

RI - DNMS Licensee Event Report

Disposition

Licensee:	CT Dept of Public Health				
Event Description:	missing electron capture detector				
License No:	062086702	Docket No:	1303070	MLER-RI:	2008-015
Event Date:	05/06/08	Report Date:	06/04/08	HQ Ops Event #:	44205

1. REPORTING REQUIREMENT

<input type="checkbox"/>	10 CFR 20.1906 Package Contamination	<input type="checkbox"/>	10 CFR 30.50 Report
<input checked="" type="checkbox"/>	10 CFR 20.2201 Theft or Loss	<input type="checkbox"/>	10 CFR 35.3045 Medical Event
<input type="checkbox"/>	10 CFR 20.2203 30 Day Report	<input type="checkbox"/>	License Condition
<input type="checkbox"/>	Other _____		

2. REGION I RESPONSE

<input type="checkbox"/>	Immediate Site Inspection	Inspector/Date	
<input type="checkbox"/>	Special Inspection	Inspector/Date	
<input type="checkbox"/>	Telephone Inquiry	Inspector/Date	
<input type="checkbox"/>	Preliminary Notification/Report	<input type="checkbox"/>	Daily Report
<input checked="" type="checkbox"/>	Information Entered in RI Log	<input type="checkbox"/>	Review at Next Inspection
<input type="checkbox"/>	Report Referred To: _____		

3. REPORT EVALUATION

<input checked="" type="checkbox"/>	Description of Event	<input checked="" type="checkbox"/>	Corrective Actions
<input checked="" type="checkbox"/>	Levels of RAM Involved	<input type="checkbox"/>	Calculations Adequate
<input checked="" type="checkbox"/>	Cause of Event	<input type="checkbox"/>	Additional Information Requested from Licensee

4. MANAGEMENT DIRECTIVE 8.3 EVALUATION

<input type="checkbox"/>	Release w/Exposure > Limits	<input type="checkbox"/>	Deliberate Misuse w/Exposure > Limits
<input type="checkbox"/>	Repeated Inadequate Control	<input type="checkbox"/>	Pkging Failure > 10 rads/hr or Contamination > 1000x Limits
<input type="checkbox"/>	Exposure 5x Limits	<input type="checkbox"/>	Large# Indivs w/Exp > Limits or Medical Deterministic Effects
<input type="checkbox"/>	Potential Fatality	<input type="checkbox"/>	Unique Circumstances or Safeguards Concerns
If any of the above are involved:			
<input type="checkbox"/>	Considered Need for IIT	<input type="checkbox"/>	Considered Need for AIT
Decision/Made By/Date: _____			

5. MANAGEMENT DIRECTIVE 8.10 EVALUATION (additional evaluation for medical events only)

<input type="checkbox"/>	Timeliness - Inspection Meets Requirements (5 days for overdose / 10 days for underdose)
<input type="checkbox"/>	Medical Consultant Used-Name of Consultant/Date of Report: _____
<input type="checkbox"/>	Medical Consultant Determined Event Directly Contributed to Fatality
<input type="checkbox"/>	Device Failure with Possible Adverse Generic Implications
<input type="checkbox"/>	HQ or Contractor Support Required to Evaluate Consequences

6. SPECIAL INSTRUCTIONS OR COMMENTS

Prepare Enforcement Panel to Disposition last Source-Direction

☐ Non-Public

Inspector Signature: _____

Date: _____

☒ Public-SUNSI REVIEW COMPLETE

Branch Chief Initials: _____

Date: _____

Maurice Miller

7/29/08



STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH DIVISION OF LABORATORY SERVICES

June 26, 2008

RECEIVED
REGION 1
2008 JUN 27 PM 3:02

Administrator
United States Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, PA 19406

Re: Missing Electron Capture Detector, SN 3359

Dear Administrator:

This written report from the Connecticut Department of Public Health (DPH) Laboratory, recipient code #708101, is being made pursuant to 10 CFR 20.2201 (b), to follow up the telephone report of 4 June 2008 to the Nuclear Regulatory Commission (NRC) Operations Center. On that date I officially notified the NRC that the DPH Laboratory has been unable to locate a Tracor Electron Capture Detector (ECD), Serial Number 3359, since it was discovered missing on 6 May 2008. The sealed detector containing Nickel 63 was held under the General License of Thermo Fisher Scientific, according to the provisions on Texas License L01186, which expires after 30 April 2010.

- (1) The ECD was a sealed source, Tracor Model 111019, Serial Number 3359, containing a foil coated with Nickel 63. It was placed into service at the DPH Laboratory in July 1975. Originally containing 536.5 MBq [14.5 millicuries (mCi)] activity, it has by now decayed to about 421.8 MBq [11.4 mCi.]
- (2) The detector had been wipe tested and transferred to the General License of ThermoFinnegan [now Thermo Fisher Scientific] in September 2001. It was last observed and recorded during an inventory in October 2004 where it was located in a Tracor 222 Gas Chromatograph (GC). Subsequent to this, the ECD was removed and placed in a box for storage. The Tracor instrument itself was taken out of service during 2005 and the laboratory room in which the GC had been located was cleared and renovated for another use. It is thought that track of the ECD was lost at this point, since a variety of personnel were involved in laboratory cleaning and renovation.

The fact that SN 3359 was missing was only discovered in May 2008 when the Radiation Safety Officer noticed a discrepancy when she was obtaining a Return Authorization Number for shipment and disposal of ECDs from Thermo Fisher Scientific and compared the serial numbers to the list of ECD detectors that had been transferred to its general license in 2001. After notification of the Environmental Chemistry Section Chief, a thorough search of the storage areas of the laboratories in that section, as well as other sections, was made. However,

there was no sign of SN 3359. Review of wipe test records showed that the other Tracor ECDs had been receiving their semi-annual wipe tests, but there was no record that SN 3359 had been included in the wipe tests in 2005 and thereafter.

- (3) Since SN 3359 would have received a wipe test along with the other ECDs if staff were aware of its whereabouts, it is thought that SN 3359 disappeared between the inventory of October 2004 and 1 June 2005, the next round of wipe testing. As discussed in (2) above, the most probable disposition of SN 3359 was storage in a box in its laboratory of use. With the renovation of the laboratory in question, SN 3359 is probably either in some remote space in the laboratory complex or it was disposed into ordinary trash by a person not involved in ECD operation. It was noted from other similar detectors that the style of detector had a label engraved, but decades of heating and use had resulted in severe fading, making it difficult to recognize.
- (4) It is thought that there was no exposure to an individual to radiation. SN 3359 was a sealed source containing a Nickel 63 foil that had not been leaking at its last wipe test. Even if the source had not been sealed, Nickel 63 emits beta particles of low energy (65 kev), and their effective range in air is about 2 inches. It is likely that since the ECD was in a box that it was not handled directly, so the total effective dose equivalent to a person in an unrestricted area is zero.
- (5) As discussed in (2) above, thorough search of the DPH facility did not result in the discovery of ECD SN 3359. Additional steps were taken to further the search. A photograph of a similar detector was taken and shown to staff to aid in recognition. The retired Assistant Supervisor of the unit where the ECD had been used was contacted, and his suggestions of other areas to look were followed. Staff are on alert in case SN 3359 is later discovered.
- (6) The DPH Laboratory has adopted a number of measures to ensure that this type of loss does not occur again:
 - (a) DPH has instituted an electronic database in Microsoft Excel™ that is located on the Laboratory shared drive for the ECD wipe test records. This ensures numerous levels of review by the RSO, the Environmental Chemistry Section Chief, supervisors, and testing personnel. This supplements the paper files kept by date that previously had been the recordkeeping system.
 - (b) All unneeded ECDs have been sent back to their respective general license holders for disposal. NRC will receive separate notifications as the DPH Laboratory is notified that the ECDs have been disposed of by their respective general license holders.
 - (c) The Environmental Chemistry Section Chief has instituted a section policy, to be detailed in the next update of the DPH Laboratory Radiation

Safety Manual, that ECD detectors will not be placed in storage. If they are no longer needed, they will be returned for disposal to the holder of the general license as soon as practicable.

- (d) The Environmental Chemistry Section Chief has requested that the RSO conduct a retraining of testing personnel in that unit to enhance the radiation awareness of all chemistry employees.

Please let us know if you require any additional information.

Sincerely,



Carolyn Jean Webb, M.S., S.M.

Radiation Safety Officer

Telephone: (860) 509-8622

FAX: (860) 509-8697

e-mail: carolyn.jean.webb@ct.gov

cc. John Fontana, Laboratory Director
Robert Howard, Public Health Section Chief
Jack Bennett, Environmental Chemistry Section Chief
Carlton Lorring, RSO, Thermo Fisher Scientific

Other Nuclear Material	Event Number: 44265
Rep Org: CONNECTICUT DEPT. OF PUBLIC HEALTH Licensee: THERMOFISHER SCIENTIFIC Region: 1 City: HARTFORD State: CT County: License #: LO1186 (TX) Agreement: N Docket: NRC Notified By: CAROLY JEAN WEBB HQ OPS Officer: HOWIE CROUCH	Notification Date: 06/04/2008 Notification Time: 13:59 [ET] Event Date: 05/06/2008 Event Time: [EDT] Last Update Date: 06/04/2008
Emergency Class: NON EMERGENCY 10 CFR Section: 20.2201(a)(1)(ii) - LOST/STOLEN LNM>10X	Person (Organization): PAMELA HENDERSON (R1) MICHELE BURGESS (FSME) JACK WHITTEN (R4)

This material event contains a "Less than Cat 3" level of radioactive material.

Event Text

MISSING NI-63 ELECTRON CAPTURE DEVICE

The Connecticut Department of Public Health Laboratories reported that they were unable to locate an Electron Capture Device Ni-63 source. Source serial number is 3359 and was 14.5 mCi in July, 1975.

The last known wipe test of the source was in 2001, conducted when the license was transferred from Thermo-Finnegan to Thermo-Fisher Scientific. The last inventory that positively identified the source was conducted in 2004. Thermo-Fisher holds the specific license for the device and their Texas license number is LO1186. Connecticut DPH Labs is the end-user. They do have an expired license number 06-20867-02.

In May, 2008, the end-user was assembling all known unused sources for proper disposal when they determined that the Ni-63 source was missing. They have performed an extensive search of their facility but have not been able to locate the source.

The end-user will be notifying Thermo-Fisher Scientific.

THIS MATERIAL EVENT CONTAINS A "LESS THAN CAT 3" LEVEL OF RADIOACTIVE MATERIAL

Sources that are "Less than IAEA Category 3 sources," are either sources that are very unlikely to cause permanent injury to individuals or contain a very small amount of radioactive material that would not cause any permanent injury. Some of these sources, such as moisture density gauges or thickness gauges that are Category 4, the amount of unshielded radioactive material, if not safely managed or securely protected, could possibly - although it is unlikely - temporarily injure someone who handled it or were otherwise in contact with it, or who were close to it for a period of many weeks.