Entergy Operations

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Ref: 10CFR50.73(a)(2)(vii)

W3B5-91-0165
A4.05
QA

June 10, 1991

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

Subject: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
Reporting of Licensee Event Report

Gentlemen:

Attached is Licensee Event Report Number LER-91-007-00 Waterford Steam Electric Station Unit 3. This Licensee Event Report is submitted pursuant to 10CFR50.73(a)(2)(vii).

Very truly yours,

D.F. Packer
General Manager - Plant Operations

JRM/LDC/rk
Attachment

cc: Messrs. R.D. Martin
G.L. Florreich
J.T. Wheelock - INPO Records Center
E.L. Blake
D.L. Wigginton
N.S. Reynolds
NRC Resident Inspectors Office

IE22 1/1

NRC FORM 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Waterford Steam Electric Station Unit 3	0 5 0 0 0 3 8 2	1 OF 0 4

TITLE (4): Incorrect Electronic Current Sensor Rating on a 480 V Safety Related Bus due to Improper Architect Engineer Review

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)
									N/A	0 5 0 0 0
0 5	1 0	9 1	9 1	— 0 0 7	— 0 0	0 6	1 0	9 1	N/A	0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
5		20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
0 0 0		20.405(a)(1)(ii)	50.36(c)(2)	X 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)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
T.P. Brennan, Design Engineering Manager	AREA CODE 5 0 4 — 7 3 9 - 1 6 3 3 3

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 fifteen single-space typewritten lines) (16)

On May 10, 1991, Waterford Steam Electric Station Unit 3 was shutdown in Mode 5, when a review of calculation EC-E89-007, Relay Settings and Coordination Curves for 6.9 KV, 4.16 KV and 480 V Busses, revealed that the electronic current sensor (ECS) current transformer (CT) rating installed on Motor Control Center Bus (MCC) 3AB311-S was 300 amps vice the required 600 amps.

MCC 3AB311-S supplies power to equipment necessary to run the "AB" essential services chiller. The potential for MCC 3AB311-S to exceed 300 amps existed in the event of a loss of off-site power with the main turbine tripped. The subsequent automatic restoration of electrical loads could have resulted in the MCC 3AB311-S breaker opening due to an overcurrent condition. This event is reportable as a condition which could have caused one train to become inoperable for systems designed to remove residual heat or shutdown the reactor and maintain it in a safe shutdown condition.

The root cause of this event was a failure of the architect engineer to properly verify CT amperage ratings, in accordance with design calculations, when the CTs were ordered for initial installation. Corrective action included installing the proper rated CT and verifying safety related buses for correct CT rating. Since another train would have been available during the scenario discussed above, this event would not have threatened the health and safety of the general public or plant personnel.

On May 10, 1991, Waterford Steam Electric Station Unit 3 was shutdown in Mode 5, when a review of calculation EC-E89-007, Relay Settings and Coordination Curves for 6.9 KV, 4.16 KV and 480 V Busses, revealed that the Electronic Current Sensor (ECS) (EIIS Identifier 51) current transformer (CT) (EIIS Identifier XCT) installed on Motor Control Center Bus (MCC) 3AB311-S (EIIS Identifier ED-BU) was rated at 300 amps vice the required 600 amps.

The ECS is a solid state, direct acting, self powered trip device system. The ECS system consists of a programmer unit and CT sensor. The programmer unit provides the comparison basis for overcurrent detection and delivers the energy necessary to trip the associated breaker (EIIS Identifier BKR). The CT sensor measures the current on the bus and is unique for a given amperage rating.

MCC 3AB311-S supplies power to various electrical loads used as standby equipment for either of the normally operating "A" or "B" train equipment. These loads include the battery charger (EIIS Identifier EJ), the pumps (EIIS Identifier P) associated with the operation of the "AB" essential services chiller (EIIS Identifier BI), and the 3AB static uninterruptible power supply (EIIS Identifier EF). MCC 3AB311-S also supplies electrical power to the "AB" coolers which are used to cool the "AB" charging (EIIS Identifier CB) pump room, the "AB" component cooling water (EIIS Identifier CC) pump room, and the "AB" safeguards (EIIS Identifier UE) pump room.

A review of EC-E89-007 revealed a CT rated at 600 amps was required for overcurrent protection without unnecessary tripping of MCC 3AB311-S and MCC 3AB312 (EIIS Identifier EC) while the buses are fully loaded. The required CT rating of 600 amps for MCC 3AB311-S and MCC 3AB312 was indicated on two drawings, LOU-1564-G-286 and LOU-B289-SH22A1. However, the indicated required CT rating was 300 amps on drawing LOU-1564-1511.

The potential existed for MCC 3AB311-S to exceed 300 amps in the event of a loss of off-site power with the main turbine generator (EIIS Identifier EL) not supplying on-site electrical loads. The subsequent sequenced automatic restoration of electrical loads on the emergency diesel generators (EIIS Identifier EK) could have resulted in a MCC 3AB311-S current of approximately 340 amps. The 340 amps was estimated using the cumulative current required by operation of all the "AB" electrical loads on MCC 3AB311-S. This event is reportable as a condition which could have caused one train to become inoperable for systems designed to remove residual heat or shutdown the reactor and maintain it in a safe shutdown condition.

MCC 3AB312 ECS was also found to have an installed ECS CT rated at 300 amps. However, this electrical bus does not supply power to any loads for safety systems designed to remove residual heat or shutdown the reactor and maintain it in a safe shutdown condition.

The root cause of this event was a failure of the architect engineer to properly verify ECS CT amperage ratings to be in accordance with design calculations when the CTs were ordered for initial installation. Corrective action included installing a CT rated at 600 amps for the ECS on MCC 3AB311-S. A CT rated at 600 amps has been ordered for installation on MCC 3AB312 ECS. All other safety related buses addressed in calculation EC-E89-007 were checked for correct CT rated currents. All appropriate drawings have been revised by a document revision notice to reflect the required CT.

The occurrence of the worst case scenario described above, however unlikely, would have resulted in a loss of the "AB" chiller. The "A" or "B" train would have provided operable systems for residual heat removal and shutdown of the reactor and maintaining it in a safe shutdown condition. Therefore, this event did not threaten the health and safety of the general public or plant personnel.

Similar Events

None

Plant Contact

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