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Nuclear

10 CFR 50.73

October 27, 2003

RHLTR: #03-0070

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

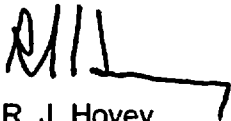
Dresden Nuclear Power Station, Unit 3  
Facility Operating License No. DRP-25  
NRC Docket No. 50-249

Subject: Licensee Event Report 2003-001-00, "Drywell Radiation Monitor Detector  
Not Fully Inserted"

Enclosed is Licensee Event Report 2003-001-00 "Drywell Radiation Monitor Detector Not Fully Inserted," for the Dresden Nuclear Power Station Unit 3. This event is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition which was prohibited by the plant's Technical Specifications."

Should you have any questions concerning this report, please contact Jeff Hansen, Regulatory Assurance Manager, at (815) 416-2800.

Respectfully,



R. J. Hovey  
Site Vice President  
Dresden Nuclear Power Station

Enclosure

cc: Regional Administrator – NRC Region III  
NRC Senior Resident Inspector – Dresden Nuclear Power Station

JE22

**LICENSEE EVENT REPORT (LER)**

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

<b>1. FACILITY NAME</b> Dresden Nuclear Power Station Unit 3	<b>2. DOCKET NUMBER</b> 05000249	<b>3. PAGE</b> 1 of 4
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**4. TITLE** Drywell Radiation Monitor Detector Not Fully Inserted

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
10	23	2002	2003	- 001	- 00	10	27	2003	N/A	N/A
									FACILITY NAME	DOCKET NUMBER
									N/A	N/A

<b>9. OPERATING MODE</b>	4	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)</b>			
<b>10. POWER LEVEL</b>	0	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
		<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)
		<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 73.71(a)(4)
		<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(5)
		<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> OTHER
		<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> Specify in Abstract below or in NRC Form 366A
		<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	
		<input checked="" type="checkbox"/> 20.2203(a)(2)(v)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)	
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)			
<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)			

**12. LICENSEE CONTACT FOR THIS LER**

NAME George Papanic Jr.	TELEPHONE NUMBER (Include Area Code) (815) 416-2815
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**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

<b>14. SUPPLEMENTAL REPORT EXPECTED</b>				<b>15. EXPECTED SUBMISSION DATE</b>		
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> X	<input type="checkbox"/> NO		MONTH	DAY	YEAR

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

On August 27, 2003, at approximately 1300 hours (CDT), an Instrument Maintenance Department Technician confirmed that Unit 3 Drywell Radiation Monitor detector 3B was approximately 23.5 inches from full insertion. The functions of the Drywell Radiation Monitors are to provide a primary containment isolation signal due to high radiation per Technical Specification (TS) 3.3.6.1, "Primary Containment Isolation Instrumentation," and post accident radiation monitoring capability to control room operators during potential accident situations per TS 3.3.3.1, "Post Accident Monitoring (PAM) Instrumentation." Engineering performed an evaluation and determined that the Unit 3 detector 3B could not perform its TS functions in the as-found partially inserted condition. This condition had existed since October 23, 2002.

The investigation identified the root cause as inadequate procedural direction in the placement of the detector in its penetration. The corrective action to prevent recurrence was to revise Dresden procedure DIS-1700-16, "Drywell High Radiation Monitor Group 2 Isolation Functional and Calibration Tests," to clarify that the detector be fully inserted into the penetration until the detector is in contact with the inner surface of the penetration.

NRC FORM 366A U.S. NUCLEAR REGULATORY COMMISSION (7-2001)  <b>LICENSEE EVENT REPORT (LER)</b> TEXT CONTINUATION		APPROVED BY OMB NO. 3150-0104 EXPIRES 07/31/2004 Estimated burden per response to comply with this mandatory information collection request: 50 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. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.	
<b>FACILITY NAME (1)</b> Dresden Nuclear Power Station Unit 3		<b>DOCKET NUMBER (2)</b> 05000249	
		<b>LER NUMBER (6)</b>	
		<b>YEAR</b> 2003	<b>SEQUENTIAL NUMBER</b> 001
		<b>REVISION NUMBER</b> 00	<b>PAGE (3)</b> 2 of 4

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

**A. Plant Conditions Prior to Event:**

Unit: 03	Event Date: 10-23-2002	Event Time: 0800 CDT
Reactor Mode: 4	Mode Name: Cold Shutdown	Power Level: 0 percent
Reactor Coolant System Pressure: 0 psig		

**B. Description of Event:**

This event is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition which was prohibited by the plant's Technical Specifications."

On August 22, 2003 an Instrument Maintenance Department Supervisor and an NRC inspector walked down the two Unit 2 (RIS 2-2419A, RIS 2-2419B) and two Unit 3 (RIS 3-2419A, RIS 3-2419B) Drywell Radiation Monitor detector penetration locations. This walk down was at the request of the NRC inspector. During the walk down the procedure direction for detector insertion into the penetration was discussed but an inspection of the insertion depth of the detectors into their penetrations was not performed.

On August 26, 2003 a Component Maintenance Optimization Instrumentation and Control Specialist performed a visual verification of Drywell Radiation Monitor detector insertion depth into each penetration. The two Unit 2 detectors and one Unit 3 detector (RIS 3-2419A) were determined to be correctly inserted into their penetrations. The specialist determined the insertion of the Unit 3 detector RIS 3-2419B (3B) required verification. On August 27, 2003 at approximately 1300 hours (CDT), an Instrument Maintenance Department Technician confirmed that Unit 3 Drywell Radiation Monitor detector 3B was approximately 23.5 inches from full insertion. The technician inserted the detector fully into its penetration.

On August 25, 2003, an internal company communication, "Exelon Nuclear Event Report (NER) QC-03-056, 'Drywell Radiation Detector Found Not Fully Inserted into Drywell Penetration Location,'" was issued which described a similar event that occurred at Quad Cities Nuclear Power Station on July 14, 2003. The Drywell Radiation Monitor at Quad Cities Nuclear Power Station was evaluated for the as-found partial insertion condition and was determined to be operable. The NER was emailed to Exelon personnel in another internal company communication, "Daily Industry Events Reports," at 1627 (CDT) on August 27, 2003.

The functions of the Drywell Radiation Monitors are to provide a primary containment isolation signal due to high radiation per Technical Specification 3.3.6.1, "Primary Containment Isolation Instrumentation," and post accident radiation monitoring capability to control room operators during potential accident situations per TS 3.3.3.1, "Post Accident Monitoring (PAM) Instrumentation." Engineering performed an evaluation and determined that the Unit 3 detector 3B could not perform its TS functions in the as-found partially inserted condition. This condition has existed since October 23, 2002. Therefore this condition is reportable per 10 CFR 50.73(a)(2)(i)(B),

**C. Cause of Event:**

The root cause of the partial insertion of the Unit 3 Drywell Radiation Monitor detector 3B was inadequate procedure direction.

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<b>LICENSEE EVENT REPORT (LER)</b> TEXT CONTINUATION							
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Procedure DIS-1700-16, "Drywell High Radiation Monitor Group 2 Isolation Functional and Calibration Tests," is used to calibrate and functionally test the Drywell Radiation Monitoring instrumentation. During the performance of the procedure, the Drywell High Radiation Monitor detector is removed from and reinserted into its penetration. The Unit 3 detector 3B was last calibrated during a refueling outage on October 23, 2002. The detector penetrations all have different lengths and there were no specific procedural instructions that the detector had to be left in the fully inserted position for proper detector operation. This procedural direction has existed in procedure DIS-1700-16 since the early 1980s. Additionally, a review of the TS Bases, Updated Final Safety Analysis Report (UFSAR), vendor information and the applicable set point calculation did not reveal any specified requirement for the insertion depth of the detector in the penetration.

**D. Safety Analysis:**

The functions of the Drywell Radiation Monitors are to provide a primary containment isolation signal due to high radiation and post accident radiation monitoring capability to control room operators during potential accident situations.

Engineering performed an assessment which determined that the as-found partially inserted condition of the Unit 3 detector 3B caused the Drywell Radiation Monitor 3B to indicate approximately 30 percent of the estimated indication with the detector fully inserted. This condition was not discovered using channel checks during plant operation as the detectors are exposed to a relatively low radiation field and minor differences in detector readings are expected due to detector sensitivities and the physical location of the detector penetration to the radiation sources. The detector's indicators in the control room had a range from 1 to 10E+8 R/Hr. and the readings from the four detectors during plant operation in August 2003 were 1.7 R/Hr., 2.5 R/Hr., 2.7 R/Hr. and 5.0 R/Hr. with detector 3B reading 1.7 R/Hr.

The as-found partially inserted condition of detector 3B would have resulted in detector 3B being unable to perform its primary containment isolation function at the required TS 3.3.6.1 value. TS 3.3.6.1 specifies an Allowable Value of 77 R/Hr. for the primary containment isolation signal and it is estimated that the primary containment isolation signal would not have occurred until approximately 100 to 130 R/Hr. The primary containment isolation function is established to ensure that fission products would be contained in the unlikely event of high drywell radiation without the expected low reactor vessel level or high drywell pressure. The primary containment isolation function is not credited in any accident or transient analysis in the UFSAR.

Additionally, the as-found partially inserted condition of detector 3B would have resulted in detector 3B being unable to perform as expected in a post accident situation as required by TS 3.3.3.1. The Drywell Radiation Monitors would be used by control room operating staff to perform the diagnosis specified in the Emergency Operating Procedures (EOPs). An engineering assessment of detector 3B determined that although the Unit 3 Drywell Radiation Monitors were reading within a couple of R/Hr. of each other during normal plant operation, during a postulated post accident situation detector 3B would be tracking the relative rise in the radiation level but indicating a much lower total radiation level than the other Unit 3 detector. Based on the expected plant conditions in a post accident situation and engineering judgment that conservative decision-making would be used, the

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information available from both detectors would have resulted in the expected post accident diagnosis of high radiation in the drywell.

The as-found partially inserted condition of detector 3B did not affect the assumptions contained in UFSAR accident and transient analysis and the expected post accident diagnosis required by the EOPs would not have been adversely affected by the as-found partially inserted condition of detector 3B. Therefore, the consequences of this event had minimal impact on the health and safety of the public and reactor safety.

**E. Corrective Actions:**

The two Unit 2 Drywell Radiation Monitor detectors and one Unit 3 detector were determined to be correctly inserted into their penetrations on August 26, 2003.

Unit 3 Drywell Radiation Monitor detector 3B was fully inserted into its penetration on August 27, 2003.

Dresden Procedure DIS-1600-16 was revised to require the detector to be fully inserted into the penetration until the detector is in contact with inner surface of the penetration.

An extent of condition review of other procedures that control the installation of other radiation detectors at Dresden Nuclear Power Station revealed the need to verify the installation of the Fuel Pool Radiation Monitor detectors. A Component Maintenance Optimization Specialist performed an inspection of the installation of the detectors on September 19, 2003 and confirmed that they were all correctly installed.

Dresden procedures for the Fuel Pool Radiation Monitor detectors, DIS-1700-15, "Fuel Pool Channel A and Channel B Area Radiation Monitor Channel Calibration Test" and DIS-1770-18, "Fuel Pool Channel A and Channel B Area Radiation Monitor Channel Functional Test," have been revised.

**F. Previous Occurrences:**

A review of recent Dresden Nuclear Power Station Licensee Event Reports (LERs) identified the following events that were associated with inadequate procedural direction.

LER 2002-005, Unit 2 – Pressure Switches found above Technical Specification Allowable Values. The cause of the event was determined to be a procedure instruction deficiency, which promoted instrument set point drift. Corrective actions included the revision of related maintenance procedures.

LER 2001-003, Unit 2 – Failure of Recirculation Pump Discharge Valve to close causing LPCI Inoperability. The cause of the event was determined to be inadequate procedural guidance, which led to the equipment failure. The corrective actions included the revision of appropriate station procedures.

**G. Component Failure Data:**

N/A