

Carestream Molecular Imaging

Betsy Ullrich, MS, CHP
Senior Health Physicist
Commercial and R&D Branch
Division of Nuclear Material Safety
Region I
Nuclear Regulatory Commission
(610) 337-5040

29June2010

Q-5
MS-16

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REGISTRY
2010 JUN -2 AM 11:24

RE: License No. 06-21254-01
Docket No. 030-20106
Control No. 144650
Carestream Molecular Imaging

Ms. Ullrich,

I was unable to reach you by telephone to further discuss the questions you posed on 21Jun2010. I attempted to answer your questions by return e-mail, and the following is the requested hard copy of the answers. My answers (and attached documents) are in bold type within the format of your 21June2010 email.

21June2010 Ullrich questions/25June2010 Vizard answers:

In order to release your former facilities at 4 Science Park for unrestricted use, I need some additional information. I would also like to set up a time to discuss this information with you, in addition to the written response that is needed. This discussion is part of the licensing action that is under review for the release of your 4 Science Park facility, and part of the inspection that began in February 2010.

1. I recently was provided a copy of a report that stated, on August 7, 2009, a radium-226 source was detected by a radiation alarm at a Connecticut landfill, and that the source was found in a Wallac liquid scintillation counter by responders from the State of Connecticut Bureau of Radiation Protection. According to the report I received, the State responders removed the source from the liquid scintillation counter, traced the counter to your company, and required you to retrieve the source. However, your "MAR10 Decom Nots.doc" attached to your letter dated March 2, 2009 (received March 8, 2010) contains an excerpt from "Rad Safety Feb03.doc" that describe you and another staff person removing a source from an old liquid scintillation counter on February 14, 2003, and further describes the source as containing both americium-241 and radium-226. Your letter dated March 29, 2010, states that Chase Environmental later characterized an old liquid scintillation counter source as containing only radium-226.

a. It appears that there may be two sources that were required to be disposed of, the one that you placed into storage in 2003, and a second source that was disposed of improperly in August 2009. Please confirm if there was only one source, or two sources. If there was only one source, please explain why the source was replaced into the liquid scintillation counter

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144650
NMSS/RGN1 MATERIALS-002

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and disposed of. If there were two sources, please explain which one was disposed of by Chase Environmental in November 2009, and explain the location of the second source.

There were two sources. Appropriate waste stream disposal/shipping/ and wipe tests are documented in the attachment [Ship/Wipe Rad] and the corresponding NRC notice in the attachment [NRC notfcn]. Both sources were estimated as 24 μ Ci each of Ra226 by Chase Environmental. The history of the one old source is much as you described and I documented as originating from a 2003 removal from a very old LSC, with ambiguous labeling, and that Chase verified as Ra226.

b. Explain the circumstances that led to the improper disposal of a Wallac liquid scintillation counter, with its radium-226 reference source, on or before August 7, 2009. **The second source, was from a second scintillation counter that I was initially unaware of. Laboratory assistants had received an old scintillation counter without documentation some years ago in 4 Science Park. Since there was no H3 or C14 usage, it had little use, other than some swipe tests in the late 1990s. The machine was simply consuming space, used as a table-top, and I was asked to remove it from the laboratory. According to my recorded notes in the attachment "20Apr08 note", I cleared this machine for storage. My survey of the machine discovered no contamination, no H3 or C14 was used for experimentation in the laboratory, and the user manual with the machine mentioned no check source or function associated with a check source (a usual circumstance of a cheap LSC). It was my error that I did not disassemble the machine to further investigate. Upon my clearance to storage, the machine was eventually sent to trash in Aug09. I was notified shortly thereafter from the waste disposal company. They stated that upon dumping the machine, the check source mechanically triggered the source extrusion from its protective lead shielding, sufficient to set off their radiation monitor. They repaired the source, and I retrieved it immediately, and changed my request with Protec/Chase to dispose of two sources. This second source was very "usual" compared the first source. I inspected/re-wiped both sources (1.a. attachment) and secured them the Chase inspection and shipment.**

c. Provide written confirmation from the transfer/disposal company for receipt of each source for disposal, or confirmation that the source(s) is (was) disposed of by the radioactive waste burial facility. **Provided in 1.a..**

d. Provide leak test results for the radium-226 source(s) prior to transfer for disposal. If you do not have leak tests within a few weeks prior to transfer, then surveys of the storage area(s) are required to confirm that the sources did not leak, before the facility at 4 Science Park can be released for unrestricted use. **Provided in 1.a..**

e. Confirm if you currently possess any liquid scintillation counters, and if the counters contain a radioactive reference or check source. Confirm that you understand that such sources are possessed under a general license pursuant to 10 CFR 31.5, and that, under the general license, you may not remove or transfer the source. Only the instrument vendor or another manufacturer of similar devices may remove or transfer those sources. In addition, such sources must be disposed of as radioactive waste. Confirm that you understand that your license does not authorize you to remove such sources from a liquid scintillation counter.

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There are no LSC in my possession and none are planned - no H3 or C14 usage are currently planned, except for existing C14 step tablets for film quality control work.

2. In your March 2 and 29 letters, you stated that you disposed of, into normal trash, the contents from a drum labeled as containing tritium waste, estimated to be about 60 microcuries including an unopened vial labeled as containing 10 microcuries of tritium. As discussed during the inspection, this is a violation of NRC regulations, because tritium waste is not suitable for disposal by decay-in-storage, and the labeling quantities and exempt quantities are not applicable to radioactive waste from licensed activities. Confirm that tritium and any other licensed material will be disposed of only in accordance with the regulations in 10 CFR 20.2001-2008 and the conditions of your license. **Reiterating/confirming my statement in my 29March 2010 response to you (7.d.), tritium and any other licensed material will be disposed of only in accordance with the regulations in 10 CFR 20.2001-2008 and the conditions of your license.**

3. Your letters and an email dated May 27, 2010, also discussed the 5 microcurie carbon-14 ARC step tablets that you possess from autoradiography testing, which you believe are exempt from NRC regulation. Please provide a manufacturer name and, if possible, a license number, which authorizes the distribution of these sources to persons who are exempt from NRC regulations. Such licenses are issued only by the NRC. If these sources are not distributed under an authorized license, then confirm that you understand that these sources are possessed under your specific license, and may only be disposed of as radioactive waste in the future. **The C14 step tablets are a product of ARC (American Radiochemical Company). The last purchase of a few of the step tablets was about 1999, during which I happen to volunteer my NRC license number. For the many years prior, many of the step tablets were purchased and used by Kodak Scientific Imaging and Eastman Kodak Company for QA of autoradiographic film and storage phosphor screens. The same step tablets were provided with phosphor-imaging machines produced by Molecular Dynamics to whom Eastman Kodak provided the storage phosphor screens. During that extended period of time, it was conventional wisdom that the C14 step tablets could be purchased/used/discarded without a materials license. Another C14 step tablet was available through Amersham, Inc, but the ARC step tablets were more popular (had a greater activity). Historically, at least 10's were purchased by Eastman Kodak, and many by the entire "autoradiographic" community and these purchases were made from ARC without a license. No license was ever conveyed by ARC, nor was any ever noted by myself on any of the paperwork. Of the potentially thousands of the similar C14 and H3 step tablets that are distributed in laboratories and dry waste throughout the world, I happen to possess the last few I purchased for which I happened to document my NRC number. As I have stated, I will use and care for these step tablets, and properly dispose of them when necessary.**

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Please let me know when you would be available to discuss these questions by telephone. I will not be available on Tuesday 6/22 afternoon, or all day Thursday 6/24. I will be in the office Friday 6/25 but will be out of the office Monday through Wednesday 6/28-30.

Although you may respond by email for the purposes of the telephone discussion, a hard copy letter signed by you or another company manager is required to support the licensing action for release of 4 Science Park.

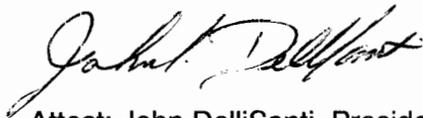
Please contact me if you have any questions about this email. I appreciate your attention to this matter.

Betsy

It is my hope that the above detail satisfies your inquiry.

Sincerely,

Douglas L. Vizard, RSO
Carestream Molecular Imaging
4 Research Drive
Woodbridge, CT 06525
Tel. (203) 786-5692



Attest: John DelliSanti, President
Carestream Molecular Imaging



PRO-TECK
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*Ship/Wipe Rad
page 1.*

30 November 2009

Re: RAMPAK 477, Carestream Molecular Imaging

RAM Services, Inc. is providing this letter to advise you the radioactive materials identified below were received by RAM Services, Inc. on 17 November 2009. We have taken possession of these materials under our State of Wisconsin Radioactive Materials License Number 071-1234-01.

LKB	Unknown	Unknown	Ra-226	0.010	Unknown
LKB	Unknown	Unknown	Ra-226	0.014	Unknown

Please retain this letter in your permanent files as documentation of the proper transfer of these sources. Do not hesitate to contact me with any questions which may arise.

Sincerely,

Jerry P. Wiza

Jerry P. Wiza,
Radiation Safety Officer

Limited Liability Company

An equal opportunity employer

P: 203.624.9461 | F: 203.624.9463 | WWW.PROTECKLLC.COM



85 Willow Street | Bldg 3, 3rd Floor | New Haven, CT 06511

Attn: Protec

Wipe test documentation at request of Lauren Van Growski

9Nov09dv

Documentation of Sealed Source Leakage/Wipe tests...RE: Sources previously examined by Poteck (Seb Cannata) on 30Oct09.

Two 226Ra sources in plastic container, stored by D. Vizard (Carestream Molecular Imaging) in 217, 4 Research Dr., Woodbridge, CT. The sources were re-assessed for radiation leakage and by wipe tests on 9Nov09 by D. Vizard (RSO, Carestream Molecular Imaging). All assessments were made with a Victoreen 451 ion chamber, and all readings are in mR/hr. Background radiation on the same instrument was <0.01 mR/hr.

The 226Ra sources: Source #1, unlabeled (from a very old scintillation counter) in a rectangular lead shield, with an extrudable source withdrawn to the inside of the shield. Source #2, a well labeled 10 µCi 226Ra source, with an extrudable source withdrawn to the inside of a manufactured lead pig (permanently fixed into withdrawn position).

Radiation Leakage measures with both sources in container:

Four sides: 0.10, 0.29, 0.24, 0.24, and top inside is 0.05.

Radiation Leakage measures with source #2 removed from container:

Four sides: 0.05, 0.30, 0.13, 0.27, and top inside is 0.05.

Wipe tests, where stick paper sampled many surfaces of each source:

Source #2 (isolated, outside of container): <0.01 mR/hr, chamber window open/closed.

Source #1 (isolated, inside of container): <0.01 mR/hr, chamber open/closed.

Douglas Vizard, RSO
Carestream Molecular Imaging



(a signed copy of this document is placed in container)

11 Nov 09 note
Conversation with
Seb Cannata
- he plans ~ 9:30 AM
pickup of sources on 13 Nov 09 (Friday)
- he will re-package and put on
Truck.

NRC notice NRCU notification

NRC FORM 241 (E 2005)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB: NO. 3150-0013		EXP RES: 11/30/2011	
REPORT OF PROPOSED ACTIVITIES IN NON-AGREEMENT STATES, AREAS OF EXCLUSIVE FEDERAL JURISDICTION, OR OFFSHORE WATERS				Estimated burden per response to comply with the mandatory collection of this information is 16 minutes. This notification is required so that NRC may schedule a inspection of the activities to ensure that they are conducted in accordance with requirements for protection of the public health and safety. Send comments regarding burden estimate to the Records and Information Services Branch (7-5 P52), U.S. Nuclear Regulatory Commission, Washington, DC 20545-0001, or by Internet e-mail to information@nrc.gov , and to the Desk Officer, Office of Information and Regulatory Affairs, NECB-0202, (3160-C012), Office of Management and Budget, Washington, DC 20503. If a measure used to impact an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor it, and a person is not required to respond to the information collection.			
1. NAME OF LICENSEE (Person or firm capable to conduct the activities described below) Chate Environmental Group, Inc.				2. TYPE OF REPORT <input type="checkbox"/> INITIAL <input checked="" type="checkbox"/> CHANGE			
3. ADDRESS OF LICENSEE (Mailing address or other location where licensee may be located) 11450 Watterson Court Louisville, KY 40299-2389				4. LICENSEE CONTACT AND TITLE Seb Cannata NE Regional Manager		5. TELEPHONE NUMBER (Include Area Code) (864) 306-0195	
				6. FACSIMILE NUMBER (Include Area Code) (865) 481-8815			
7. ACTIVITIES TO BE CONDUCTED UNDER THE GENERAL LICENSE GIVEN IN 10 CFR 150.20 <input type="checkbox"/> WELL LOGGING <input type="checkbox"/> LEAK TESTING AND/OR CALIBRATIONS <input type="checkbox"/> TELETHERAPY/RADIATOR SERVICE <input type="checkbox"/> PORTABLE GAUGES <input checked="" type="checkbox"/> OTHER (Specify) => Packaging of radium sources <input type="checkbox"/> RADIOGRAPHY => REGISTERED AS USER OF PACKAGING (CERTIFICATES OF COMPLIANCE NUMBERS): N/A							
8. CLIENT NAME, ADDRESS, CITY, COUNTY, STATE, ZIP CODE Carestream Molecular Imaging Carestream Health, Inc 4 Research Dr Woodbridge, CT 06525				9. ACTUAL PHYSICAL ADDRESS OF WORK LOCATION (Street and Number or Rte. or Highway, City or County as shown on maps or directions as collected) 4 Research Dr Woodbridge, CT 06525			
				10. CLIENT TELEPHONE NUMBER (Include Area Code) (203) 786-5697		11. WORK LOCATION TELEPHONE NUMBER (Include Area Code) (860) 306-0195	
12. DATES SCHEDULED		13. NUMBER OF WORK DAYS		14. ADD		15. DELETE	
FROM	TO					16. LOCATION REFERENCE NUMBER NUMBER TO BE ASSIGNED BY NRC 000565	
11/13/2009	11/13/2009	1	1				
LIST ADDITIONAL WORK SITES OR SEPARATE SHEET(S) TO INCLUDE ALL INFORMATION CONTAINED IN ITEMS 9-16 ABOVE							
17. LIST RADIOACTIVE MATERIAL, WHICH WILL BE POSSESSED, USED, INSTALLED, SERVICED, OR TESTED (Include description of type and quantity of radioactive material sealed sources, or devices to be used) Packaging for transport and disposal two sources from Scintillation Counters. 24 microcurie total							
18. AGREEMENT STATE SPECIFIC LICENSE WHICH AUTHORIZES THE UNDERSIGNED TO CONDUCT ACTIVITY IN WHICH ARE THE SAME, EXCEPT FOR LOCATION OF USE, AS SPECIFIED IN ITEM 8 ABOVE. (This copy of the specific license must accompany the initial NRC Form 241.)				LICENSE NUMBER 201-605-90		STATE EXPIRATION DATE KY 11/31/2009	
19. CERTIFICATION (MUST BE COMPLETED BY APPLICANT)							
I, THE UNDERSIGNED, HEREBY CERTIFY THAT:							
<ul style="list-style-type: none"> a. All information in this report is true and complete. b. I have read and understand the provision of the general license 10 CFR 150.20 printed on the instructions of this form; and I understand that I am required to comply with these provisions as to all byproduct, source, or special nuclear material which I possess and use in non-Agreement States or offshore waters under the general license for which this report is filed with the U.S. Nuclear Regulatory Commission. c. I understand that activities, including storage, conducted in non-Agreement States under general license 10 CFR 150.20 are limited to a total of 180 days in calendar year. WITH the exception of work conducted in offshore waters, which is authorized for an unlimited period of time in the calendar year. d. I understand that I may be inspected by NRC at the above listed work site locations and at the Licensee home office address for activities performed in non-Agreement States or offshore waters. e. I understand that conduct of any activities not described above, including conduct of activities on dates or at one or more different from those described above or without NRC authorization, may subject me to enforcement action, including civil or criminal penalties. 							
CERTIFYING OFFICER: (EO 13491 Management Representative (Name and Title)) Douglas W. Coble RSO				SIGNATURE <i>Douglas W. Coble</i>		DATE 11/09/2009	
WARNING: False statements in this certificate may be subject to civil and/or criminal penalties. NRC regulations require that submissions to the NRC be complete and accurate in all material respects. 18 U.S.C. Section 1001 makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.							
FOR USE ONLY FOR NRC		REVIEWED BY SPECIAL AGENT IN CHARGE (Name and Title) Kathy Modes, Sr. AP		SIGNATURE <i>Kathy Modes</i>		DATE 11/9/09	
						TOTAL USAGE - DAYS TO DATE 52	

② 11/9/09

20 Apr 08 note

21Apr08dv

Note to Rad Safety Files

On 20Apr08, the liquid scintillation counter (LKB RACKBETA) was prepared for storage. Examination of the Instrument Documentation/Specifications confirmed that no radioactivity is associated with the instrument.

The instrument was surveyed using a sensitive Victoreen 415B and verified as **uncontaminated**, yielding only background counts (<0.01 MR/hr). Further, about 150 scintillation sample vials (mostly historic swipe tests) were emptied, rinsed and disposed of.

Clean/empty sample vials, aged 14C and 3H calibration vials (with LKB labels), sample racks and instrument documentation was stored in the machine, prepared for movement and storage.

A radioactive label is and should be maintained on the control panel of the instrument, since radioactive measurement is the sole purpose of the instrument.

D.L. Vizard, RSO
Carestream Molecular Imaging
New Haven, CT.