

NORTHEAST UTILITIES



The Connecticut Light And Power Company
Western Massachusetts Electric Company
Holyoke Water Power Company
Northeast Utilities Service Company
Northeast Nuclear Energy Company

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November 6, 1989
MP-13699

Re: Voluntary Report

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

Reference: Facility Operating License No. DPR-21/DPR-65/DPR-49
Docket Nos. 50-245/50-336/50-423
Licensee Even. Report Information Letter 89-020-00

Gentlemen:

NNECo has determined that the event described in the accompanying document is not reportable per 10CFR50.73. This letter forwards Licensee Event Report Information Letter 89-020-00.

This report is submitted for information concerning the identification of contaminated material in locations outside of radiological control areas.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

Stephen E. Scace
Station Superintendent
Millstone Nuclear Power Station

SES/JS:tp

Attachment: LER 89-020-00

cc: W. T. Russell, Region I Administrator
W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2 and 3

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LICENSEE EVENT REPORT (LER)

Estimated burden per response to comply with this information collection request: 50.0 hrs. Forward comments regarding burden estimate to the Records and Reports Management Branch (p-530) U.S. Nuclear Regulatory Commission, Washington, DC 20555, 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) **0 5 | 0 | 0 | 0 | 2 | 4 | 5** PAGE (3) **1 OF 0 | 4**

TITLE (4) **Contaminated Material Outside the Radiological Control Area**

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 NAMES										
0	9	0	8	0	2	0	1	1	0	6	8	9	0	5	0	0	0		

OPERATING MODE (9) **N** THIS REPORT IS BEING SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

POWER LEVEL (10) 1 1 0 0	20.402(b)	20.402(c)	50.73(a)(2)(iv)	73.71(b)
	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
	20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
	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)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME **John Sullivan, Health Physics Supervisor - Operations, Ext. 4318** TELEPHONE NUMBER **2 | 0 | 3 | 4 | 4 | 7 | - | 1 | 7 | 9 | 1**

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRS
D				N					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15) MONTH DAY YEAR

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

This Licensee Event Report (LER) is submitted for information only. On September 6, 1989, in response to a previous event involving the release of a radioactively contaminated hydrolaser machine from the site, a radiological survey was initiated which identified contaminated tools and equipment outside of the radiological control area (RCA) and outside of the Millstone site protected area.

This LER discusses short and long term corrective actions and findings to date.

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

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

I. Description of Event

On May 11, 1989, Millstone Nuclear Power Station released a radioactively contaminated high-pressure water hydrolaser from its Millstone Unit No. 1 electrical generating facility in Waterford, Connecticut, to the Westinghouse Corporation in Moorestown, New Jersey, in violation of federal shipping regulations. As a result of this event, NNECO had undertaken a review of its programmatic activities relating to radiological survey compliance for unconditional release of materials from its nuclear generating stations. During this process the Northeast Utilities program activities were aided by an INPO evaluation and assist visit in August 1989. The INPO review perspectives and NU evaluations identified program deficiencies and required corrective actions in the area of monitoring compliance for unconditional release of radioactive materials.

As part of the program review, a comprehensive radiological survey was begun on September 5, 1989 at a warehouse used exclusively by Northeast Utilities. The warehouse (NUSCO Tool Warehouse) is located approximately 3 miles from the Millstone site and is relied upon for support equipment during outages. On September 6, 1989 NNECO Health Physics personnel identified contaminated tools and equipment in this facility. At that time appropriate radiological controls were implemented to monitor the handling of the warehouse inventory by the workforce. Briefings were conducted to insure the workers understood the very small potential radiological consequences and to insure the workers understood the instituted controls. Outgoing shipments from the warehouse were halted and incoming shipments were quarantined and monitored by Health Physics.

On October 12, 1989 Health Physics completed the survey at the NUSCO warehouse. In excess of 230,000 items have been surveyed and 233 items have been identified as exceeding the NNECO release limits. The warehouse is now back under the control of NUSCO management with limited Health Physics control over incoming material.

The scope of the survey has been expanded to include other NU facilities which are serviced by this warehouse. In addition a Task Force is being formed by NNECO management to review the potential contamination control weaknesses within the entire NU system to determine whether additional broad scope corrective actions are required.

II. Cause of Event

The root cause of this event involves both a failure to establish adequate procedures to prevent the spread of contaminated material outside the radiological control area (RCA) and a failure to adequately survey material prior to its release from the RCA.

III. Analysis of Event (Safety Assessment)

The purpose of the comprehensive survey was, in part, to determine the health impacts to personnel resulting from the uncontrolled release of radioactive materials from the RCA. Of the 233 items detected as exceeding the NNECO release limits, the summated radioactivity totals less than 7 microcuries. The major isotope is corrosion product Cobalt-60 with no transuranic or alpha emitting isotopes detected.

LICENSEE EVENT REPORT (LER)
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The materials range from hand tools, such as hammers, screwdrivers, and wrenches, to rigging slings, chainfalls, etc. The single largest item from a physical size dimension and radiological significance is a hydrolaser (similar in nature to the one shipped to Westinghouse on May 11, 1989). This hydrolaser is approximately 6 feet wide by 8 feet long and 5 feet high and weighs approximately 3000 pounds. This item was last used at the Millstone Unit No. 1 facility in 1989 during a spent fuel pool rerack evolution and shipped to the off-site warehouse on February 22, 1989. On September 6, 1989 the hydrolaser was surveyed as part of an ongoing evaluation and determined to have a dose rate of 0.1 millirem per hour at the surface and accessible to personnel. A contact radiation reading of 3 millirem per hour was noted on a small valve located on the hydrolaser skid. This dose rate is due to internally deposited radioactive material. The limiting whole body dose rate is 0.1 millirem per hour on the accessible surface plane of the hydrolaser due to the internal contamination of a water hold tank. The hydrolaser exhibited loose surface activity to a maximum concentration of 10,000 dpm/100 cm². The internal activity present (inside the hydrolaser) was calculated to be a total of 6.0 microcuries. This item constitutes over 90 percent of the aggregate radioactivity detected to date.

Of the 233 tools identified as contaminated, 32 of these items had smearable contamination present. The two items exhibiting the most removable contamination were 1/2 inch drive socket wrench heads. The loose surface contamination was 50,000 dpm and 12,000 dpm, respectively, on the inner socket head recessed groove points on a surface area of approximately 30 cm² per socket head. Surveys conducted in production shops and warehouse buildings where the materials were found indicate that there was no facility or personnel contamination from the materials.

IV. Survey Methodology

A systematic and conservative methodology was put in place to determine if a tool or component was contaminated. A conservative approach was designed to ensure any tool with detectable radioactivity approaching 100 ccpm (RM-14/HP-210) was identified and controlled. This technique was designed to identify tools that may have been surveyed and released during 20 years of Northeast Utilities nuclear operating history, using instrumentation that was significantly less sensitive than current detection equipment.

- A. From the period September 5, 1989 to October 12, 1989, over 300,000 items were surveyed by Health Physics technicians. This included items at the NUSCO Tool Warehouse, items at the Millstone Nuclear Generating station and items at other NU facilities which use the warehouse as a tool supplier. This program involved 6 to 15 health physics technicians and additional supervisory personnel working 6 days a week, 10 hours per day.
- B. Frisking speeds were maintained at the optimum durations to detect contamination. Frisking speeds of 10-15 seconds per area were utilized to achieve full scale instrument response.
- C. The background radioactivity levels at the frisking locations were 40-50 cpm (RM-14/HP-210). This is a factor of 2 to 6 times lower background levels than typically exist at nuclear facilities where frisking occurs.
- D. All items were surveyed on contact, rather than at the typical 1/2" industry standard distance. Many of the 233 items identified as contaminated (> 100 ccpm) at the "contact" distance were less than 100 ccpm at 1/2".
- E. Any tool indicating in excess of 100 ccpm on contact was rag wiped for smearable activity along its entire dimension rather than swiped per 100 cm².
- F. All items indicating loose surface activity were counted on a multi-channel gamma analyzer for isotopic identification.

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

- G. Work gloves worn by the Health Physics survey team members were retained and surveyed during the work, and at the completion of the evolution. No radioactivity was detected on these gloves after handling the entire survey population which exceeds 230,000 tools.
- H. Environmental monitoring samples including soil and sewer sludge specimens were collected in tool storage areas and counted in multi-channel analyzers. This monitoring indicated no detectable activity present.
- I. All warehouse personnel were frisked and whole body counted. All personnel were found to be free of internal and external contamination.
- J. A dose assessment is under evaluation to determine the consequence of approximately 0.6μCi of radioactivity detected on the 233 tools and 6.0μCi on the internal surfaces of the hydrolaser. This activity calculation is expected to show insignificant dose potentials to the general public.

V. Corrective Action

The comprehensive survey to determine the extent of contaminated materials residing in the Northeast Utilities system is ongoing. It is contemplated that this survey will encompass over 300,000 tools and components, take approximately 10 weeks to complete and expend in the range of 7,000 to 10,000 man-hours.

The comprehensive survey identified programmatic deficiencies. Therefore a review was conducted to determine the adequacy and current status of radiological monitoring facilities, equipment storage repositories, administrative procedures, contamination monitoring equipment, and personnel resources currently utilized to control the release of contaminated material to on-site and off-site facilities. Following this review, comprehensive corrective actions to address the root cause were taken as described:

- A. Health Physics is now responsible for surveying all items leaving the RCA to provide the unconditional release. Health Physics personnel are currently monitoring the principal exits from the RCA. Prior to this change the workforce was responsible to survey materials leaving an RCA. HP had responsibility to survey items leaving the contaminated areas.
- B. A program to require Health Physics to cosign all property passes that allow the removal of items from the Millstone site was instituted.
- C. The work order station procedure at Millstone has been revised to require that Health Physics become involved in any support equipment being connected to a potentially contaminated system.
- D. A program for surveying vehicles leaving the protected area has been instituted.
- E. State-of-the-art tool/equipment monitoring devices are currently undergoing field testing and evaluation.

NNECO has also undertaken a review of the program for trash monitoring and as a result has strengthened this program. Automated trash surveying equipment has been ordered to support the survey needs.

The Task Force assigned to review the corrective actions should conclude its review by December 30, 1989. At that time all corrective actions will either be in place or a schedule for implementation will be determined. NNECO will continue to communicate with the NRC Resident Staff on progress toward corrective action implementation.