

Northeast
Nuclear Energy

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The Northeast Utilities System
Donald B. Miller Jr.,
Senior Vice President - Millstone

Re: 10CFR20.2201

April 4, 1994
MP-94-233

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Reference: Facility Operating License No. DPR-21
Docket No. 50-245
Licensee Event Report 91-001-01

Gentlemen:

This letter forwards Licensee Event Report 91-001-01. This report provides updated information on the loss of a sealed 1 mCi Cesium-137 radioactive source designed for field checking portable instrumentation at Millstone Station.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

Donald B. Miller, Jr.
Senior Vice President - Millstone Station

DBM/JD:ljs

Attachment: LER 91-001-01

cc: T. T. Martin, Region I Administrator
P. D. Swetland, Senior Resident Inspector, Millstone Unit Nos. 1, 2 and 3
J. W. Andersen, NRC Acting Project Manager, Millstone Unit No. 1

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LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), 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 04
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TITLE (4)
Lost Radioactive Source

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
01	17	91	91	001	001	04	04	94	Millstone Unit 2	05000336
									Millstone Unit 3	05000423

OPERATING MODE (9) N	THIS REPORT IS BEING SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)									
POWER LEVEL (10) 0	20.402(b)			20.405(c)			50.73(a)(2)(iv)			73.71(b)
	20.405(a)(1)(f)			50.36(c)(1)			50.73(a)(2)(v)			73.71(c)
	20.405(a)(1)(g)			50.36(c)(2)			50.73(a)(2)(vi)			<input checked="" type="checkbox"/> OTHER
	20.405(a)(1)(h)			50.73(a)(2)(i)			50.73(a)(2)(vii)(A)			(Specify in Abstract below and in Text, NRC Form 386A)
20.405(a)(1)(iv)			50.73(a)(2)(ii)			50.73(a)(2)(vii)(B)				
20.405(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(v)				

LICENSEE CONTACT FOR THIS LER (12)

NAME Drexel N. Harris, Site Licensing	TELEPHONE NUMBER (include Area Code) (203) 437-5903
--	--

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)	<input checked="" type="checkbox"/>	NO					

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

On January 17, 1991, while at 100 percent power (530 degrees Fahrenheit, 1030 psig) the Unit 1 Shift Supervisor was notified of the loss of a sealed 1 mCi Cesium-137 source. This source is used for response checking of portable dose rate instruments. We do not believe this source has been released to unrestricted areas. It is most probable that this source remains unaccounted for in our Radiologically Controlled Area (RCA) or that it was inadvertently disposed of as radioactive waste. Based on the source's probable location within the RCA, that it is encapsulated in a thick plexiglass holder mounted to a stainless steel plate and that it is appropriately labeled, we do not believe this source presents a substantial safety hazard to personnel in unrestricted areas. Although we do not believe this source presents a substantial safety hazard, we conservatively decided this condition warranted notification. This event is being reported in accordance with 10CFR20.2201.

Plant operation was unaffected and there were no safety consequences as a result of this event. On March 18, 1992, this source was found inside the RCA.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), 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	LER NUMBER (6)	PAGE (3)						
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">YEAR</td> <td style="width: 33%;">SEQUENTIAL NUMBER</td> <td style="width: 33%;">REVISION NUMBER</td> </tr> <tr> <td style="text-align: center;">91</td> <td style="text-align: center;">- 001 -</td> <td style="text-align: center;">01</td> </tr> </table>	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	91	- 001 -	01	02 OF 04
YEAR	SEQUENTIAL NUMBER	REVISION NUMBER							
91	- 001 -	01							

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

I. Description of Event

On January 17, 1991, while at 100 percent power (530 degrees Fahrenheit, 1030 psig) the Unit 1 Shift Supervisor was notified of the loss of a sealed 1 mCi Cesium-137 source. This source is used for response checking of portable dose rate instruments. The source involved is a stainless steel encapsulated 1 mCi Cesium-137 radioactive source which was purchased from Amersham Laboratories. After receipt at Millstone Station, the source was permanently sealed in a 2" thick plexiglass holder. This plexiglass holder was then hinge mounted to a 18" by 24" stainless steel backing plate to facilitate wall mounting. The hinged plexiglass source holder could be swiveled to provide different dose rates and was intended for the source response checking of portable dose rate instrumentation in the field. The stainless steel backing is labelled "Instrument Check Source" and "Caution, Radioactive Material". Expected dose rates for various instruments are also contained on this backing plate. Typical contact dose rates from this device as measured with an Eberline Model RO-2 dose rate meter are 45 mR/hr in the low range position and 170 mR/hr in the high range position. Dose rates at 18" are substantially lower and are typically 2.5 mR/hr in the low range position and 3.5 mR/hr in the high range position. The serial number of the missing source plaque is 6282 GR. This number is etched on the plexiglass which encapsulates the source. A picture of a similar device is shown in Attachment 1. The source was known to have been issued to Millstone Unit 2 Health Physics Operations personnel for use during their refueling outage in September, 1990, and was placed into use in the Unit 2 Containment to support the checking of portable survey instruments. During the semi-annual source smear surveillance conducted in December, 1990, this source was not able to be located. A comprehensive search of all three Units was made during late December, 1990, and January, 1991, to account for this source. This search included all known locations of source plaques, all RCA areas within the plants and all material which was associated with the Unit 2 outages. After all of the material associated with the Unit 2 outage had been searched and the other units were not able to locate this device, notification of the lost source was made to the NRC Operations Center in accordance with Station Emergency Plan Implementing Procedures, 10 CFR 20.402(b) and 10 CFR 50.72.(b)(2)(vi).

II. Cause of Event

The root cause of this event was determined to be inadequate procedural control for accountability of sources. Controls for accountability, storage, issuance and return of sources were not clearly defined in one specific procedure.

III. Analysis of Event

This event is being reported in accordance with 10CFR20.402(b), which requires reporting of the loss or theft of licensed material. It is our belief that the most probable location of this source is either within the Unit 2 RCA or that the source was inadvertently disposed of as radioactive waste. This assessment is based on the fact that a comprehensive series of controls including fences at the boundaries to the RCA have been in place during the time period the source was unaccounted for. The activity of the source was such that it would have been easily detected at the RCA boundary exits. It is highly improbable that the source left the RCA and entered a non-RCA undetected. Additional assurance is provided that it did not leave site since all material is surveyed prior to leaving the protected area and metal detectors and radiation portal monitors would have detected its presence on an individual.

We have no knowledge of any radiation exposures to personnel due to the loss of this source. Based on our belief that the source remains stored within the radiologically controlled area, contact with this source, if found, would be by trained and monitored radiation workers. If the source was inadvertently disposed of in radioactive waste, the precautions taken for packaging and shipping radioactive waste would have been sufficient to preclude unmonitored or uncontrolled radiation exposures.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 90.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.

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		91	- 001 -	01	

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

IV. Corrective Action

A comprehensive search for the lost source was undertaken during late December, 1990, and January, 1991. This search included all probable locations both inside and outside RCA areas for all three Units. Additionally, material stored in LSA boxes was searched and the Unit 2 containment was toured. The location and serial numbers for all other similar devices were verified.

It is recognized that improvements are required in the control and accountability of sources at Millstone Station. These improvements, many of which were already in progress at the time of the loss, will be formalized in an Administrative Control Procedure or Health Physics Procedure. At a minimum, a system for controlled storage, issuance to a responsible person and return of sources will be implemented. The Station is in the process of reviewing all facets of source control including receipt, storage, locking, issuance, accountability and return, and audits of custodial controls.

V. Additional Information

On March 18, 1992, Health Physics discovered a yellow bag labelled "Save for H.P." which contained the previously "lost source." The sealed bag was located on the 38'6" level of the Unit 2 Reactor Building West Penetration Room.

Since the source was found within the RCA, there is supporting evidence that the source remained within the RCA. As a result, there could not have been an unmonitored exposure from this misplaced source.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

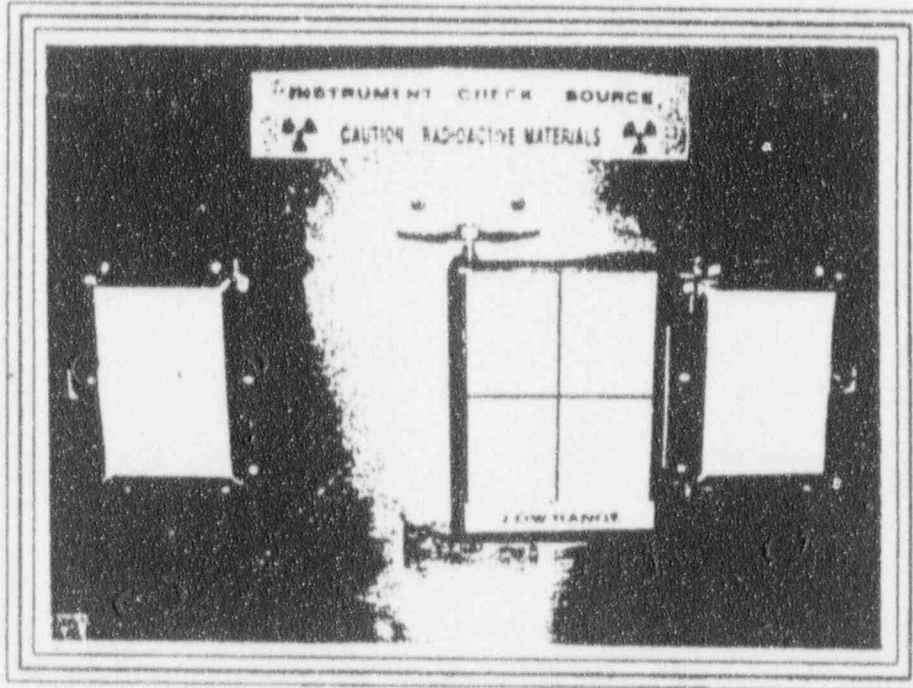
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Millstone Nuclear Power Station Unit 1	DOCKET NUMBER (2) 05000245	LER NUMBER (8)			PAGE (3) 04 OF 04
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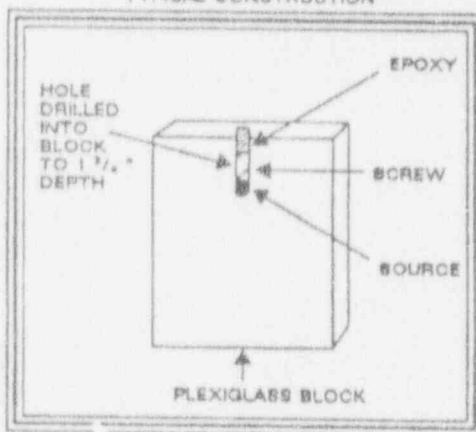
TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

SOURCE PLAQUE - SERIAL NUMBER 6282 GR

PICTURE OF SIMILAR DEVICE



TYPICAL CONSTRUCTION



DESCRIPTION: 1 mCi, Cs 137 source sealed in 2" thick plexiglass, 6" wide by 8" long. The plexiglass is specially mounted on an 18" x 24" stainless steel sheet of metal to permit an easy swivel action for performing high and low range response checks of dose rate instruments. The stainless steel backing is conspicuously posted with yellow and magenta radioactive trifolds and labeling which states: 'INSTRUMENT CHECK SOURCE' and 'CAUTION - RADIOACTIVE MATERIALS'. The instrument source serial number is etched on the plexiglass which encases the source. It is located on either the front or side plexiglass surface.

APPROXIMATE DOSE RATES AS MEASURED WITH AN RO-2 ION CHAMBER		
	LOW RANGE	HIGH RANGE
Contact	45 mR/hr	170 mR/hr
18"	2.5 mR/hr	3.6 mR/hr

Attachment 1