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 3	05000249	1 OF 7

TITLE (4)
Potential Trip of Motor Control Center Due to Inadequate Work Package Preparation

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
10	31	95	95	-- 020 --	00	11	28	95	None	
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	N
POWER LEVEL (10)	000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	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)	X	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)		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)
Emory Johnson, System Engineer Ext. 2603	(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).	X NO				

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

This report is being voluntarily submitted due to the fact that corrective actions which were stated in LER 94-18, Docket 0500237, were found not to have been fully implemented.

With Unit 3 in shutdown, plant personnel identified breaker trip settings of the main feed to motor control center (MCC) 38-3 to be inconsistent with the plant design documentation. The breaker trip device was set lower than the design values which creates the potential for tripping the MCC feed breaker under sufficiently high, non-fault loads. No plant equipment failure or actuation occurred. Previous operability determinations indicated that under certain accident scenarios, load current was within the trip unit's published tolerance band of 10%. Therefore, the MCC was conservatively assumed to be inoperable. Immediate action was to replace the breaker with a correctly set breaker. This was accomplished prior to startup of unit 3. Subsequent bench testing of the main feed breaker indicates the MCC was operable while set at the lower setting since the actual tolerance was less than negative 5%. A review of other MCCs indicated they had properly set feed breakers. The cause of the improper setpoints was inadequate work package preparation originally developed to implement corrective actions as a result of LER 94-018, Docket 05000237.

EVENT IDENTIFICATION:

Potential Trip of Motor Control Center Due to Inadequate Work Package Preparation

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 3 Event Date: 10/31/95 Event Time: 0200 hrs.

Reactor Mode: N Mode Name: Shutdown Power Level: 00%

Reactor Coolant System Pressure: 00 psig

B. DESCRIPTION OF EVENT:

This report is being voluntarily submitted due to the fact that corrective actions which were stated in LER 94-18, Docket 0500237, were found not to have been fully implemented.

On October 31, 1995 with Unit 3 in the shutdown mode, plant personnel identified breaker trip settings of the main feed to motor control center (MCC) 38-3 to be inconsistent with the plant design documentation. The breaker trip device was set lower than the design values which creates the potential for tripping the MCC feed breaker under sufficiently high, non-fault loads. An evaluation of operability was performed which determined that the loads fed by the MCC would not be available for accident mitigation under all scenarios. The emergency AC power system ESS division 1 was believed to have been outside of its design basis and an ENS notification was made at 18:39 EST on November 1, 1995.

The breaker settings design documentation had been revised as a result of LER-94-18, Docket 05000237, in which a different MCC (MCC 39-2) had tripped due to low trip settings. The referenced LER identified that MCC 39-2, 38-3 and 28-3 required their settings to be changed. Work packages were developed and implemented to correct the settings. Investigation revealed that incorrect preparation and execution of the work package resulted in the main feed breaker to MCC 38-3, to remain set to its original, incorrect settings. A review of the work packages for MCC 39-2 and 28-3 indicated the package was prepared and implemented correctly.

Design calculations performed as a result of LER 94-018, indicated that loads during certain accident scenarios could fall within the published tolerance band of the trip device. Under the worst case loading condition, analysis has shown that current to MCC 38-3 is estimated to reach 374 amps. With a long time pick up setting of 400 amps, and considering the manufacturer published 10% negative tolerance band, the breaker could trip at a minimum of 360 amps. Subsequent bench testing of the main feed breaker indicates the lowest current at which the breaker could trip is approximately 386 Amps.

Upon subsequent review of the work package, it is determined that errors occurred in the following areas:

Design input to the work package

Breaker settings are controlled and documented under a Relay Setting Order (RSO). A revised RSO is incorporated into the plant via a setpoint change (SPC). SPCs are processed under Dresden Station Procedure DAP 11-11. A SPC package, which contains the "present setpoint" and the "requested setpoint" RSOs, is provided along with the proper back-up engineering documentation such as calculations and 10CFR50.59 safety evaluations. The SPC package provides the design input to the work package preparer.

In two of the three work packages for the affected MCCs, the proper (requested setpoint) RSOs were pulled from the SPC package and included as a separate document in the work package with the intent that it was to be used by the installers. The SPC package, in its entirety, was also attached to the work package. However in the case of the work package for MCC 38-3, a copy of a superseded RSO was used. The incorrect RSO was erroneously included in the work package as a result of personnel error.

Prior to start of work, the package received technical review from Plant Engineering and was approved in accordance with station procedure. This review was an opportunity to identify and fix the error but reviewers did not identify that the superseded RSO was included in the package.

Work package preparation

In addition to having the superseded RSO in the work package, the work instructions were ambiguous. The instructions simply stated to set the breaker to the RSO without specifying which of the RSOs to use. The package contained three different RSOs; the superseded RSO for 38-3, the present setting RSO in the SPC package and the requested setting RSO in the SPC. The last RSO of this set contained the proper setting. However, the installers incorrectly used the "present" setting RSO.

Interviews with the installers, revealed a misinterpretation of the work package requirements. Circumstances contributing to the misinterpretation were as follows:

During the time frame of making the correction to the three MCCs, Dresden was in the process of replacing the General Electric (GE), EC type trip units on the AK breakers with the newer RMS-9 trip units. The typical process is to send the AK breaker with an EC unit to GE for conversion to the new RMS-9. The SPC controls the change from EC to RMS-9 trip units. The breakers are typically set at GE to the proper settings and upon return, are inspected and tested without changing the settings. Because of this typical process, it was assumed by the installers that no setting change was required and as such it was incorrectly determined that the proper RSO was the "Present setting" RSO, since it matched the as-found breaker settings. In addition, the work packages for the main feed breakers to MCC 28-3 and 38-3 were implemented concurrently. Due to differences in the process, the breaker to be used to feed MCC 28-3 did not require changing the settings. This is believed to have supported the installer's incorrect notion

that the settings of the main feed breaker to MCC 38-3 did not need to be changed.

Contributing to the installers misinterpretation was the fact that the SPC package did not clearly identify that the "present" setting RSO was superseded.

Normal reviews of the completed work package did not identify the discrepancy between the settings which were installed and the requirements of the RSO that the package preparer intended the installer to use.

C. CAUSE OF EVENT:

The causes of the event are as follows:

1. The incorrectly set feed breaker to MCC 38-3 was a result of a poorly written work package. The work instruction did not clearly indicate which RSO was to be used by the installer.

2. The work package incorrectly used a superseded design input (RSO) in the work instructions.

3. Technical review and approval was not adequate and did not identify the problem.

4. The lack of a questioning attitude on the part of the installers along with the procedural weakness of clearly identifying setting as superseded contributed to the propagation of the error.

D. SAFETY ANALYSIS:

The following discussion makes reference to the equipment fed by MCC 38-3. The loads are printed here for ease of discussion.

38-3

Turning Gear Oil Pump	Turning Gear
Piggy Back Motor	Turbine Bearing Lift Pumps
Fire Protection Panel FP-3	CCSW Cubicle Cooler A Fans 1&2
RPS MG-Set 3A	CCSW Cubicle Cooler B Fans 1&2
Unit 3 EDG Circ Lube Oil Pump	Unit 3 EDG Turbo Lube Oil Pump
Unit 3 EDG Immersion Heater Unit	2/3 EDG Cooling Water Pump
Distribution Panel 2253-85	

The auxiliary power system is designed using safety related and balance of plant switchgear and MCCs to provide AC power to normal and emergency plant loads. The safety related equipment is divided into two separate divisions to provide diversity and redundancy. Under typical accident conditions, the safety related equipment is designed to have power supplied from the safety related Emergency Diesel Generators of the same division. There are two accident scenarios which are considered to present the worst case loading conditions for the safety related equipment: 1) a Loss of Coolant Accident with a Loss of Offsite Power (LOCA/LOOP) and, 2) a Loss of Coolant Accident with offsite power available (LOCA).

During a LOCA/LOOP condition, some loads on MCC 38-3 will trip and not re-energize when the Emergency Diesel Generators start and provide power to the emergency buses. Under this condition the loading on the MCC is significantly reduced and the voltage levels are greatly improved thereby reducing the current draw. Analysis has been performed which indicates that under LOCA/LOOP conditions, the main feed to MCC 38-3 will not trip due to excessive current levels.

Under the second condition of a Unit 3 LOCA with offsite power available, it is conservatively assumed that the offsite power is degraded to a level slightly above the second level degraded voltage relay setpoint so that the Emergency Diesel Generator has started on the LOCA signal but is not connected to the bus, thereby forcing bus voltage to its lowest postulated value. Current during this condition is estimated to reach 374 amps. The lowest current level at which MCC 38-3 may trip is 360 Amps based on manufactures published tolerance.

Loss of MCC 38-3 would cause a loss of the Unit 2/3 Emergency Diesel Generator Cooling Water Pump. Although this pump has a backup source of power from MCC 28-3, it would require operator action to transfer source power. A test switch in Switchgear 33-1 would be opened to bypass the unit 3 LOCA signal and allow transfer of power to the 2/3 DG auxiliaries. As a result of required operator action, the Unit 2/3 Emergency Diesel Generator would not have cooling water for some period and is assumed to be inoperable. Assuming a single failure on the Unit 3 Emergency Diesel Generator, this condition would render all Unit 3 emergency AC power sources unavailable. It should be noted that under this scenario the Diesel Generators are not required since off site power is still available. Additionally, the Division I and II crossties from unit 2 would be available to provide AC power.

Loss of the CCSW cubicle cooler fans may cause a loss of the vaulted CCSW pumps and therefore inhibit long term cooling ability. This would again require operator action to mitigate the consequences of this loss. However, the CCSW motors are manually started loads and therefore operator action is already required. Loss of the remaining loads on the MCCs would not cause the inability to mitigate the consequences of an accident. The remaining loads on MCC 38-3 are not required to mitigate the consequences of an accident or to ensure operability of safety related equipment.

Therefore it is concluded that the safety significance is minimal.

Subsequent to this event, bench testing was performed on the main feed breaker as follows:

The three phases were each tested independently. All phases sustained current above 385 amps for one hour without tripping. During the test the long time pick-up light (LED) was observed to flash which indicates the current value is within 95% of the pick-up point.

The conclusion from the test results is as follows:

The breaker would not trip when experiencing the worst case accident load of 374 Amps and as such the MCC was operable prior to resetting the breaker. Based on the test, the actual minimum pick up point is 386 Amps.

E. CORRECTIVE ACTIONS:

Completed corrective actions

1. As compensatory action, certain BOP loads were shed in order for MCC 38-3 to be in an operable condition.

2. The breaker was replaced with one with correct settings. This was accomplished prior to startup of unit 3 by Work Request Number 950105801.

3. MCC 28-3 and 39-2 were field verified to be consistent with design requirements.

4. Discussion with personnel involved in the package preparation, review and the installation made clear that management expectations were not met. All individuals indicated understanding of not meeting their respective department's standards and acknowledged the need for increased attention to detail.

Corrective actions to be performed

1. DAP 11-11 will be reviewed and revised as necessary to change wording of "present" setpoint to a term more indicative of a superseded setpoint. The change will minimize the potential of using a superseded design document. (Station Commitment Number (SCN) 249-180-95-02001)

2. Plant Engineering Personnel will be trained via tailgate meetings, to the revised DAP. Training will include the circumstances of the event and reasons for the error that precipitated the procedure revision. Engineers will be directed to ensure that setpoints to be superseded should be clearly identified as such. In addition, during the tailgate of Plant Engineering personnel, it will be stressed that technical reviews of work packages performed in accordance with DAP 15-6, are to be correct and thorough. (SCN 249-180-95-02002)

3. The circumstances of the event and reasons for the error will be discussed in tailgate meetings with Work Analysts, along with the requirement to clearly and uniquely specify work requirements and the need to use correct design input in the preparation of work packages. (SCN 249-180-95-02003)

4. Electrical Maintenance Personnel will be trained via tailgate meetings to the circumstances of the event, the reasons for the error and the need to completely understand the work scope. (SCN 249-180-95-02004)

F. PREVIOUS OCCURRENCES:

LER 94-018, describes the precipitating event in which during an endurance run of the Unit 3 Emergency Diesel Generator, MCC 39-2 tripped due to an improperly set feed breaker. This LER identified three MCC main feed breakers which required to be reset. The LER and Supplement 1 incorrectly indicated that all three breakers had been properly reset.

G. COMPONENT FAILURE DATA:

N/A