

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 3		DOCKET NUMBER (2) 05000423	PAGE (3) 1 OF 3
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TITLE (4)
Manual Reactor Trip Due To High Conductivity In The Condensate System

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
10	28	1998	1998	-- 043	-- 00	11	25	1998	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)									
	<input type="checkbox"/>	20.2201(b)	<input type="checkbox"/>	20.2203(a)(2)(v)	<input type="checkbox"/>	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(viii)		
POWER LEVEL (10) 100	<input type="checkbox"/>	20.2203(a)(1)	<input type="checkbox"/>	20.2203(a)(3)(i)	<input type="checkbox"/>	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(x)		
	<input type="checkbox"/>	20.2203(a)(2)(i)	<input type="checkbox"/>	20.2203(a)(3)(ii)	<input type="checkbox"/>	50.73(a)(2)(iii)	<input type="checkbox"/>	73.71		
	<input type="checkbox"/>	20.2203(a)(2)(ii)	<input type="checkbox"/>	20.2203(a)(4)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	<input type="checkbox"/>	OTHER		
	<input type="checkbox"/>	20.2203(a)(2)(iii)	<input type="checkbox"/>	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)				
	<input type="checkbox"/>	20.2203(a)(2)(iv)	<input type="checkbox"/>	50.36(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vii)				

LICENSEE CONTACT FOR THIS LER (12)

NAME David A. Smith, Manager Unit 3 Regulatory Compliance	TELEPHONE NUMBER (Include Area Code) (860)437-5840
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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)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On October 28, 1998, at approximately 09:20 hours, with the Unit in Mode 1 at 100 percent power, a manual reactor trip was initiated when a leak in the "C" Condenser waterbox allowed saltwater intrusion resulting in Condensate Pump Discharge (CPD) conductivity exceeding the limits allowed by Abnormal Operating Procedure (AOP) 3558, "Condenser Tube Leak." On October 28, at 09:32 hours, a four-hour non-emergency notification of this reactor protection system (RPS) actuation was made pursuant to the requirements of 10 CFR 50.72(b)(2)(ii). This event is reportable pursuant to 10 CFR 50.73(a)(2)(iv) as "...any event or condition that resulted in a manual or automatic actuation of any Engineered Safety Feature, including the Reactor Protection System ...".

The cause of event was the mechanical failure of a Condenser tube within the "C" waterbox.

Eddy current testing determined that a tube leak within the "C" Condenser waterbox caused an inflow of salt water from the Circulating Water System into the Condenser resulting in the high conductivity readings. The precise cause of the condenser tube failure has not been determined. The tube was plugged and the unit was returned to operation. The AOP required a manual reactor trip without consideration of the ability of the condensate demineralizers to remove impurities without impacting the steam generators nor allow time to identify and isolate the leak. There was no impact on system chemistry downstream of the condensate demineralizers as they were able to maintain chemistry within normal limits during this event. There was minor safety significance associated with this event in that a transient was imposed on the unit due to the conservative chemistry criteria utilized in the AOP. There were no consequences associated with this event.

The leaking Condenser tube in the "C" waterbox was plugged. Operating procedures have been revised to have Chemistry recommend action (including plant shutdown when necessary) based upon chemistry conditions.

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TEXT CONTINUATION

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		1998	043	00	

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

I. Description of Event

On October 28, 1998, at approximately 09:20 hours, with the Unit in Mode 1 at 100 percent power, a manual reactor trip was initiated when a leak in the "C" Condenser waterbox [SG] allowed saltwater intrusion resulting in Condensate Pump Discharge (CPD) [SD] conductivity exceeding the limits allowed by Abnormal Operating Procedure (AOP) 3558, "Condenser Tube Leak."

On October 28, 1998, at approximately 08:50 hours, Chemistry received Hotwell Cation Activity, Hotwell Sodium, and CPD Cation Conductivity alarms and notified the Control Room (CR). At 08:56 hours the CR received a Condensate Conductivity high alarm [CR instrumentation indicated 0.6 micromho at the CPD, increasing]. The Operators entered AOP 3557, "Secondary Chemistry", which then transitions to AOP 3558, "Condenser Tube Leak". At approximately 09:05 hours, Chemistry personnel took CPD grab samples and Hotwell and Condensate Polisher Filter (CPF) inlet/outlet samples. At approximately 09:20 hours, Chemistry provided the Control Room with the results of the direct hotwell samples, which confirmed the suspected condenser tube leakage. At 09:20:13 hours, a manual reactor trip was initiated as required by AOP 3558, "Condenser Tube Leak," when the conductivity exceeded 1 Micromho at the Condensate Pump discharge.

On October 28, at 09:32 hours, a four-hour non-emergency notification of this reactor protection system (RPS) actuation was made pursuant to the requirements of 10 CFR 50.72(b)(2)(ii). This event is reportable pursuant to 10 CFR 50.73(a)(2)(iv) as "...any event or condition that resulted in a manual or automatic actuation of any Engineered Safety Feature, including the Reactor Protection System ...".

II. Cause of Event

The cause of event was the mechanical failure of a Condenser tube within the "C" waterbox.

III. Analysis of Event

Eddy current testing determined that a tube leak within the "C" Condenser waterbox caused an inflow of salt water from the Circulating Water System [BS] into the Condenser resulting in the high conductivity readings. The precise cause of the condenser tube failure has not been determined. The tube was plugged and the unit was returned to operation. The AOP required a manual reactor trip without consideration of the ability of the condensate demineralizers [SF] to remove impurities without impacting the steam generators nor allow time for Chemistry and Operations to identify and isolate the leak. There was no impact on system chemistry downstream of the condensate demineralizers as they were able to maintain chemistry within normal limits during this event.

The plant responded as expected during the reactor trip. There was minor safety significance associated with this event in that a transient was imposed on the unit due to the conservative chemistry criteria utilized in the AOP. There were no consequences associated with this event. Operator actions were in accordance with operating procedures. AOP 3558, "Condenser Tube Leak," requires a reactor trip to ensure the correct water chemistry is maintained (primarily for the steam generators). This procedure directs the reactor to be tripped when the conductivity at the condensate pump discharge (upstream of the demineralizers) is equal to or greater than 1 Micromho. This is conservative since in most cases the condensate demineralizers are capable of cleaning up the impurities to acceptable levels.

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IV. Corrective Action

The following corrective action(s) have been completed:

1. The leaking Condenser tube in the "C" waterbox was plugged.
2. Operating procedures have been revised to have Chemistry recommend specific actions (including plant shutdown when necessary) based upon secondary chemistry conditions.

V. Additional Information

None

Similar Events

LER 98-038-00 Manual Reactor Trip Due To High Conductivity In The Condensate System

On September 15, 1998, at 17:35, with the Unit in Mode 1 at 100 percent power, a manual reactor trip was initiated when condensate pump discharge conductivity exceeded the limits allowed by the Abnormal Operating Procedure. This event occurred after restoring the Steam Generator Blowdown System to closed cycle service following maintenance activities.

A contributing factor to the manual reactor trip reported in this Licensee Event Report (LER), LER 98-043-00, was the timing of the corrective action in response a previous recent reactor trip on high condensate conductivity on September 15, 1998. Chemistry and AOP procedural changes had been identified that would have allowed time for identification and isolation of sources of inleakage (for intrusions within the capability of the condensate demineralizers to handle without significantly impacting downstream condensate chemistry), versus the requirement to manually trip the reactor. Although the Chemistry procedure change became effective on October 28, 1998, the AOP change had not yet been implemented.

Manufacturer Data

EIIS Codes: Systems:

Condensate System.....SD
 Condensate Demineralizer System.....SF
 Condenser System.....SG
 Circulating Water System (Ultimate Heat Sink System).....BS

EIIS Codes: Components:

None