

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 5
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TITLE (4)  
Failure to Declare Refuel Floor Radiation Monitor Inoperable and Take Technical Specifications Required Action Due to Inadequate 10CFR50.59 Safety Evaluation

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
12	09	96	96	-- 021 --	00	07	07	97	Dresden Unit 3	05000249
									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) 099	<input type="checkbox"/>	20.2201(b)	<input type="checkbox"/>	20.2203(a)(3)(i)	<input type="checkbox"/>	50.73(a)(2)(iii)	<input type="checkbox"/>	73.71(b)		
	<input type="checkbox"/>	20.2203(a)(1)	<input type="checkbox"/>	20.2203(a)(3)(ii)	<input type="checkbox"/>	50.73(a)(2)(iv)	<input type="checkbox"/>	73.71(c)		
	<input type="checkbox"/>	20.2203(a)(2)(i)	<input type="checkbox"/>	20.2203(a)(4)	<input type="checkbox"/>	50.73(a)(2)(v)	<input type="checkbox"/>	OTHER		
	<input type="checkbox"/>	20.2203(a)(2)(ii)	<input type="checkbox"/>	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(vii)	<input type="checkbox"/>	(Specify in Abstract below and in Text, NRC Form 366A)		
	<input type="checkbox"/>	20.2203(a)(2)(iii)	<input type="checkbox"/>	50.36(c)(2)	<input type="checkbox"/>	50.73(a)(2)(viii)(A)	<input type="checkbox"/>			
	<input type="checkbox"/>	20.2203(a)(2)(iv)	<input checked="" type="checkbox"/>	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(viii)(B)	<input type="checkbox"/>			
<input type="checkbox"/>	20.2203(a)(2)(v)	<input type="checkbox"/>	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(x)	<input type="checkbox"/>				

LICENSEE CONTACT FOR THIS LER (12)

NAME P. R. Craig - System Manager	TELEPHONE NUMBER (Include Area Code) Ext. 3631 (815) 942-2920
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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)

<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE).	<input type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH 04	DAY 15	YEAR 97
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On December 09, 1996, at 1030, with Unit 2 in the run mode at 99 percent rated core thermal power and Unit 3 in cold shutdown, it was determined that, on several previous occasions, the Refuel Floor Radiation Monitors had been taken out of service and made inoperable by placing them temporarily on a non-safety related power supply. The effected radiation monitor channel was not declared to be inoperable and the required action of technical specification 3.2.D.2 to isolate the Reactor Building Ventilation System and initiate the Standby Gas Treatment System was not taken. Consequently the unit was operated for an extended period of time outside the technical specifications.

The root cause of the failure was an incorrectly prepared 10CFR50.59 safety evaluation written in support of the procedure which applies the use of temporary power to the radiation monitor. This resulted from failure of management to identify an error in the procedure for preparation of safety evaluations. A design issues worksheet was not used as intended because the procedure failed to require it.

Other radiation monitors and SRO refuel floor supervision were available during fuel movement. This, combined with the fact that no actual fuel handling accident occurred and the refuel floor radiation monitors did not fail while connected to the temporary power supply, results in the safety significance of this event being minimal.

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**PLANT AND SYSTEM IDENTIFICATION:**

General Electric - Boiling Water Reactor - 2527 Mwt rated core thermal power.

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

**EVENT IDENTIFICATION:**

Failure to declare Refuel Floor Radiation Monitor inoperable and take technical specifications required action due to inadequate 10CFR50.59 safety evaluation.

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

Unit: 2(3)                                      Event Date: 12/09/96                                      Event Time: 1030  
 Reactor Mode: N(N)                                      Mode Name: Run(Refuel)                                      Power Level: 99(0)  
 Reactor Coolant System Pressure: 1000(0) psig

**B. DESCRIPTION OF EVENT:**

This issue is reportable pursuant to 10CFR50.73(a)(2)(i)(B): any operation or condition prohibited by the plant's Technical Specifications.

During a review of prior outage practices regarding the Refuel Floor and Reactor Building Ventilation Radiation Monitors, [IL], in preparation for the Unit 3 refueling outage, the Reactor Protection System [JC], system manager identified an apparent weakness in a safety evaluation performed in support of a temporary alteration supplying the Refuel Floor Radiation Monitor from an alternate power supply. A Problem Identification Form (PIF) was written by the system manager and subsequently an action item was assigned to determine if the plant had been operated outside the technical specifications at any time because of this practice.

On 12/9/96, while performing this review, the system manager determined that from 0146 on 7/9/95 until 0240 on 9/22/95 the "A" channel Refuel Floor Radiation Monitor in Unit 2 was placed on a non-safety related lighting power supply which does not meet the design criteria set forth in section 11.5.2.4 of the UFSAR making that channel technically inoperable, although functional. Section 3.2.D.1 of the Dresden Unit 2 technical specifications requires both Refuel Floor Radiation Monitors to be operable whenever irradiated fuel is present in the Spent Fuel Pool, except as set forth in section 3.2.D.2. Section 3.2.D.2 states one Refuel Floor Radiation Monitor channel may be inoperable for up to 24 hours but if not returned to operable status after this period the Reactor Building Ventilation [VA] must be isolated and the Standby Gas Treatment System, [VA], initiated.

Based on a review of Unit 2 operator logs during the above time period the "A" channel Refuel Floor Radiation Monitor was not declared inoperable and the required Reactor Building Ventilation isolation and Standby Gas Treatment initiation did not occur after 24 hours. The unit was operated for approximately 74 days with the "A" channel monitor inoperable.

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Since Dresden Electrical Surveillance, DES 8000-01 was developed in January, 1993, it was performed two additional times. In 1993 it was performed on Unit 2 and in 1994 on Unit 3. In both cases the operator logs indicate the technical specification LCO was not entered and the required Reactor Building Ventilation isolation and Standby Gas Treatment System initiation did not occur after the 24 hour allowed inoperable period expired. This may have been the case, as well, for maintenance performed under work requests prior to the implementation of this procedure.

C. CAUSE OF EVENT:

Each refueling outage, the Reactor Protection System Motor Generator Set output breakers are cleaned, inspected, lubricated and tested as part of the station preventive maintenance program. Since 1992 this preventive maintenance has been performed under Dresden Electrical Surveillance procedure DES 8000-01 (Reactor Protection M-G Set Output Breaker Trip Device Test). Prior to this, the preventive maintenance was controlled by a work request alone. In both cases, the associated Reactor Protection System bus must be deenergized throughout the work performance. The Refuel Floor Radiation Monitors are powered from the Reactor Protection System busses (one channel per bus). Deenergizing either Reactor Protection System bus will cause the Reactor Building Ventilation System to isolate and the Standby Gas Treatment System to start. Continuous running of the Standby Gas Treatment System can deplete the charcoal filters prematurely and is generally undesirable. In order to allow the Standby Gas Treatment System to be scoured while the Reactor Protection System bus was out of service, a temporary alteration was included in Dresden Electrical Surveillance procedure DES 8000-01 to provide power for the affected Refuel Floor Radiation Monitor from an alternate non-safety related lighting power supply. Based on the 10CFR50.59 safety evaluation written in support of this procedure, no new failure mechanisms were evaluated and no new failure mechanisms were assumed to exist. The alternate non-safety related power supply is subject to sustained degraded voltage failure which is not monitored. The Reactor Protection System bus (the normal feed) is monitored for under voltage, over voltage, and under frequency. The purpose of this undervoltage monitoring is to prevent the kind of failure of safety related components these conditions can cause. The conclusion of the safety evaluation was that since the Refuel Floor Radiation Monitor would trip downscale on a complete loss of power and that this would cause the Reactor Building Ventilation System to isolate and Standby Gas Treatment to initiate, that the use of the non-safety related power source was adequate to establish operability.

Dresden Administrative Procedure (DAP) 10-02, 10CFR50.59 Safety Evaluation Preparation and Review, the procedure for preparing the safety evaluation was reviewed along with the documentation of an Offsite Safety Review of the safety evaluation. The revision of DAP 10-02 in effect at the time DES 8000-01 was being developed required the use of the design issues worksheet during preparation of safety evaluations for temporary alterations but did not require its use for new procedures. In this way the temporary alteration included as part of DES 8000-01 failed to receive an adequate design review. Therefore, the root cause of this event was failure of management to identify inadequacies in the procedure used to perform safety evaluations. (NRC Cause Code E)

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In addition, the preparer and reviewer of the safety evaluation, though qualified to perform the safety evaluation on the new procedure, did not have adequate knowledge of the design requirements for the Reactor Protection System or the effected radiation monitors to compensate for the lack of the design issues work sheet. Contributing to this event was the lack of adequate understanding of the effected system's design basis to satisfactorily complete the safety evaluation without the use of the checklist.

A followup evaluation by the Offsite Safety Review Group documented that the plant alteration did not constitute an unreviewed safety question and did not identify any design review weaknesses in the safety evaluation.

The Licensed Operations personnel who approved execution of the procedure did not identify that the procedure implemented a condition which was outside the design basis of the radiation monitors.

D. SAFETY ANALYSIS:

Surveillance testing of the Refuel Floor Radiation Monitor has proven that operation of the monitors on alternate power did not cause damage to the equipment. The significance of this event is that following a fuel handling accident when one of the Refuel Floor Radiation Monitor was on an unmonitored, non-safety related power supply a degraded voltage condition could have prevented the Refuel Floor Radiation Monitor from initiating Reactor Building Ventilation System isolation and Standby Gas Treatment in response to a high radiation condition. This situation would have resulted in dependence on a single channel to prevent exceeding 10CFR100 limits as identified in FSAR 11.5.2.4. Had a fuel handling accident occurred and assuming the operable refuel floor radiation monitor had failed, then 10CFR100 limits at the site boundary could have been exceeded. A potential release would be minimized by the availability of other radiation monitors and SRO supervisory support on the Refuel Floor itself.

Fuel movements did take place during the time period the "A" channel Refuel Floor Radiation Monitor was on the temporary power source. However, fuel handling procedures require radiation monitors in operation on the refuel bridge during irradiated fuel movements and SRO supervisory presence on the refuel floor. This, and considering that no fuel handling accident occurred and the refuel floor radiation monitor was not identified to have failed, resulted in the safety significance to the health and safety of the public being minimal.

E. CORRECTIVE ACTIONS:

1. Temporary Alteration III-68-96 has been prepared to supply power to the Refuel Floor Radiation monitors from a suitable power supply. (Complete)
2. Dresden Electrical Surveillance procedure DES 8000-01 will be revised to incorporate the above changes prior to the next use of the procedure. (NTS 2371809602102)
3. The current station procedure for preparation of safety evaluations requires the use of a design issues worksheet for new procedures which control temporary alterations. (Complete)

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4. Dresden has implemented initiatives since 1993 to strengthen the Safety Evaluation preparation and review process. The Safety Evaluation preparers and reviewers in the Engineering Department are now formally certified prior to performing or reviewing safety evaluations. The safety evaluation procedure has been revised. An Engineering Assurance Group (EAG) consisting of senior Commonwealth Edison (ComEd) engineering personnel and experienced outside experts has been established. This group provides oversight of key engineering activities including those involving design related activities. (Complete)
5. A review of the Off Site Review process for this event will be completed. (NTS 2371809602103)
6. A review of Maintenance procedures which implement temporary conditions will be performed to assure that similar conditions do not exist. (NTS 2371809602104)
7. Significant findings and additional corrective actions will be reported in a supplement to this LER, if necessary (NTS 2371809602101).
8. All Operations personnel will be trained on this event during General Information continuing training. The training will address the significance of the event and the importance of taking conservative action when temporary conditions modify the configuration of operable equipment (NTS 2371809602105).

F. PRIOR SIMILAR OCCURRENCES:

No previous LERs were identified similar to this event.