 1	
Carolina Power & Light Co.	Brunswick 2	
Centerior Energy	Perry 1	
ComEd	CRIT Facility	x
ComEd	Dresden 2	x
ComEd	Dresden 3	x
ComEd	LaSalle 1	x
ComEd	LaSalle 2	x
ComEd	Quad Cities 1	x
ComEd	Quad Cities 2	x
Consumers Power Co.	Big Rock Point	
DTE Energy	Fermi 2	
Duquesne Light Co.	Beaver Valley 1	x
Duquesne Light Co.	Beaver Valley 2	x
Entergy Operations, Inc.	Grand Gulf	
Entergy Operations, Inc.	River Bend	x
Entergy Operations, Inc.	Waterford 3	x
GPU Nuclear Corp.	Oyster Creek	x
IES Utilities, Inc.	Duane Arnold	
Illinois Power Co.	Clinton	
Long Island Lighting Co.	Shoreham	
Maine Yankee Atomic Power Co.	Maine Yankee	x
Nebraska Public Power District	Cooper	
New York Power Authority	FitzPatrick	
Niagara Mohawk Power Corp.	Nine Mile Point 1	
Niagara Mohawk Power Corp.	Nine Mile Point 2	
Northeast Utilities	Millstone 1	x
Northern States Power Co.	Monticello	
Omaha Public Power District	Fort Calhoun	x
PECO Energy Co.	Limerick 1	
PECO Energy Co.	Limerick 2	
PECO Energy Co.	Peach Bottom 2	
PECO Energy Co.	Peach Bottom 3	
Pennsylvania Power & Light Co.	Susquehanna 1	
Pennsylvania Power & Light Co.	Susquehanna 2	
PIMS	PIMS	
Public Service Electric & Gas Co.	Hope Creek	

UTILITY	PLANT	AFFECTED
Rochester Gas & Electric Corp.	R. E. Ginna	x
Southern Nuclear Operating Co.	Hatch 1	x
Southern Nuclear Operating Co.	Hatch 2	x
Southern Nuclear Operating Co.	Vogtle 1	x
Southern Nuclear Operating Co.	Vogtle 2	x
Tennessee Valley Authority	Browns Ferry 1	x
Tennessee Valley Authority	Browns Ferry 2	x
Tennessee Valley Authority	Browns Ferry 3	x
Vermont Yankee Nuclear Power Corp.	Vermont Yankee	x
Washington Public Power Supply System	WNP-2	

ATTACHMENT 2

10 CFR PART 21 NOTIFICATIONS FOR 1995/1996

The following is a list of 10CFR Part 21 notifications that GENE has provided to BWR owners in 1995 and 1996 as Reportable Conditions (RC), Transfers of Information (TI), Safety Information Communications (SC) or 60 Day Interim Reports (60 Day).

NUMBER	REF.	SUBJECT	DATE
SC95-01	PSC9511	Unanalyzed Water Hammer Loading (TI)	5/12/95
SC95-02	PRC 95-03	Radiation Limitations of Bellows-Fill Liquid in ITT Barton Differential Pressure Indicators and Indicating Switches (TI)	5/30/95
SC95-02, Revision 1	PRC 95-03	Radiation Limitations of Bellows-Fill Liquid in ITT Barton Differential Pressure Indicators and Indicating Switches (TI)	6/10/95
SC95-03	PRC 95-05	Environmental Qualification of D2H Barksdale Pressure Switches - DTE Energy (TI)	10/25/95
SC95-04	N/A	Not Used	N/A
SC95-05	N/A	Not Used	N/A
SC95-06	PRC 95-06	RWCU and HPCI Isolation Valve Improper Packing Bushing Material - Boston Edison Co. (RC)	11/1/95
SC96-01	PRC 96-03	Gould Shawmut A6Y()-11 Fuse Terminal Cracking - Public Service Electric & Gas Co. (TI)	5/24/96
SC96-02	PRC 96-04	Safety Limit MCPR Evaluations (RC)	5/24/96
SC96-03	PRC 96-10	Possible Failure of Agastat ETR Control Relays with "A" Time Range - Public Service Electric & Gas Co. (TI)	7/22/96
SC96-04	PRC 96-13	Possible Failure of GE Type RMS-9 Overcurrent Trip Device Programmers with Instantaneous Trip Function (TI)	8/12/96