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Dresden Nuclear Power Station
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February 18, 1992

CWS LTR #92-096

U.S. Nuclear Regulatory Commission
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Licensee Event Report 91-015-01, Docket 050249 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73(a)(2)(iv). This revised report provides additional information concerning the Standby Gas Treatment control switch manipulation sequence prior to the event, and corrective actions to prevent recurrence.

T. J. Kovach for 2/25/92
Charles W. Schroeder
Station Manager
Dresden Nuclear Power Station

CWS/cfq

Enclosure

cc: A. Bert Davis, Regional Administrator, Region III
NRC Resident Inspector's Office
File/NRC
File/Numerical

280063

(ZDVR/479)

IE22

LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1)	Docket Number (2)	Page (3)
Dresden Nuclear Power Station, Unit 3	0 5 0 0 0 2 4 9	1 of 0 6

Title (4) Unplanned Standby Gas Treatment System Automatic Initiation Signal Due to Personnel Error

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 Names	Docket Number(s)
1 1	0 5	9 1	9 1	0 1 5	0 1	1 2	0 5	9 1	Dresden Unit 2	0 5 0 0 0 2 3 7

OPERATING MODE (9)	N
POWER LEVEL (10)	0 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)

___ 20.402(b)	___ 20.405(c)	X 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 (Specify in below and in Text)		
___ 20.405(a)(1)(iii)	___ 50.73(a)(2)(i)	___ 50.73(a)(2)(viii)(A)			
___ 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)	___ 50.73(a)(2)(x)			

LICENSEE CONTACT FOR THIS LER (12)

Name	TELEPHONE NUMBER
M. Blakemore, Technical Staff System Engineer Ext. 2421	AREA CODE 8 1 5 9 4 2 - 2 9 2 0

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 fifteen single-space typewritten lines) (16)

On November 5, 1991, with Unit 2 shutdown and Unit 3 in a refuel outage, the Electrical Maintenance Department (EMD) was scheduled to perform a preventive maintenance surveillance of the Unit 3 Reactor Protection System (RPS) Motor Generator (MG) Set Output Breakers. With the 'B' Train of the Standby Gas Treatment System (SBGTS) already operating and the Reactor Building Ventilation System (RBVS) isolated, the EMD installed a temporary power supply to the Channel 'B' Refuel Floor and Reactor Building Ventilation Radiation Monitors to prevent an automatic start of the SBGTS and an isolation of the RBVS upon the removal of the 'A' RPS MG Set from service. The Operations Department then removed the 'B' RPS MG Set from service, resulting in the de-energization of the 'A' RPS bus. This produced an unplanned SBGTS automatic start signal and an unplanned RBVS isolation signal. The Control Room operators anticipated an automatic start of the 'A' Train of the SBGTS under these conditions; however, this did not occur. This event had minimal safety significance because there was no effect on plant status. Corrective actions include review of this event with Operations personnel, procedural improvements, and a labelling evaluation. A previous event involving an unplanned automatic SBGTS start was reported by LER 91-04/050249.

PLANT AND SYSTEM IDENTIFICATION:

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

Nuclear Tracking System (NTS) tracking code numbers are identified in the text as (XXX-XXX-XX-XXXXX)

EVENT IDENTIFICATION:

Unplanned Standby Gas Treatment System (SBGTS) [BH] Automatic Initiation Due to Personnel Error.

A. CONDITIONS PRIOR TO EVENT:

Unit: 3 Event Date: November 5, 1991 Event Time: 0944 Hours

Reactor Mode: N Mode Name: Shutdown Power Level: 0%

Reactor Coolant System (RCS) Pressure: 0 psig

B. DESCRIPTION OF EVENT:

On November 5, 1991, with Unit 2 shutdown and Unit 3 in a refuel outage, the Electrical Maintenance Department (EMD) was scheduled to perform a preventive maintenance surveillance involving inspection, cleaning, and lubrication of the Unit 3 Reactor Protection System (RPS) [JE] Motor Generator (MG) Sets 'A' and 'B' Output Breakers.

On November 5, 1991, at 0800 hours, the EMD came to the Control Room to start work on the above surveillance. The EMD had with them one Work Package to perform the surveillance on both the 'A' and 'B' RPS MG Set Output Breakers. Also in the package were two approved Temporary Alteration (TA) evaluations (number III-37-91 to be used when the 'B' RPS MG Set Output Breaker was to be tested and number III-39-91 to be used when the 'A' RPS MG Set Output Breaker was to be tested). The TAs allowed for maintaining a temporary feed to the Refuel Floor and Reactor Building Ventilation System (RBVS) [VA] Radiation Monitors [IL], which are powered via the RPS Bus supplied by the RPS MG Set Output Breakers for which the EMD surveillance was involved. The TAs had been provided to prevent automatic start of SBGTS and automatic RBVS isolation upon interruption of feed to the Radiation Monitors. In addition, two Equipment Outage Checklists (OOS) were prepared to remove the RPS MG Set from service when its output breaker was to be tested (OOS III-1682 would remove the 'B' RPS MG Drive Motor from service and OOS III-1702 would remove the 'A' RPS MG Set Drive Motor from service).

The 'A' RPS MG Set supplies electrical power to the 'B' RPS Electrical Bus and the 'B' RPS MG Set supplies electrical power to the 'A' RPS Electrical Bus. Refer to the attached diagram of the Unit 3 RPS Distribution.

After reviewing the EMD work package, the Station Control Room Engineer (SCRE) contacted the Unit 3 Shift Supervisor and explained that the EMD was requesting to perform the surveillance on the RPS MG Set Output Breakers and would install the TA (jumper) for the 'A' RPS Bus outage. The Unit Supervisor then gave EMD permission to install the TA on the 3A RPS Bus (3B RPS MG Set).

The EMD work package specified that prior to installing the TA, the SBGTS should be started and the RBVS secured. This was required to prevent automatic starting of the SBGTS and isolation of the RBVS during installation of the TA. During installation of the TA, the electrical power was to be removed from the Radiation Monitors and an external power source applied. This was required to prevent automatic starting of the SBGTS and isolation of the RBVS when the associated RPS MG Set was to be removed from service to permit testing of its Output Breaker. When the EMD requested the SBGTS to be started and the RBVS to be secured, they were informed that the 'B' Train of the SBGTS was currently running and the RBVS was secured due to an unrelated activity.

The EMD proceeded to install the TA as required by the Work Package. The first RPS MG Set Output Breaker that the EMD was to test was for the 'A' RPS MG Set. The EMD installed the TA in junction box AQ in Control Room Panel 903-10. This junction box is associated with the 'B' RPS Bus, which receives its electrical power from the 'A' RPS MG Set. The Shift Supervisor knew that there would be alarms during this process. When the alarms occurred the Shift Supervisor did not notice them to be the alarms associated with the 'B' RPS Bus instead of the 'A' RPS Bus as expected. The Shift Supervisor then obtained OOS III-1682, which provided steps for removing the 'A' RPS Bus from service by securing the 'B' RPS MG Set. The Shift Supervisor was under the impression that 'A' RPS Bus was to be de-energized first (which was opposite to the sequence specified by in the work package). The Shift Supervisor then directed the High Voltage Operator (HVO) to hang OOS III-1682.

At 0945 hours, the High Voltage Operator (HVO) de-energized the electrical power to the 'A' RPS Bus by securing the 'B' RPS MG Set. As soon as the HVO secured the 'B' RPS MG Set, the Control Room Received alarms for 'A' Refuel Floor and 'A' Reactor Building Ventilation Radiation Monitors HIGH and INOP. One channel upscale signal or two downscale signals will fulfill the logic to isolate the RBVS and automatically start the SBGTS. However, the RBVS had been previously secured and no isolation damper movement took place because they were already closed. The 'B' train of SBGTS had been previously started due to unrelated events. The 'A' train of SBGTS was selected to PRIMARY, and as such was expected to start by Control Room personnel under loss of radiation monitor power source, but it did not start. Subsequent review of logic design, however, concluded that the 'A' train of SBGTS should not have started due to the prior control switch manipulation scheme. The 'A' train of SBGTS could have been started manually if required.

The Shift Supervisor then performed a review of the EMD work package, and concluded that the unplanned SBGTS initiation signals had occurred due to taking the 'B' RPS MG Set out of service in a different order than that specified in the work package the EMD was working to.

C. APPARENT CAUSE OF EVENT:

This report is being submitted in accordance with 10CFR50.73(a)(2)(iv), which requires the reporting of any event or condition that results in unplanned manual or automatic actuation of any Engineered Safety Feature (ESF).

The Shift Supervisor and the SCRE were of a mindset that the 'A' RPS Bus needed to be de-energized first (which is powered from the 'B' RPS MG Set) and did not identify that the EMD work package required that the 'A' RPS MG Set Output Breaker would be tested first. Therefore, the root cause of the unplanned SBGTS start and RBVS isolation signals was attributed to personnel error on the part of Operations Shift Supervision. The issuance of the appropriate TA to the EMD was not in agreement with the sequence of jumper installation steps for the RPS MG Set Breaker work sequence given in the work package. However, the following factors were found to contribute to the event.

1. The configuration of the 'A' RPS Bus (i.e., being supplied electrically from the 'B' RPS MG Set and the 'B' RPS Bus being supplied electrically from the 'A' RPS MG Set) presents an element of confusion.

2. The configuration of the Work Package, although technically sound and properly prepared, required careful sequencing in order to prevent this type of event. It was concluded that improved control of this evolution could be provided by developing a comprehensive surveillance procedure for this activity; as such, the procedure would include all necessary configuration alignments in one governing document.

Further investigation confirmed that the sequence of SBGTS control switch manipulations prior to the event prevented automatic start of the 'A' train of SBGTS while the redundant 'B' SBGTS train was operating. With the 'B' train control switch selected to the START position and the 'A' train control switch in the PRIMARY position, Control Room personnel expected the 'A' train to start upon receipt of the SBGTS signal and trip in approximately 20 seconds when the logic sensed that 'B' train was already operating. However, the 'B' train had previously been started with its control switch in the STANDBY position by placing the 'A' train control switch to OFF with a previous unrelated initiation signal inserted. Review of the logic design indicates that under these conditions, the 'B' train was operating with an 'A' train low flow trip signal sealed-in. Therefore, the logic design prevented the 'A' train from starting. This is not a design deficiency, but rather indicates that the SBGTS operating procedure needs enhancement to provide awareness of this feature.

D. SAFETY ANALYSIS OF EVENT:

The unplanned SBGTS start and RBVS isolation signals had no effect on plant status because RBVS had been previously isolated and SBGTS was already operating. The SBGTS trains ('A' and 'B') are each capable of performing the SBGTS design function of insuring that 10CFR100 site boundary release limits are not violated under design basis accident conditions. In this case, both Dresden Units 2 and 3 were shut down and depressurized, and the refuel floor and RBVS exhaust duct radiation levels were normal. Therefore, this event had minimal safety significance.

E. CORRECTIVE ACTIONS:

1. The Training Department will review this event during an upcoming 6 week training class, emphasizing the need for careful attention to detail during work package review (249-200-91-09401).

2. The Maintenance Staff will implement a comprehensive surveillance procedure to perform cleaning, lubrication, and testing of the undervoltage trip device in the RPS MG Set Output Breakers. This will be completed prior to the upcoming Unit 2 refuel outage (249-200-91-09402).

3. The Corporate Human Factors Group will be requested to review the labelling configuration of the RPS MG Sets and RPS Buses and make recommendations for improvement (249-200-91-09403).

4. The Technical Staff System Engineer performed further review of the SBGTS control switch logic, as described in Section C above. The Operations Staff will revise Dresden Operating Procedure (DOP) 7500-01, SBGTS Operation, to include appropriate precautions concerning control switch sequencing (249-200-91-09404).

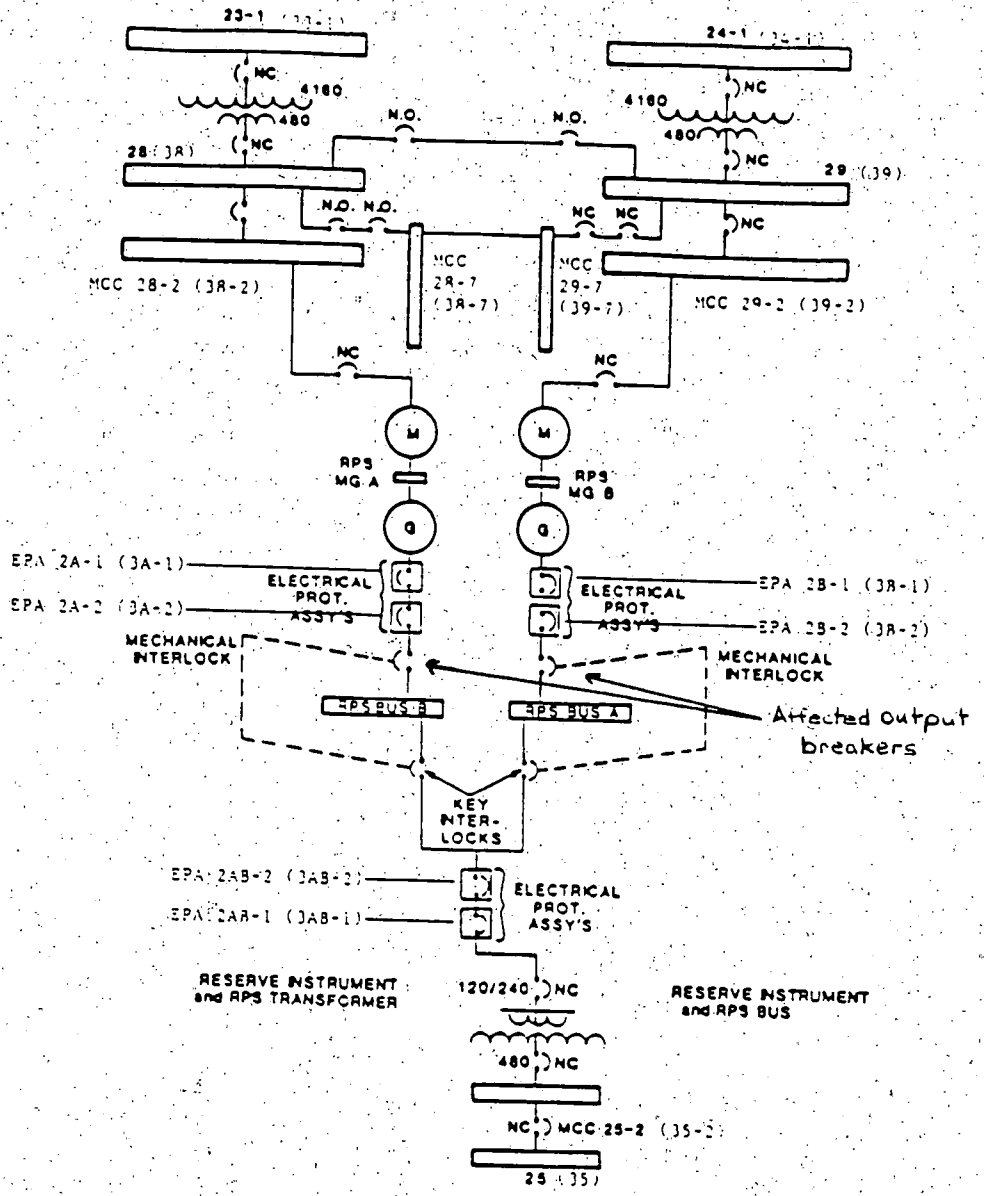
F. PREVIOUS OCCURRENCES:

LER/Docket Numbers	Title
91-004/050249	Unplanned SBGTS Auto-Start During Area Radiation Monitor Calibration Due to Personnel Error.

While performing Dresden Instrument Surveillance (DIS) 1800-2, an Instrument Maintenance technician mistakenly disconnected a cable supplying an indicator trip unit associated with the Channel 'A' Fuel Pool Radiation Monitor. This caused a RBVS isolation and SBGTS automatic start. The cable was reconnected, the RBVS was reset, and the SBGTS was secured. The Instrument Maintenance technician was counselled by the Instrument Maintenance Supervisor to reinforce the need to always self-check.

G. COMPONENT FAILURE DATA:

This section is not applicable because no component failure occurred.



Reactor Protective System Distribution