

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), 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
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Reactor Scram Results From Unit Auxiliary Transformer 21 Modification Design 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 NAME	N/A
04	20	98	98	008	00	05	20	98	N/A	N/A
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more) (11)							
1			20.2201(b)			20.2203(a)(2)(v)			50.73(a)(2)(i)	50.73(a)(2)(viii)
POWER LEVEL (10)			20.2203(a)(2)(i)			20.2203(a)(3)(i)			50.73(a)(2)(ii)	50.73(a)(2)(x)
060			20.405(a)(1)(ii)			20.2203(a)(3)(ii)			50.73(a)(2)(iii)	73.71
			20.2203(a)(2)(ii)			20.2203(a)(4)		X	50.73(a)(2)(iv)	OTHER
			20.2203(a)(2)(iii)			50.36(c)(1)			50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iv)			50.36(c)(2)			50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME J. Kovach, Design Engineering	TELEPHONE NUMBER (Include Area Code) (815) 942-2920 ext 3645
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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)

X	YES (If yes, complete EXPECTED SUBMISSION DATE).	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
				09	01	98

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

On April 20, 1998 at 0858 hours, a main generator trip occurred causing a unit scram. The cause of the trip is attributed to a design error in a modification that was installed during D2R15 that added additional protective relaying for the Unit Auxiliary Transformer (UAT) T-21 as a design enhancement. New auxiliary current transformers (CT's) were added to obtain the required circuit configuration. A design error was made in connecting the secondary windings of the CT's that were used to re-established the input to the existing transformer differential relays. With the unit at power and sufficient bus loading, the design error caused the differential relays to respond to a current mismatch that simulated a differential current condition. The protective relays actuated causing initiation of a generator trip which resulted in a reactor scram. The safety significance of this event was minimal. No safety systems were required nor utilized in stabilizing the plant during scram recovery or cooldown to cold shutdown conditions. All safety systems were available during the event, and the Reactor Protection System performed as designed. Immediate corrective action was taken to issue a modification addendum to correct the wiring error. A special test procedure was prepared to perform in-service testing of the modification, and the existing differential relays. The revised modification was installed and the unit was returned to service on April 22, 1998. With the unit synchronized to the grid, the special test procedure was performed and all relaying affected by the modification was verified to be functioning properly. Long term corrective actions and previous occurrences will be addressed in a supplemental report.

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

PLANT AND SYSTEM IDENTIFICATION:

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

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

EVENT IDENTIFICATION:

Reactor Scram Results From Unit Auxiliary Transformer 21 Modification Design Error Due To Lack of Knowledge in Performing a Special Task and Inadequate Interface with the Testing Organization

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 2	Event Date: 4/20/98	Event Time: 0858 CDT
Reactor Mode: 1	Mode Name: Run	Power Level: 060
Reactor Coolant System Pressure: 1000 psig		

On 4/20/98, during power ascension, the 2A Containment Cooling Service Water (CCSW) [BI] pump was being started in preparation for placing torus cooling [BO] in operation. The unit electrical lineup was different for this startup in preparation for feedwater system [SJ] testing. A feedwater pump that would normally have been loaded on Unit Auxiliary Transformer T21 [EA] was loaded on the Reserve Auxiliary Transformer (RAT) T22 [EA]. This electrical lineup resulted in normal startup loading not being placed on TR-21 until the CCSW pump was started.

B. DESCRIPTION OF EVENT:

This LER is being submitted pursuant to 10 CFR 50.73(a)(2)(iv), which requires the reporting of any event or condition that results in manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS) [JC].

At 0858 on 4/20/98, a main generator trip occurred concurrent with the start of the 2A CCSW pump, which resulted in a reactor scram. The 2A CCSW pump was being started in preparation for placing torus cooling in operation. The scram was caused by a Turbine/Generator [TA/TB] load mismatch signal as a result of a generator trip. No safety systems were required nor utilized in stabilizing the plant during scram recovery or cooldown to cold shutdown conditions. All safety systems were available during the event. The electrical systems transferred as designed to the RAT, T22.

RPS performed as designed. The Turbine/Generator Load Mismatch scram is designed to occur when a Main Generator trip causes a turbine trip with first stage turbine pressure greater than that which corresponds to 45 percent rated core thermal power. The generator trip occurred from a Transformer 21 differential current signal as indicated by the relay targets that were found actuated on the A and B phases of the T21 relays.

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Although any unplanned scram creates safety challenges, the plant response and Operator actions that were conducted in accordance with procedures mitigated the significance of the incident. When reactor water level decreased to approximately +8 inches (approximately 144 inches above TAF), a Group 2 and 3 isolation, and auto start of 2/3 B Standby Gas Treatment System [BH] occurred. Feedwater Level control [JB] was maintained in 3-element control throughout the event, all three feedwater valves controllers were maintained in auto at all times, and no operator intervention was required to secure the running reactor feed pumps to control level. Stable plant conditions were achieved within a short period of time following the scram.

C. CAUSE OF EVENT

The cause of the trip is attributed to a design error in a modification that was installed during D2R15 that added additional protective relaying for the Unit Auxiliary Transformer T21 as a design enhancement. The root cause is under investigation and will be addressed in a supplemental report.

D. SAFETY ANALYSIS

No safety systems were required nor utilized in stabilizing the plant during scram recovery or cooldown to cold shutdown conditions. All safety systems were available during the event. The electrical systems transferred as designed to the Reserve Auxiliary Transformer T22, and the RPS performed as designed. Reactor water level decrease stopped at approximately -15 inches indicated, held for a moment, then began to increase in a controlled manner until normal water level of plus 30 inches was achieved.

There were no radiation releases to the site or public. The plant operated within its design limits. The health and safety of the public were not compromised as a result of this event. Therefore, safety significance is minimal.

E. CORRECTIVE ACTIONS:

1. Modification addenda DCP 9600067-02 was issued to correct the auxiliary CT wiring configuration error. (Complete)
2. The revised modification was installed under work request 960051030-06. (Complete)
3. In-service testing was performed on the revised modification under Special Procedure SPI 98-04-024. (Complete)
4. The same relay modification (M12-2-96-004) has been issued for the Reserve Auxiliary Transformer (RAT) T22. The RAT modification has not been installed at this time (scheduled for D2R16). A formal documented review will be performed to verify that the CT connections are correctly wired for the RAT modification. (NTS 2371809800801)

The Root Cause and long term corrective actions will be addressed in a supplemental report.

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

F. PREVIOUS OCCURRENCES:

Review of previous occurrences will be addressed in the LER supplemental report.

G. COMPONENT FAILURE DATA:

Manufacturer	Nomenclature	Model Number
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