

**LICENSEE EVENT REPORT (LER)**

Estimated burden per response to comply with this mandatory information collection request: 50 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 (3150-0104), Office Of Management And Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

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TITLE (4)  
**Control Room HVAC System Emergency Zone Refrigeration Control Unit Inoperability**

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MON TH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
05	15	1999	1999	004	00	06	14	1999	Dresden Unit 3	05000249
									N/A	N/A

OPERATING MODE (9) <b>1 (1)</b>	<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more) (11)</b> 20.2201(b)      20.2203(a)(2)(v)      50.73(a)(2)(i)      50.73(a)(2)(viii) 20.2203(a)(i)      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)      50.73(a)(2)(iv)      OTHER 20.2203(a)(2)(iii)      50.36(c)(1)      X 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)
POWER LEVEL (10) <b>100 (100)</b>	

LICENSEE CONTACT FOR THIS LER (12)

NAME <b>Billy McGallian, System Engineer</b>	TELEPHONE NUMBER (Include Area Code) <b>(815) 942-2920 ext 2371</b>
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)

<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE).	<input type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH <b>07</b>	DAY <b>23</b>	YEAR <b>1999</b>
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ABSTRACT (Limit to 1400 spaces, i. e., approximately 15 single-spaced typewritten lines) (16)

On May 15, 1999, at 0456 hours, during the performance of Dresden Operating Surveillance procedure (DOS) 5750-04, "Control Room B Train Heating, Ventilation and Air Conditioning and Air Filtration Unit Surveillance", for the post maintenance testing of the air filtration unit booster fan 2/3-9400-104A, the Refrigeration Control Unit (RCU) tripped after starting. The RCU was unavailable from 0456 hours on May 15, 1999 until 2232 hours on May 16, 1999. The RCU was determined to be OPERABLE after the satisfactory completion of DOS 5750-04, at 0900 hours on May 17, 1999.

The apparent cause has been determined to be inadequate procedures and instructions to perform specified work and testing on Westinghouse Overload relays. Corrective actions have been developed to include a Westinghouse Motor Control Center (MCC) assemblies procedure, job/task analysis, required training based on the job/task analysis, revision of work request models to include Westinghouse overload relays and a review of all Westinghouse MCC assemblies to prevent recurrence. A supplemental LER will be issued upon completion of the root cause.

This LER is being submitted pursuant to 10 CFR 50.73(a)(2)(v). The "A" Train HVAC System Air Handling Unit (AHU), Return Air Fan and refrigeration control units were available for Control Room Habitability requirements and calculated sensible and latent heat loads for the design specifications of the "A" Train System are equal to the "B" Train heat load calculations. In addition, the "A" train, if required, is available on loss of offsite power via an alternate power source. Therefore, the safety significance of this condition is minimal.

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

**PLANT AND SYSTEM IDENTIFICATION:**

General Electric - Boiling Water Reactor - 2527 MWt rated core thermal power

Energy Industry Identification System (EIS) Codes are identified in the text as [XX] and are obtained from IEEE Standard 805-1984, IEEE Recommended Practice for System Identification in Nuclear Power Plants and Related Facilities.

**EVENT IDENTIFICATION:**

Control Room HVAC System Emergency Zone Refrigeration Control Unit Inoperability

**A. PLANT CONDITIONS PRIOR TO EVENT:**

Unit: 2 (3)                                      Event Date: May 15, 1999                                      Event Time: 0456 CDT  
 Reactor Mode: 1 (1)                                      Mode Name: Run (Run)                                      Power Level: 100 (100)

Reactor Coolant System Pressure: 1000 psig

**B. DESCRIPTION OF EVENT:**

On May 15, 1999, at 0456 hours, during the performance of DOS 5750-04, "Control Room B Train HVAC and Air Filtration Unit (AFU) Surveillance" for the post maintenance testing of the AFU booster fan 2/3 - 9400 - 104A, the Refrigeration Control Unit (RCU) [VI] tripped after starting. Maintenance and operations personnel immediately began to investigate the cause of the trip.

Prior to the trip of the RCU the system had just completed a ten-hour surveillance procedure after replacement of the thermal overload devices for the RCU breakers. The surveillance was satisfactory and the system was declared operable on May 14, 1999 at 2200 hours. On May 15, 1999, at 0456 hours, during the performance of DOS 5750-04, for the post maintenance testing of the air filtration unit booster fan, 2/3-9400-104B, the RCU tripped after starting.

During trouble-shooting activities, it was identified that the Refrigeration Condensing Unit MCC breaker 29-8, cubical 1D, tripped on thermal overloads.

Work was performed in accordance with work request number 970095917-01, Electrical Maintenance Standards for Westinghouse Breakers. It was found during the evaluation of these fan trips, that the thermal overload relay setpoints were being set in accordance with Dresden Electrical Surveillance (DES) 7300-05. This procedure is based on General Electric type overload relays. The relays involved were Westinghouse type overload relays.

The newly installed overload relays were originally tested by applying current to each individual phase. The current calculation was based on a typical General Electric application in which 300 percent of the maximum amperage range of the overload relay element is applied. The overload relay should trip within a specified range.

The Westinghouse overload relays are tested by wiring all three relays in series and then applying the test current across the series circuit testing all three elements at the same time.

This specific style of Westinghouse overload relay has a one-time trip rating of a minimum full load current of the relay as identified in the vendor manual tables. The manner in which the Westinghouse overload relays were tested resulted in trip times of approximately 45 to 50 seconds. This was above the range of 25 to 40 seconds, identified in the work instructions. The results required the overload relays to be adjusted down for the relay to trip within the required range.

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On May 16, 1999, 0300 hours, the thermal overload relays setpoints for MCC 29-8, cubicle 1D, were changed to reflect desired settings in accordance with Westinghouse guidelines and testing requirements. Subsequent thermal overload relay testing was completed satisfactorily. Operations Department began testing the B Train HVAC System in accordance with DOS 5750-04 at 2232 hours, May 16, 1999. DOS 5750-04 was satisfactorily completed on May 17, 1999. RCU functioned properly during the 10-hour run of DOS 5750-04.

The RCU was unavailable from 0456 hours on May 15, 1999 until 2232 hours on May 16, 1999. The RCU was determined to be OPERABLE after the satisfactory completion of DOS 5750-04 on May 17, 1999.

No other systems, components or structures were identified which contributed to this event.

**C. CAUSE OF EVENT:**

The apparent cause has been identified as inadequate work instructions and procedures governing the testing and adjustment of Westinghouse Thermal Overload Relays. Further investigation is being performed and a supplemental LER will be issued upon the final root cause determination with additional corrective actions as appropriate.

**D. SAFETY ANALYSIS**

Control Room HVAC System "A" Train was available during the unavailability of the "B" Train HVAC System RCU. The "A" Train System is the normal supply for the Control Room Emergency Zone. Calculated sensible and latent heat loads for the design specifications of the "A" Train System are equivalent to the "B" Train heat load calculations. Originally, the Control Room Emergency Zone included the Control Room, "B" Train Equipment Room, and the Auxiliary Computer Room. Currently, the "A" Train and "B" Train HVAC Systems supply only the Control Room and the "B" Train Equipment Room. Since the Dresden Control Room HVAC Upgrade was installed the "A" Train and "B" Train HVAC Systems have maintained the Control Room between 70 and 80 degrees F and are more than adequate in maintaining design basis requirements of the Control Room Emergency Zone. With the loss of the "B" Train, the "A" Train System was started and the Control Room was provided cooling. Dresden Station procedure DOA 5750-01, Ventilation System Failure, instructs operations to start Train "A" Control Room HVAC (AHU). The "A" Train System can be used if "B" Train fails to perform its design function. Procedure DOA 5750-01 provides instructions to power the "A" Train system via an alternate power source if required, in the event of a loss of offsite power.

The preventive maintenance and monitoring of the A Train equipment ensures that the system is capable of removing the required heat loads of the Control Room Emergency Zone. Heat loads in the Control Room are greater in normal use than would be expected in a Design Basis Accident (DBA). The Control Room HVAC System would be extracting heat loads for equipment remaining in service after load shedding, Outside Air loading for 2000 cubic feet/minute (cfm), and 5 personnel in the Control Room Envelope. Under normal operations, the A Train system operating in normal mode maintains the Control Room at approximately 75 degrees Fahrenheit. In Isolation/Pressurization (Radiation Mode) Mode, the A Train maintains the Control Room at 75 degrees Fahrenheit as documented in Special Procedure SPII 96-12-04, Control Room Air Balance Verification Procedure, completed in August, 1997.

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**E. CORRECTIVE ACTIONS:**

Corrective actions include:

- 1) Development of a Dresden Electrical Maintenance Standard Work Instruction for Westinghouse Block Style Overload relays. (Complete)
- 2) Work request models have been developed for predefined activities on Westinghouse Block Style Overload Relays. (Complete)
- 3) Electrical maintenance has reviewed all MCC assemblies and determined that no additional Westinghouse thermal overloads of this type have been tested with inadequate work instructions. (Complete)
- 4) A Westinghouse MCC assemblies procedure was obtained and is being reviewed for development of a Dresden Station procedure and work requests and model work instructions will be revised as necessary if a new Dresden Westinghouse MCC assembly procedure is approved and issued. (ATI # 11480-12-01)
- 5) Job/Task Analysis has been initiated for the evaluation of required training. (ATI # 11480-12-02)
- 6) Submittal of a training request will be performed based on the results provided from the job/task analysis. (ATI # 11480-12-03)
- 7) A supplemental LER will be issued upon the final root cause determination. (ATI # 11480-12-04)

**F. PREVIOUS OCCURRENCES:**

None

**G. COMPONENT FAILURE DATA:**

None