

NRC FORM 366 (5-92)			U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95											
LICENSEE EVENT REPORT (LER)									ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.								
FACILITY NAME (1) Dresden Nuclear Power Station, Unit 2						DOCKET NUMBER (2) 05000237			PAGE (3) 1 OF 4								
TITLE (4) Potentially Unanalyzed Control Room Habitability Condition Due to Purge Mode																	
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						
3	30	94	94	-- 007 --	01	03	28	96	FACILITY NAME		DOCKET NUMBER						
OPERATING MODE (9)		N		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)													
POWER LEVEL (10)		100		20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)							
				20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)							
				20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER							
				20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)							
				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)		X 50.73(a)(2)(x)									
LICENSEE CONTACT FOR THIS LER (12)																	
NAME Sang J. Rhee System Engineer								TELEPHONE NUMBER (Include Area Code) Ext. 2371 (815) 942-2920									
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).				NO													

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On March 30, 1994, at 1700 hours, with Unit 2 at 100% rated core thermal power and Unit 3 in refueling outage (D3R13), a System Engineer noticed that the Control Room heating ventilation and air conditioning (HVAC) system was operating in the outside purge mode. In the outside purge mode, the Control Room HVAC system takes greater than 2000 cfm outside make-up air. However, the Control Room habitability was analyzed based on normal outside make-up air flow rate of 2000 cfm. As a result of the Control Room habitability analysis, the existing operating procedure requires that the Control Room HVAC system be isolated within 40 minutes of receiving a high radiation signal from the Reactor Building vent duct to minimize the radiation dose received by the Control Room personnel. Therefore, upon review of the Control Room habitability study, it was determined that the Control Room HVAC system was operated in a potentially unanalyzed Control Room habitability condition. The Control Room HVAC system was immediately taken to the normal mode and was restricted from use in outside purge mode by placement of an equipment out-of-service. The safety significance of this event is minimal because the back up emergency safety related HVAC train 'B' and the air filtration unit were operable and in standby to meet the Control Room habitability requirements.

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TEXT CONTINUATION

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

EVENT IDENTIFICATION:

Potentially Unanalyzed Control Room Habitability Condition Due to Purge Mode

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 2/3 Event Date: March 30, 1994 Event Time: 1700 hours
Reactor Mode: N (N) Mode Name: Run (Refuel) Power Level: 100(0)
Reactor Coolant System Pressure: 987 (0)psig

B. DESCRIPTION OF EVENT:

On March 30, 1994, at 1700 hours, with Unit 2 at 100% rated core thermal power and Unit 3 in refueling outage, Control Room heating ventilation air conditioning (HVAC) System Engineer noticed that the normal train 'A' Control Room HVAC system was operating in the outside purge mode. In the outside purge mode, the Control Room HVAC system takes greater than 2000 cfm outside air. However, the Control Room habitability was analyzed based on normal outside make-up air flow rate of 2000 cfm. As a result of the Control Room habitability analysis, the existing operating procedure requires that the Control Room HVAC system be isolated within 40 minutes of receiving a high radiation signal from the Reactor Building vent duct to minimize the radiation dose received by the Control Room personnel. Therefore, upon review of the Control Room habitability study, it was determined that the Control Room HVAC system was operated in a potentially unanalyzed Control Room habitability condition. The Control Room HVAC system was immediately taken to the normal mode and it was restricted from use in the outside purge air mode by placement of an equipment out-of-service.

C. CAUSE OF EVENT:

This report is being submitted in accordance with 10CFR50.73(a)(2)(x) which requires the licensee to report any event that posed an actual threat to the safety of the nuclear power plant or significantly hampered site personnel in the performance of duties necessary to the safe operation of the nuclear power plant including fires, toxic gas releases, or radioactive releases. Apparent root causes of this event are: 1) no automatic isolation logic upon a high radiation signal and 2) a lack of knowledge in Control Room habitability requirements. The non-safety related train 'A' air compressor was out of service for a routine air compressor heat exchanger preventive maintenance surveillance and corrective maintenance on the temperature controller. As a result of the equipment not being available, the Control Room temperature could not be maintained at a personnel comfort range of 70 to 80 degree F. It was maintained at approximately 82 degree F. Due to personnel discomfort in the Control Room, the Control Room personnel decided to place the Control Room HVAC Air Flow Control switch into the outside purge mode to receive cooler outside air.

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D. SAFETY ANALYSIS:

The Dresden Unit 2 and 3 Control Room and its associated HVAC equipment room are located in the Turbine Building at elevation 534' and 549', respectively. The Control Room HVAC system serves the Control Room emergency zones which include the Control Room, the Train "B" Equipment room and the Auxiliary Computer room. The Control Room HVAC system consists of two independent trains which include separate outside air intakes and an emergency air filtration unit (AFU).

The function of the Control Room ventilation system is to: 1) maintain Control Room temperature within the design range, 2) provide adequate radiation protection to permit access and occupancy of the Control Room under accident conditions, 3) provide protection from a toxic gas release, and 4) provide protection from fire and smoke (train A only).

During normal unit operation, the station utilizes non-safety related train 'A' Control Room HVAC system to provide a comfortable working environment, to provide protection from toxic gas and to provide protection from fire and smoke for the Control Room personnel. Upon detection of either ammonia or methyl chloride gas, the outside air intakes and Control Room kitchen and locker room exhaust dampers are automatically isolated and the HVAC system placed in recirculation mode. Also, upon detection of smoke in the Control Room, the HVAC system will be manually switched to 100% outside purge air mode. In the event of a design basis accident (DBA) or a loss of coolant accident (LOCA), it utilizes either the emergency back-up train 'B' or the normal train 'A' Control Room HVAC system and the emergency AFU to maintain the habitability of the Control Room such that the plant can be safely shutdown under a design basis accident condition. The probability of being in the outside purge mode with a LOCA that results in significant fuel damage is considered to be very small. The back up emergency safety related HVAC train 'B' and the emergency AFU were operable to meet the Control Room habitability requirements, the safety significance of this event is considered minimal.

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E. CORRECTIVE ACTIONS:

- E.1 The normal train 'A' Control Room HVAC system was immediately taken to the normal mode and was restricted from use in the outside purge mode by placement of an equipment out-of-service card on the Control Room Air Flow Control switch.
- E.2 In lieu of an automatic isolation logic upon a high radiation signal modification, Corporate Nuclear Engineering Services (NES) Probability Risk Assessment (PRA) group performed an analysis to calculate the number of hours that the Control Room HVAC system can be in the purge mode of operation during normal operation. The analysis shows that 200 hours per year of purge mode operation would be non-risk significant. As a result of PRA analysis, the following corrective actions are taken to control outside purge mode operation:
- 1) Dresden Operating Procedure (DOP) 5750-05, Control Room Heating Ventilation and Air Conditioning, and Dresden Operations Annunciator Procedures (DAN) 902(3) A-3 and F-14, Reactor Building Vent Ch A/B Rad HI HI alarm were revised.
 - 2) A permanent caution statement was installed on the Control Room Air Flow Control switch to follow DOP 5750-05 in order to place outside purge mode operation. DOP 5750-05 provides necessary steps to ensure not to exceed authorized 200 total hours of operation such as entering Limiting Condition of Operation (LCO) action statement and notification to System Engineer to track total accumulated time of LCO.
- E.3 The Control Room HVAC system flow rate measurement per Special Procedure (SP) 94-5-069 was performed and verified that the make-up flow rate is less than 2000 cfm during normal Control Room HVAC operation.
- E.4 To further enhance the Control Room HVAC operation the automatic isolation function of the Control Room HVAC intake upon a high radiation signal modification will be pursued per Dresden Administration Procedure (DAP) 05-02, Issues Management Program (NTS 2371809400703S1).
- E.5 A review of the station procedures for operation of the Control Room HVAC following design basis events will be performed to verify appropriate actions are specified (NTS 2371809600301).

F. PREVIOUS OCCURRENCES:

There is no previous Licensee Event Report (LER) regarding this issue.

G. COMPONENT FAILURE DATA:

There is no component failure associated with this event