NRC FORM 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 04/30/98

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.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Dresden Nuclear Power Station, Unit 3	05000249	1 of 4

TITLE (4)
Unit 3 Reactor Pressure Boundary Leakage In Excess of Technical Specifications Limit Due To Transverse In-Core Probe Dry Tube Leakage.

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
									N/A	N/A
05	06	98	98	005	00	06	29	98	FACILITY NAME: N/A	DOCKET NUMBER: N/A

OPERATING MODE (9)	4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more) (11)					
POWER LEVEL (10)	000	20.2201(b)	20.2203(a)(2)(v)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)
		20.2203(a)(2)(i)	20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)
		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)		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	TELEPHONE NUMBER (Include Area Code)
K. W. Robbins, System Engineer	(815) 942-2920 ext 2314

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
X	IG	TBG	I236	Y						

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)**

On May 4, 1998, Electrical Maintenance Department (EMD) was troubleshooting a ground on the cable that led to the TIP Indexer 3C. When the EMD A mechanic opened the cover to inspect the inside of TIP Indexer 3C, approximately one and one half gallons of water rushed out of TIP Indexer 3C. The Radiation Technician monitoring the work directed personnel in the vicinity to evacuate the area due to elevated beta dose rates in the area as the water emptied from the indexer case. Analysis determined that the water was reactor water. Inspection of TIP Indexer 3C identified the source of the water to be a pressure boundary leak in the Local Power Range Monitor (LPRM) 16-09 dry tube. The safety significance of this is minimal and the consequences bounded by existing analysis. It has been determined that this is an isolated case. There are no known previous occurrences of this failure. The LPRM Assembly 16-09 dry tube was capped to prevent any further leakage and will be replaced during the next refueling outage. This pressure boundary leakage is in excess of the limit imposed by Technical Specification 3.6.H and is therefore reportable under 10 CFR 50.73(a)(2)(i) which requires the reporting of any operation or condition prohibited by the plant's Technical Specifications.

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 Recommended Practice for System Identification in Nuclear Power Plants and Related Facilities.

EVENT IDENTIFICATION:

Reactor Pressure Boundary Leakage In Excess of Technical Specifications Limit Due To Transverse In-Core Probe Dry Tube Leakage.

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 3 Event Date: 5/6/98 Event Time: 1200 CDT

Reactor Mode: 4 Mode Name: Cold Shutdown Power Level: 000

Reactor Coolant System Pressure: 0 psig

No systems or components were inoperable or out of service at the start of this event which contributed to the event.

B. DESCRIPTION OF EVENT:

This LER is being submitted pursuant to 10 CFR 50.73(a)(2)(i) which requires the reporting of any operation or condition prohibited by the plant's Technical Specifications.

On November 11, 1997, the Transverse In-Core Probe (TIP) Indexer 3C failed to lock onto the selected channel as required. Subsequent troubleshooting by the Instrument Maintenance Department (IMD) isolated the fault to a ground on the cable inside the drywell. Further troubleshooting was deferred until the next outage opportunity to enter the drywell.

On May 4, 1998, Electrical Maintenance Department (EMD) was troubleshooting the ground on the cable that led to the TIP Indexer 3C. When the EMD A mechanic opened the cover to inspect the inside of TIP Indexer 3C, approximately one and one half gallons of water rushed out of TIP Indexer 3C. The Radiation Technician monitoring the work directed personnel in the vicinity to evacuate the area due to elevated beta dose rates in the area as the water emptied from the indexer case. There were no significant exposure or personnel contamination events as a result of this event.

On May 6, 1998, all TIP tubes were disconnected from the 3C Indexer. The C-9 tube, which is connected to Local Power Range Monitor (LPRM) string 16-09, was found to be clean and free of lubricant and had a small amount (a few drops) of water in it. The TIP tube was disconnected from the dry tube at the bottom of LPRM detector string 16-09 to verify the source of the leak. A leak of approximately one-gallon per hour at static reactor head (approximately 30 psig) was observed from the LPRM 16-09 dry tube. A sample of the leakage was analyzed and determined to be reactor water. The TIP tubing was reconnected to direct the leakage to the sump.

On May 8, 1998, an Engineering Letter (DOC ID 0005679880) was issued to evaluate the technical acceptability of Temporary Alteration (Temp Alt) III-08-98, which directed installation of a tube cap onto the flared end of the TIP dry tube for LPRM 16-09 to prevent further leakage of reactor water. Installation of Temp Alt III-08-98 meets all requirements of the applicable portions of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section III.

On May 9, 1998, Temp Alt III-08-98 was installed and the penetrant test required by DOC ID 0005679880 was performed satisfactorily.

On May 6, 1998, the leakage into the TIP Indexer 3C was confirmed to be from the LPRM assembly TIP dry tube. ComEd Reportability Manual Section SAF 1.15 requires reporting of any condition or operation in violation of the plant's Technical Specifications consistent with 10CFR50.73(a)(2)(i)(B). SAF 1.15 states that the situation is assumed to have occurred at the time of discovery, unless firm evidence exists to indicate otherwise. Troubleshooting determined that the reason the TIP Indexer 3C failed to function properly was the failure of the limit switch that locks the indexer into each location. This was caused by water in the indexer, which was subsequently determined to be reactor water, providing evidence that a pressure boundary leak had existed while the plant was operated at power.

C. CAUSE OF EVENT:

The cause of the reactor pressure boundary leakage was a small leak in the LPRM 16-09 assembly dry tube. This is an isolated failure. A more detailed failure analysis will not be performed due to the expense and dose associated with disassembly of the LPRM assembly and the one of a kind nature of the failure. Therefore, the root cause of the dry tube leak will not be determined and the replacement of the LPRM assembly is considered adequate to prevent recurrence. (NRC Cause Code X)

D. SAFETY ANALYSIS

The TIP system's primary purpose is to provide a means to measure axial core flux profile through the radially located guide tubes. The system also allows calibration of LPRM signals by correlating TIP signals to LPRM signals. The guide tubes inside the reactor are divided into groups. Each group has its own associated TIP machine.

A TIP machine uses a fission chamber attached to a flexible drive cable, which is driven from its lead shielded storage chamber located outside the primary containment by a pinion gearbox assembly. The flexible cable is contained by guide tubes that continue into the reactor core. The guide tubes are specially prepared to provide a durable, low-friction surface and are an integral part of the LPRM detector assembly. The indexing mechanism allows the use of a single detector in any one of 9 different tube paths. The control system provides both manual and semiautomatic operation. The TIP signal is amplified and displayed on a meter and input to the process computer. Core position versus neutron flux is recorded on a x-y plotter.

Each indexing mechanism functions as a circular transfer machine with 10 selectable indexing points. Eight of these locations are for the guide tubes uniquely associated with that particular TIP machine. One location is not used. The final location is for the guide tube common to all the TIP machines. Indexing to a particular tube location is accomplished manually at the control panel by means of a position selector switch, which energizes the electrically actuated rotating mechanism. The tube transfer mechanism is part of the indexing mechanism and consists of a fixed circular plate containing 10 holes on the reactor side of the primary containment which mates to a rotating single-hole plate. The rotating plate aligns and mechanically locks with each fixed hole position in position in succession. The indexing mechanism is actuated by a motor-operated rotating drive. Electrical interlocks prevent the indexing mechanism from changing positions until the probe cable has been completely retracted beyond the transfer point. Additional electrical interlocks prevent the cable drive motor from moving the cable until the transfer mechanism has indexed to the reselected guide tube location.

Disconnecting the TIP tube for LPRM 16-09 and installing a cap results in the loss of the ability to perform a TIP flux profile for LPRM 16-09, making that location out-of-service (OOS). Dresden Unit 3 Reload Analysis EMF-96-139 assumes that forty percent of the TIP positions (equivalent to two machines) are OOS. Currently there are five LPRM strings (TIP locations) OOS, including LPRM 16-09. This is equivalent to approximately twelve percent. Therefore, the loss of the ability to develop a TIP flux profile at location 16-09 results in minimal impact on the calibration of the LPRMs and is accounted for in the core reload analysis.

Dresden DOC ID 0005679880 provides a technical evaluation demonstrating the acceptability of Temp Alt III-08-98. Extending the pressure boundary to the dry tube and installing the tube cap in accordance with Temp Alt III-08-98 does not result in significant degradation of the over all pressure boundary. The dry tube is approximately 3/8 inch in diameter. Any rupture of the exposed tube or failure of the cap would result in a small leak which is bounded by the analysis as described in the UFSAR, Section 15.6.5, Loss of Coolant Accidents from Piping Breaks Inside Containment. Therefore, a failure of the Temp Alt or the exposed tubing would not increase the consequences as described in UFSAR and the safety impact is minimal.

E. CORRECTIVE ACTIONS:

Temp Alt III-08-98 was installed. (Complete)

Replace LPRM Assembly 16-09 during the next refueling outage (D3R15). Work is to be accomplished during removal of Temp Alt III-08-98. (249-180-98-00501).

F. PREVIOUS OCCURRENCES:

During the course of the investigation, an inquiry was made on the Nuclear Network to determine if any other utility had experienced a leaking TIP dry tube. Nine utilities responded stating that they had not experienced this type of phenomenon. In addition, the vendor reported that a problem of this type had never been reported.

The results of a search of the INPO LER Database and NPRDS indicate that there have been no previous occurrences of a TIP dry tube or thimble tube failure.

The results of a Problem Identification Form (PIF) search indicate that there have been no previous events of this type at Dresden during the last two years.

G. COMPONENT FAILURE DATA:

Manufacturer	Nomenclature	Model/ Part Number
Imaging and Sensing Technology Corporation (IST)	LPRM Assembly	IST-WL 24261