

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 1

DOCKET NUMBER (2)

05000245

PAGE (3)

1 of 4

TITLE (4)

Steam Tunnel Vent, Reactor Building Vent and Refuel Floor Vent Radiation Monitors Downscale Trip Function Inoperable

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
11	26	96	96	063	01	04	09	97	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)							
POWER LEVEL (10)		000	20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)	
			20.2203(a)(1)		20.2203(a)(3)(ii)		50.73(a)(2)(ii)		50.73(a)(2)(x)	
			20.2203(a)(2)(i)		20.2203(a)(3)(iii)		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)		<input checked="" type="checkbox"/> 50.73(a)(2)(vii)			

LICENSEE CONTACT FOR THIS LER (12)

NAME

Robert W. Walpole, MP1 Nuclear Licensing Manager

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

SUPPLEMENTAL REPORT EXPECTED (14)

YES	<input checked="" type="checkbox"/> NO
(If yes, complete EXPECTED SUBMISSION DATE).	

EXPECTED SUBMISSION

MONTH DAY YEAR

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

On November 26, 1996, with the reactor in COLD SHUTDOWN and no fuel in the reactor vessel, surveillance testing discovered that the downscale trip functions for both steam tunnel vent radiation monitors did not trip as required by design. The downscale trip points were adjusted and tested satisfactorily. Concurrent failure of both steam tunnel vent downscale trips to function could have resulted in undetected failures of both monitors. This condition was reported pursuant to 10 CFR 50.72(b)(2)(iii)(C) as a condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to control the release of radioactive material. On March 11, 1997, with the reactor in COLD SHUTDOWN and no fuel in the vessel, a review of other Millstone Unit No. 1 radiation monitors concluded that similar deficiencies exist which could prevent the reactor building vent and refuel floor radiation monitors to trip as required by design. This condition is reportable as a common mode failure which caused independent trains or channels to become inoperable in a system designed to control the release of radioactive material. There were no safety consequences as a result of this event since the upscale trip functions for these radiation monitors were operable and therefore would have performed as required if an actual radiation condition existed. The cause of this event has been attributed to a procedural deficiency which requires adjusting the monitor's downscale trip points to a value with little margin to the signal failure point in the event of set point drift. Corrective actions will correct the procedural deficiency and change the downscale trip point to a value that is sufficiently above the signal failure point to allow adequate margin.

LICENSEE EVENT REPORT (LER)

TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)				PAGE (3)
		YEAR	SEQUENTIAL NUMBER		REVISION NUMBER	
		96	--	063	--	01
Millstone Nuclear Power Station Unit 1	05000245					2 of 4

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

I. Description of Event

On November 26, 1996, with the reactor in COLD SHUTDOWN and no fuel in the reactor vessel, during performance of SP 406W "Steam Tunnel Ventilation Radiation Monitor Functional Test and Calibration," it was discovered that the downscale trip functions for both steam tunnel vent radiation monitors did not trip as required by design. The downscale trip function actuates when the detector signal falls below the low level trip point and provides a fail-safe action for failures such as loss of detector high voltage or signal. Technical Specifications (TS) do not require a downscale trip nor specify a setpoint for the downscale trip.

On November 27, 1996, it was determined that the steam tunnel vent radiation monitors were inoperable and would not fully perform their intended safety function to isolate steam tunnel and reactor building ventilation when both monitors fail downscale and direct releases to the Standby Gas Treatment System (SGTS) to maintain instantaneous releases to the environment below 10 CFR Part 20 limits.

This condition was reported on November 27, 1996, pursuant to 10 CFR 50.72(b)(2)(iii)(C) as a condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to control the release of radioactive material. After further review it was determined to be a common mode failure reportable pursuant to 10 CFR 50.73(a)(2)(vii)(c) and not reportable under 50.72 since both monitors would have functioned on a high radiation condition. The 10 CFR 50.72 report was amended on December 26, 1996.

On March 11, 1997, with the reactor in COLD SHUTDOWN and no fuel in the vessel, a review of other Millstone Unit No. 1 radiation monitors concluded that similar deficiencies exist which could prevent the monitors' downscale trip functions to trip as required by design. The review concluded that the reactor building vent and refuel floor vent radiation monitors downscale trip points have little margin for drift between the trip points and the signal failure point. The downscale trip function actuate when the detector signal falls below the low level trip point and provides a fail-safe action for failures such as loss of detector high voltage or signal. TS do not require a downscale trip nor specify a setpoint for the downscale trip.

It was determined that the reactor building vent and refuel floor radiation monitors were inoperable and would not fully perform their intended safety function to isolate steam tunnel and reactor building ventilation when any two monitors fail downscale and direct releases to the SGTS to maintain instantaneous releases to the environment below 10 CFR Part 20 limits. This condition is being reported pursuant to 10 CFR 50.73(a)(2)(vii)(c) as a common mode failure which causes independent trains or channels to become inoperable in a system designed to control the release of radioactive material.

The upscale trip functions for the steam tunnel vent, reactor building vent and refuel floor vent radiation monitors were operable and would have performed their intended function if an actual radiation condition existed. Therefore, there are no safety consequences as a result of this event.

II. Cause of Event

The cause of this event has been attributed to a procedural deficiency which requires adjusting the monitors downscale trip points with little margin for drift between the trip points and the signal failure point.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)				PAGE (3)
		YEAR	SEQUENTIAL NUMBER		REVISION NUMBER	
		96	--	063	-- 01	
Millstone Nuclear Power Station Unit 1	05000245					3 of 4

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

III. Analysis of Event

Per the Millstone Unit No. 1 Updated Final Safety Analysis Report, Section 11.5.1, the safety related functional requirement of these TS radiation monitors is to monitor the steam tunnel ventilation exhaust plenum, the reactor building, and the room air at the refueling floor area to provide prompt indication of a gross release of radioactive material. If setpoints are exceeded or if two monitors in any one location fail downscale, signals will isolate the normal reactor building and steam tunnel ventilation systems and initiate operation of the SGTS. The only required trip value for these radiation monitors in TS are the high radiation trip setting of 50 mR/hr for the steam tunnel vent, 11 mR/hr for the reactor building vent, and 100 mR/hr for the refueling floor as specified in 3.2.E.3.c.

These radiation monitors' safety function is to limit instantaneous releases to within 10 CFR Part 20 limits. The high trip setting is based upon maintaining the total instantaneous activity released from the reactor and steam tunnel ducts within the limits defined in the Offsite Dose Calculation Manual.

The downscale trip feature actuates when detector signal falls below the low setpoint and provides fail-safe action for such failures as loss of detector signal when not accompanied by a loss of power. With a complete loss of signal, the monitor indication fails to the lowest readable meter gradation. Normal background radiation levels during shutdown vary and may approach the downscale setpoint. Therefore, the set point is adjusted during calibration to a value which is low enough to prevent spurious downscale trips during shutdown yet high enough to generate a trip on loss of signal. The downscale trip is functionally verified to operate. A minimal margin between the downscale setpoint, the signal failure, and background levels can result if the setpoint drifts. Direction for adjusting the downscale trip setpoints was provided in the surveillance procedure. The procedural guidance to adjust the out of specification setpoint was considered to be adequate corrective action, since the original failure was indicative of instrument drift and not significant monitor degradation.

A failure of the downscale trip function of radiation monitors would not, in itself, degrade the principal safety barrier (secondary containment) of the plant provided the radiation monitors remain capable of responding to a valid high radiation condition. Since the monitors responded to a known radiation field and the high radiation trip function performed satisfactorily as demonstrated during surveillance testing, any one monitor would have isolated reactor building and steam tunnel ventilation and started SGTS in the event of a gross release of radioactivity. Also, in the event of a loss of power, the de-energization of the high level trip relays would have initiated the protective function independent of the downscale trip function.

A procedural inadequacy which provided guidance for adjustment of the downscale trip points is reportable pursuant to 10 CFR 50.73(a)(2)(vii)(c) as an event or condition where a single cause or condition caused independent channels to become inoperable in a system designed to control the release of radioactive material.

IV. Corrective Action

The procedure for the steam tunnel vent radiation monitors has been changed and has been performed satisfactorily to adjust the downscale trip point to a value sufficiently above the meter zero so that sufficient margin exists.

The procedure changes and the performance of the surveillance for the reactor building vent and refuel floor radiation monitors will be completed by May 15, 1997.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)				PAGE (3)
		YEAR	SEQUENTIAL NUMBER		REVISION NUMBER	
		96	--	063	--	01
Millstone Nuclear Power Station Unit 1	05000245					4 of 4

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

A review of all Millstone Unit No. 1 radiation monitors has been performed to identify if any similar procedural deficiencies exist which may set the downscale trip points with little or no drift margin to the signal failure point. This review concluded that the isolation condenser radiation monitor and several radiation monitors not required by TS also have similar deficiencies. The procedures for the isolation condenser radiation monitor and other radiation monitors not required by TS will be completed by July 15, 1997.

V. Additional Information

Similar Events

There were no similar events involving any radiation monitors within the last two years.

Manufacturer Data

None.