

EXPIRES 04/30/99

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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) Millstone Nuclear Power Station Unit 2		DOCKET NUMBER (2) 05000336	PAGE (3) 1 OF 3
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TITLE (4)
Inadequate Radiation Monitoring of Containment Atmosphere During Refueling Operations

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
08	25	98	98	-- 021 --	00	10	08	98	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)									
	20.2201(b)	20.2203(a)(2)(v)	X	50.73(a)(2)(ii)	50.73(a)(2)(viii)					
POWER LEVEL (10) 000	20.2203(a)(1)	20.2203(a)(3)(i)	X	50.73(a)(2)(iii)	50.73(a)(2)(x)					
	20.2203(a)(2)(ii)	20.2203(a)(3)(iii)		50.73(a)(2)(iii)	73.71					
	20.2203(a)(2)(iii)	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 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 R. G. Joshi, MP2 Regulatory Compliance Manager	TELEPHONE NUMBER (Include Area Code) (860) 440-2080
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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)				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 August 25, 1998, during a review of the Radiological Analysis of Fuel Handling Accident in Containment (FHAIC) calculation, it was discovered that the calculation assumed that the airborne radioactivity released by a FHAIC was instantly and uniformly mixed throughout the containment atmosphere. Inspection of the ventilation system challenged this assumption on radioactivity mixing by identifying an abnormal ventilation system alignment. As a result, the Containment Gaseous and Particulate Radiation Monitors (RM 8123A & B, RM 8262A & B) may not be able to detect the activity released during a FHAIC and isolate the Containment Purge System to prevent an unacceptable radioactivity release. Past practice, during Fuel handling activities in containment, was to purge containment and run only one Aux Recirc fan (F24B) which resulted in minimum mixing of the FHAIC radioactivity. This practice could have allowed radioactivity discharge through the purge exhaust before being detected by the Radiation Monitors resulting in an increase in offsite dose greater than design basis consequences per the FSAR. Thus, the Radiation Monitors would have been inoperable per section 3.9.9 of Technical Specifications. While the design basis credits operator action to isolate the Purge System within 10 minutes in the event of a FHAIC, the Radiation Monitors serve as a backup automatic isolation system.

The cause of this condition was the failure to reflect design basis assumptions into operating practices.

As a result of this condition, prior to entering Mode 6 from the current outage, the appropriate plant procedure will be revised to ensure operation in accordance with design basis assumptions.

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

I. Description of Event

On August 25, 1998, during a review of the Radiological Analysis of Fuel Handling Accident in Containment (FHAIC) calculation, it was discovered that the calculation assumed that the airborne radioactivity released by a FHAIC was instantly and uniformly mixed throughout the containment atmosphere. Inspection of the ventilation system challenged this assumption on radioactivity mixing by identifying an abnormal ventilation system alignment. As a result, the Containment Gaseous and Particulate Radiation Monitors (RM 8123A & B, RM 8262A & B) may not be able to detect the activity released during a FHAIC and isolate the Containment Purge System [VA] to prevent an unacceptable radioactivity release. While the design basis credits operator action to isolate the Purge System within 10 minutes in the event of a FHAIC, the radiation monitors serve as a backup automatic isolation system. At the time of discovery the plant was defueled.

Containment Aux Recirc Fans F24A & F24B are each 75,000 cubic feet per minute (cfm) fans. The Purge Exhaust Fan (F43C) and Purge Supply fan (F23) are rated at 30,000 cfm. With the Purge Supply and Exhaust fans running and with only F24B Aux Recirc fan operating, it was determined that there would not be sufficient mixing within the containment. With only Aux Recirc fan F24B operating, the Radiation Monitors would be unable to detect the radioactivity and restrict the release of radioactive material through the purge exhaust to the environment by automatically closing the purge valves. Using engineering judgement, this condition would allow the Purge System to exhaust about 70% of the radioactivity from 14 ruptured fuel rods from a FHAIC before it could be detected by the Containment Radiation Monitors [JM]. Preliminary calculation of doses for this condition indicate regulatory dose limits of Standard Review Plan 15.7.4 to offsite locations, or 10CFR50 Appendix A, GDC-19 to the control room, would not have been exceeded. However, these doses would have exceeded the design basis offsite dose consequences for a FHAIC per FSAR 14.7.4.3.2.

Early in the plant's life, the Containment Aux Recirc System was modified to improve accessibility at the 14'-6" level during refueling operations. The discharge duct of the Aux Recirc Fan F24A was modified near the equipment hatch so it could be removed and blanked to allow equipment passage into containment. It has been the practice to remove and blank the fan F24A discharge duct for ease of access, making fan F24A inoperable. With the Aux Recirc Fan F24A inoperable the assumption of a uniformly mixed air sample to the containment radiation monitors is no longer appropriate.

With both Aux Recirc Fans operating, the containment atmosphere would be "well mixed". This mixing of the containment atmosphere would allow the Radiation Monitors to detect the radioactivity at the same time it reaches the purge exhaust, and close the purge valves prior to exceeding regulatory limits under any fuel handling accident. Preliminary evaluation of the expected mixing indicates that the radiological consequences are well within acceptable limits.

With only Aux Recirc fan F24B operating, the Radiation Monitors would be unable to detect the radioactivity at the same time it reaches the purge exhaust and close the purge valves. The purge exhaust would remove a larger portion of the radioactivity before purge system isolation than if the containment atmosphere was well mixed. Thus, the Radiation Monitors would be inoperable per section 3.9.9 of Technical Specifications.

This condition is being reported in accordance with 10 CFR 50.73(a)(2)(ii)(B), any condition outside the design basis of the plant and 10 CFR 50.73(a)(2)(i)(B), any operation or condition prohibited by the plant's Technical Specifications.

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

II. Cause of Event

The cause of this condition was the failure to reflect design basis assumptions into operating practices.

III. Analysis of Event

The Millstone FHAIC assumes a dropped fuel bundle which ruptures 14 fuel pins and releases the gaseous fission products to the containment atmosphere. During refueling operations, the fuel floor operator and control room operators are in continuous communication.

In the event of a FHAIC, the control room operators are credited with taking manual action within 10 minutes to close the purge valves and terminate the radioactivity release. The automatic closure of the purge valves, initiated by a high radiation signal from the Containment Radiation Monitors, is a backup to the operator action. The manual operator action would occur prior to the automatic system response. Therefore, this condition is not considered to be safety significant.

IV. Corrective Action

As a result of this condition, prior to entering Mode 6 from the current outage, the appropriate plant procedure will be revised to ensure operation in accordance with design basis assumptions.

V. Additional Information

Similar Events

One previous similar event involving inoperability of Containment Radiation Monitors was found.

RO 78-16: High Radiation Signal to Containment Purge Valves Bypassed.

Energy Industry Identification System (EIIIS) codes are identified in the text as [XX].