

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
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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 1

DOCKET NUMBER (2)

05000245

PAGE (3)

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TITLE (4)

Liquid Radwaste Effluent Radiation Monitor Inoperable Due to Leaking Automatic Isolation Valves

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
01	10	97	97	001	00	02	10	97	FACILITY NAME	DOCKET NUMBER
OPERATING MODE (9)		N	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)		<input checked="" type="checkbox"/> 50.73(a)(2)(i)		50.73(a)(2)(viii)	
			20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)	
			20.2203(a)(2)(i)		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

Robert W. Walpole, Nuclear Licensing Supervisor

TELEPHONE NUMBER (Include Area Code)

(860)440-2191

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
E	WD	ISV	C684	N					

SUPPLEMENTAL REPORT EXPECTED (14)

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

On January 10, 1997, investigation of a related event identified that the effect of excessive liquid radwaste discharge isolation valve seat leakage on radwaste effluent line radiation monitor operability from November 28, 1991 until September 21, 1994 was not addressed. Since the liquid radwaste effluent radiation monitor is required by Technical Specifications (TS) to automatically terminate a release upon detection of excessive radiation, the monitor shuts these automatic isolation valves to accomplish its function. The liquid radwaste effluent radiation monitor could not terminate the release as required by TS because of the leaking valves, therefore, the monitor was inoperable from November 28, 1991 to September 21, 1994.

One of the liquid radwaste discharge automatic isolation valves were repaired on September 16, 1994 and the other on September 21, 1994. Critical radwaste components will be identified and a preventative maintenance program to assure operability of these components will be implemented. The system design basis will be revised to identify these critical components and specify their design requirements.

The Liquid Radwaste Discharge system lineup will be reviewed and the configuration and discharge procedures modified to ensure the system is operated within the design basis of the plant.

The TS actions were applicable at all times liquid radwaste effluent line radiation monitor was inoperable. Since the required action statement for an inoperable radwaste effluent line radiation monitor were not performed, this event is reportable, pursuant to 10CFR50.73(a)(2)(i)(B), as a condition prohibited by the plant's Technical Specifications. There were no safety consequences as a result of this event.

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I. Description of Event

On November 28, 1991, at 1147 hours, with the plant shutdown and the reactor in the COLD SHUTDOWN condition, multiple leaking liquid radwaste valves resulted in an unplanned release of approximately 60 gallons during recirculation of a floor drain sample tank (FDST). Operations personnel secured the release by closing a manual isolation valve in the discharge line. Evaluation of the release determined the total activity and concentration of the release did not exceed Technical Specification (TS) maximum permissible discharge limits and was not a reportable liquid effluent release pursuant to 10CFR50.72(b)(2)(iv)(B).

To prevent further unplanned releases resulting from the leaking valves, the liquid radwaste effluent system valve line up was revised to maintain the manual discharge isolation valve shut and the discharge header drain valve open except when actually discharging. Subsequent investigation determined the FDST isolation valves and both the high and low flow automatic isolation valves were leaking between 0.5 and 1.0 gpm. One of the automatic isolation valves were subsequently repaired on September 16, 1994 and the other on September 21, 1994.

On January 10, 1997, investigation of a related event concerning the affects of draining the discharge line on the radwaste effluent monitor trip setpoints (Millstone 1 LER 96-065-00) identified the effect of excessive liquid radwaste discharge isolation valve seat leakage on radwaste effluent line radiation monitor operability from November 28, 1991 until September 21, 1994 was not addressed. The liquid radwaste effluent radiation monitor is required by TS to automatically terminate a release upon detection of excessive radiation. The monitor shuts these automatic isolation valves to accomplish this function. Therefore, the liquid radwaste effluent radiation monitor could not terminate the release as required by TS and the monitor was, therefore, inoperable from November 28, 1991 to September 21, 1994.

II. Cause of Event

The cause of the radiation monitor inoperability was the absence of a preventative maintenance program for the isolation valves.

The root causes of failing to adequately address inoperability of the leaking valves were inadequate planning and prioritization for the maintenance needs of the radwaste system and inadequate documentation of the system design basis requirements.

III. Analysis of Event

The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the release of radioactive materials in liquid effluents during actual or potential releases. The setpoints are calculated in accordance with the methods specified in the Offsite Dose Calculation Manual (ODCM) to ensure alarms and trip function occur prior to exceeding the limits of 10CFR20. The operability and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10CFR50.

The liquid radwaste effluent line radiation monitor detects gross gamma activity of the liquid effluent, and if predetermined setpoints are exceeded, initiates closure of both liquid radwaste discharge isolation valves. The Alarm/Trip setpoints are calculated for each discharge and depend on the dilution water flow, radwaste discharge flow, efficiency of the monitor, background activity and activity in the liquid to be discharged. The High-High Alarm/Trip setting ensures compliance with TS limits with additional conservatism applied to the

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calculated value. The high alarm is set to give the operator a warning that the isolation trip setpoint is being approached.

Regulatory Guide (RG) 1.143, "Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants" states, "Testing provisions should be incorporated to enable periodic evaluation of the operability and required functional performance of active components of the system." (Reference to RG 1.143 is not a commitment to implement all requirements of this standard but, rather, is used for clarification and explanation of current industry standards.) Contrary to this guidance, no maintenance program currently exists to ensure operability of critical radwaste components. During the unplanned release associated with this event, two gate valve isolation was provided to Long Island Sound during recirculation operations; therefore, degradation of at least two series isolation gate valves was identified as causing the unplanned release. Likewise, the significant degradation of the automatic isolation valve seating surfaces resulted in the inoperability of the liquid radwaste effluent line radiation monitor due to the inability of these valves to terminate a release.

The leak was promptly identified by shift personnel upon receipt of the radwaste effluent line radiation alarm. Immediate corrective actions were effective in terminating the unplanned release. In response to the necessity to discharge liquid radwaste and prevent further unplanned releases, Operations implemented an interim work around using caution tags to isolate and drain the section of piping between the isolation valves and Long Island Sound except when actually discharging. The failure to aggressively pursue repair of the discharge isolation valves (nearly three years between trouble report and actual repair) resulted in Operations formalizing the interim work around into the system operating procedures. This procedure change further minimized the necessity for timely repair of the valves. These system configuration changes were not evaluated for applicability to 10CFR50.59.

The liquid radwaste effluent line radiation monitor is required to be operable at all times (on a continuous uninterrupted basis) except outages are permitted for performance of maintenance and required tests and surveillances. If inoperable, effluent discharges may continue provided "best efforts" are exerted to repair the monitor and independent valve lineups, samples and setpoint calculations are performed. Failure to restore the final actuation devices, discharge isolation valves, to an operable status in three years is not consistent with these TS requirement. From a historical perspective, the actions were applicable at all times the liquid radwaste effluent line radiation monitor was inoperable. Since the required action statement for an inoperable radwaste effluent line radiation monitor were not performed, this event is reportable, pursuant to 10CFR50.73(a)(2)(i)(B), as a condition prohibited by the plant's Technical Specifications.

During the period from November 1991 to September 1994, the liquid radwaste effluent line monitor was functional and capable of accurately indicating effluent radiation levels. A review of all but two months of the liquid radwaste effluent line radiation monitor recorder charts for this period evaluated the activity levels of plant discharges. Based upon the leakage flow rate and assumed worst case mix of nuclides, closure of the degraded valves would still have reduced discharge concentrations below TS limits. TS permit up to fifteen minutes to reduce discharge below the limits. Upon receipt of a high radiation alarm, procedures direct the operator to immediately stop the discharge. This action would have minimized the effects of the leaking isolation valves. Therefore, the safety significance of this event is low.

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IV. Corrective Action

Repairs to the liquid radwaste discharge automatic isolation valves were completed on September 16, 1994 for one and September 21, 1994 for the other.

NNECO will identify by April 15, 1997, critical radwaste components and implement a preventative maintenance program to assure operability of these components. The system design basis will be revised to identify these critical components and specify their design requirements by August 22, 1997.

NNECO will conduct a review of the present Liquid Radwaste Discharge system lineup to determine the appropriate configuration and modify the discharge procedures and system configuration as required to ensure the system is operated within the design basis of the plant by March 31, 1997.

NNECO will review TS for occurrences where actuated equipment has only implied functional requirements due to association with systems (such as actuating instrumentation) in other sections of TS or the UFSAR and specify the functional requirements for these components by April 30, 1998.

V. Additional InformationSimilar Events

LER 96-065-00 Liquid Radwaste Effluent Line Monitor Not Set Per Requirements of Technical Specifications

Manufacturer Data

4" Air Operated Gate Valve, Crane Model 47 1/2 xu
1" Air Operated Gate Valve, Crane Model 3605 xu