

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) PLANT HATCH, UNIT 1	DOCKET NUMBER (2) 0 5 0 0 0 3 2 1	PAGE (3) 1 OF 0 6
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TITLE (4)
DESIGN DEFICIENCY COULD AFFECT CONTROL ROOM ENVIRONMENTAL CONTROL SYSTEM

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		
0 5 0	9 8 8	8 8	8 8	0 1 1	0 0	0 6 0	8 8	8 8	PLANT HATCH, UNIT 2		
									DOCKET NUMBER(S) 0 5 0 0 0 3 6 6		

OPERATING MODE (9) 4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10) 0 0 0	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(e)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.38(c)(1)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)						
	<input type="checkbox"/> 20.405(a)(1)(c)	<input type="checkbox"/> 50.38(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)							
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)							
	<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)							

LICENSEE CONTACT FOR THIS LER (12)

NAME J. D. Heidt, Nuclear Licensing Manager - Hatch	TELEPHONE NUMBER
	AREA CODE: 4 0 4 NUMBER: 5 2 6 - 4 5 3 0

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)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

On 05/09/88 at approximately 1220 CDT, both Unit 1 and Unit 2 were in the shutdown mode at an approximate power level of 0 Mwt (0 percent of rated thermal power). At that time, on-site Architect/Engineer (A/E) personnel, who were reviewing design changes, determined that a condition existed where the automatic initiation of the isolation and pressurization modes of the Main Control Room Environmental Control (MCREC EIIS Code VI) system could be defeated by a single failure. Specifically, four Area Radiation Monitors (ARM EIIS Code IL) which provide anticipatory trips (i.e., they are not part of the ESF logic) to the MCREC system are not seismically qualified. In a seismic event an electrical ground could be created in the local auxiliary trip units of these ARMs. This would cause failure of some fuses in the actuation logic which would prevent automatic MCREC system actuation.

The root cause of this event is a design deficiency resulting from failure to properly consider the single failure criteria.

Corrective actions for this event included modifying the ARMs to mitigate the consequences of a seismic event on MCREC actuation logic and testing the modification.

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

A. REQUIREMENT FOR REPORT

This report is required per 10 CFR 50.73 (a)(2)(v) because a condition existed where the automatic initiation of the isolation and pressurization modes of the Main Control Room Environmental Control (MCREC EIIS Code VI) system could be defeated by a single failure.

B. UNIT(S) STATUS AT TIME OF EVENT

Unit 1 was in the shutdown mode when this event occurred. Reactor vessel pressure was atmospheric with a reactor vessel coolant temperature of approximately 161°F.

Unit 2 was also in the shutdown mode when this event occurred. Reactor vessel pressure was atmospheric with a reactor vessel coolant temperature of approximately 129°F.

C. DESCRIPTION OF EVENT

i. Event

On 5/9/88, on-site Architect/Engineer (A/E) personnel were reviewing design changes. They identified a condition in which a single component failure could prevent the MCREC system from entering the pressurization or isolation mode. Specifically, four Area Radiation Monitors (ARM EIIS Code IL) which provide anticipatory trips (i.e., they are not part of the ESF logic) to the MCREC system are not seismically qualified. It was determined that in a seismic event an electrical ground could be created in the local auxiliary trip unit of one or more of these ARMs. A ground condition would cause one or both of the following 10-amp fuses in the MCREC actuation logic to fail:

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

<u>ARM Local Auxiliary Trip Unit</u>	<u>MCREC Channel</u>	<u>Fuse</u>
Unit One Refueling Stairway (1D21-K002-2)	A	UU-F15
Unit Two Refueling Floor (2D21-K002-D)	A	UU-F15
Unit One Refueling Floor (1D21-K002-4)	B	YYY-F13
Unit Two Refueling Stairway (2D21-K002-A)	B	YYY-F13

The failure of either fuse UU-F15 or YYY-F13 would prevent automatic MCREC system actuation.

The ARM vendor (General Electric) was consulted for evidence of seismic testing; however, the vendor could not supply the necessary documentation to confirm seismic testing. Consequently, engineering personnel decided to modify the four ARM auxiliary trip units to mitigate the consequences of a seismic event on MCREC system actuation logic. Design Change Request (DCR) 88-177 was written to perform the necessary modification.

2. Dates/Times

<u>Date</u>	<u>Time (CDT)</u>	<u>Description</u>
5/9/88	1220	Deficiency Card 1-88-2005 was initiated, as required by administrative control procedures, to document this event.
	1715	Limiting Conditions for Operation (LCOs) 1-88-178 and 2-88-403 were initiated.
5/13/88	2140	Procedure 42SP-051288-0N-1-1S was performed to verify proper completion of DCR 88-177.
	2150	LCOs 1-88-178 and 2-88-403 were terminated and the ARM auxiliary trip units were declared operable per procedure 42SP-051288-0N-1-1S.

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D. CAUSE OF EVENT

The root cause of this event has been determined to be a plant design deficiency in that portions of the MCREC system did not meet the single failure criteria.

The design deficiency resulted from a failure to reconcile the system design requirements for the isolation and pressurization modes of operation assuming a single failure.

E. ANALYSIS OF EVENT

The Main Control Room HVAC system is designed to ensure habitability following any of the design basis radiological accidents or the worst-case chemical release accident.

To provide adequate operator protection in the unlikely event of one of these accidents, two distinct accident modes of operation are included. These modes are referred to as the isolation mode and the pressurization mode.

The mode of system operation following each of the accidents of concern is as follows:

<u>Accident</u>	<u>Mode</u>
Loss-of-coolant accident (LOCA)	Pressurization
Fuel-handling accident (FHA)	Pressurization
Main steam line break (MSLB)	Pressurization
Control rod drop accident	Pressurization
Chlorine accident	Isolation

Should fuse UU-F15 or fuse YYY-F13 fail, the automatic initiation of both the isolation and pressurization modes of the MCREC system would be disabled.

In order for the disabling of the MCREC system to be a problem, an accident involving significant releases of chlorine or radioactive material would have to occur simultaneous with the failure of the fuses. The probability of an earthquake of a magnitude significant enough to cause failure of the fuses coincident with an accident which would result in the MCREC system being placed in the pressurization or isolation mode is less than the $1. \times 10^{-6}$ frequency of occurrence specified in ANS-52.1-1983.

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F. CORRECTIVE ACTIONS

The circuitry for the four refueling floor ARM local auxiliary trip units was modified per DCR 88-177. Unit 1 (1D11-K002-2) and Unit 2 (2D11-K002-D) trip units (in trip channel "A") were modified by installing two, three-amp fuses in series with their parallel trip circuits. Unit 1 (1D21-K002-4) and Unit 2 (2D21-K002-A) trip units (in trip channel "B") also were modified by installing two three-amp fuses in series with their parallel trip circuits.

The three-amp fuses in the four, non-safety classified auxiliary trip units will blow if their K1B relays were to short to ground as a result of a seismic event, thus protecting the 10-amp fuse in the respective pressurization/isolation mode trip channel (channel "A" and channel "B").

Following completion of the design change, the ARM local auxiliary trip units were satisfactorily functionally tested per special purpose procedure 42SP-051288-0N-1-1S, "FUNCTIONAL TEST OF ARM CONTACT ISOLATION FUSES - DCR 88-177." The functional test ensured that the modifications per DCR 88-177 had been installed properly and that the fuses would isolate the ARM contacts (K1B) as required.

G. ADDITIONAL INFORMATION

1. Failed Component(s) Identification

No components failed in these events.

2. Previous Similar Events

LER 50-321/1986-039, Rev 1, (dated 10/23/86) reported an event where the MCREC system was found not to perform fully its protective functions. This LER described an event where plant personnel found that the MCREC system would not automatically switch to the isolation mode of operation upon receipt of a high chlorine signal. The event was caused by two blown logic actuation power supply fuses, UU-F15 and YYY-F13 (one in each MCREC system trip channel).

The corrective actions for the event included: 1) replacing the blown fuses, 2) performing the system operability procedure, and 3) performing an engineering study to determine the cause of the blown fuses.

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LER 50-321/1987-004 (dated 05/01/87) reported an event where the MCREC system was found not to perform fully its protective functions in that the MCREC system isolation dampers were subject to fail in the open position if either of the power supply fuses to the air operator solenoids for the air inlet dampers blew. If a high chlorine concentration had been present when either of the fuses blew, the MCREC system would not have automatically isolated.

The corrective actions for the event described in LER 50-321/1987-004 included: 1) issuing a justification for continued operation to cover a chlorine release scenario and a LOCA scenario, and 2) issuing a standing order to monitor continuously the MCREC system in the event a chlorine alarm is received.

The corrective actions for the event described in LER 50-321/1986-039, Rev 1, could not have prevented the event described in LER 50-321/1987-004 and LER 50-321/1988-011 because on 10/23/86, it was not recognized that the design of the MCREC system was deficient and because it was not recognized that the four area radiation monitors were not seismically qualified and could cause the MCREC system actuation logic to fail in a seismic event. The engineering study performed for LER 50-321/1986-039, Rev 1, was interested primarily in determining the cause for the fuse failures in the two separate trip channels.

The corrective actions for the event described in LER 50-321/1987-004 could not have prevented the event described in LER 50-321/1988-011 because it was not recognized that the four area radiation monitors were not seismically qualified and could cause the MCREC system actuation logic to fail in a seismic event.

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the southern electric system

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June 8, 1988

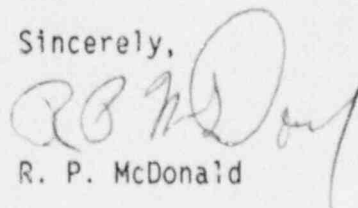
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PLANT HATCH - UNIT 1
NRC DOCKET 50-321
OPERATING LICENSE DPR-57
LICENSEE EVENT REPORT
DESIGN DEFICIENCY COULD AFFECT
CONTROL ROOM ENVIRONMENTAL CONTROL SYSTEM

Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(v), Georgia Power Company is submitting the enclosed Licensee Event Report (LER) concerning a design deficiency which could affect the Plant Hatch - Unit 1 Main Control Room Environmental Control System.

Sincerely,



R. P. McDonald

FAH/ct

Enclosure: LER 50-321/1988-011

c: (see next page)

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U. S. Nuclear Regulatory Commission
June 8, 1988
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c: Georgia Power Company

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Mr. L. T. Gucwa, Manager Nuclear Safety and Licensing
GO-NORMS

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