NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

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.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Dresden Nuclear Power Station, Unit 2	05000237	1 OF 5

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	04	15	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	20.2201(b)		20.2203(a)(3)(i)		50.73(a)(2)(iii)	73.71(b)
		20.2203(a)(1)		20.2203(a)(3)(ii)		50.73(a)(2)(iv)	73.71(c)
		20.2203(a)(2)(i)		20.2203(a)(4)		50.73(a)(2)(v)	OTHER
		20.2203(a)(2)(ii)		50.36(c)(1)		50.73(a)(2)(vii)	(Specify in Abstract below and in Text, NRC Form 366A)
		20.2203(a)(2)(iii)		50.36(c)(2)		50.73(a)(2)(viii)(A)	
		20.2203(a)(2)(iv)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)(B)	
		20.2203(a)(2)(v)		50.73(a)(2)(ii)		50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Kirk Robbins, System Engineer Ext. 2314	(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	X	NO				

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 affected radiation monitor channel was not declared 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 power supply was returned to normal on 09/22/95.

The 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.

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) which requires the reporting of any operation or condition prohibited by the plant's Technical Specifications.

The purpose of this supplement is to document the root cause technique used, correct the initial report date to 01/07/97, and other editorial changes.

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 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.

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 must be isolated and the Standby Gas Treatment System 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.

During each refueling outage, the Reactor Protection System (RPS) Motor Generator Set output breakers are cleaned, inspected, lubricated and tested as part of the station preventive maintenance (PM) program. This work has been completed using Dresden Electric Surveillance (DES) 8000-01, Reactor Protection M-G Set Output Breaker Trip Device Test, since 1992. Prior to that, it was completed using work package work instructions. Both of these methods of performing the test required the RPS Bus to be de-energized throughout the work.

Each channel of the Refuel Floor Radiation Monitors and the Reactor Building Ventilation Radiation Monitors are powered from the respective RPS bus. As a consequence of the equipment design, on a loss of power to any one channel the high-high trip relay will fail in the "trip" condition, resulting in isolation of the Reactor Building Ventilation (RBV) system and initiation of Standby Gas Treatment (SBGT) system.

Prolonged operation of the SBGT system under non-accident conditions may lead to premature depletion of the charcoal filters. As a result, continuous operation to support maintenance is not desired.

In order to avoid continuous operation of the SBGT system during maintenance on the RPS MG Set, temporary power to the Refuel Floor radiation monitor was supplied from a non-safety related lighting convenience outlet. Prior to 1992, this was accomplished using temporary alterations (temp alts).

A review of maintenance history revealed that the PM was performed on Unit 2 in December 1988 and December 1990, and on Unit 3 in May 1988 and November 1991. In each of these cases, the temp alt provided non-safety related power to the Refuel Floor and RBV radiation monitors, which did not meet the design requirements of the UFSAR, section 11.5.2.4.

The UFSAR, section 11.5.2.4 requires a very stable power supply (the RPS buses which are monitored for and protected against over voltage, under voltage and under frequency conditions) and discusses the possibility of failure (loss of power) to the RPS buses.

The 10CFR50.59 safety evaluation completed for each of these temp alts did not discuss the quality of the power supply. The only apparent consideration was that on a loss of power, the radiation monitors would fail in a condition which would provide an actuation signal for RBV isolation and SBGT initiation. There was no apparent consideration given to the possibility of a degraded voltage or frequency, nor the effects of a degraded power supply on the operation and functionality of the radiation monitors. This was validated during interviews.

In late 1992, as a corrective action for an event which occurred in late 1991, Electrical Maintenance prepared DES 8000-01 to improve control over the temp alts and reduce the possibility of error.

On January 5, 1993, the 10CFR50.59 safety evaluation for DES 8000-01, revision 0, was prepared and reviewed. This safety evaluation was modeled after the safety evaluations performed for the temp alts which resulted in not considering a degraded power supply condition nor the effects on the radiation monitors.

None of the Safety Evaluations performed for the temp alts or for the new procedure would meet the standards of the new 10CFR50.59 Safety Evaluation process, NSWP-A-04. The weak Safety Evaluations resulted in placing the RBV and Refuel Floor radiation monitors in a condition where the possibility of operating in a degraded condition without required protective features existed.

The failure of the safety evaluations to address the alternate power supply adequately was the primary cause for the failure to recognize that several times in the past on both units, the Refuel Floor and RBV radiation monitors had been technically inoperable for periods of time in excess of the 24 hours allowed by the Limiting Condition of Operation (LCO) without entering the required Action Statement.

C. CAUSE OF EVENT:

The root cause of this event is that management methods [NRC Cause Code E], specifically the 10CFR50.59 safety evaluation process, allowed the approval of required documentation without adequate critique or technical review in that management did not identify procedural inadequacies in DAP 10-02 which was used to perform the Safety Evaluations.

Contributing causes of this event are inadequate training in that personnel were not required to demonstrate proficiency in the preparation and review of Safety Evaluations prior to being qualified, and personnel did not have an adequate understanding of the design basis to correctly analyze the condition without more detailed instructions.

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 actually occurred and the refuel floor radiation monitor remained functional, resulted in the safety significance to the health and safety of the public being minimal.

E. CORRECTIVE ACTIONS:

1. Temporary Alteration III-98-96 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 station procedure for preparation of safety evaluations has been replaced by a ComEd procedure which includes the use of a design issues worksheet. (Complete)

4. Dresden has implemented initiatives since 1993 to strengthen the Safety Evaluation preparation and review process. The Safety Evaluation preparers and reviewers are now formally trained prior to performing or reviewing safety evaluations. An Engineering Assurance Group (EAG) consisting of senior 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)

F. PRIOR SIMILAR OCCURRENCES:

No previous LERs were identified similar to this event.