



# EASTERN MICHIGAN UNIVERSITY

USNRC Region III  
Materials Licensing Branch  
ATTN: Kevin Null  
2443 Warrenville Rd.  
Suite 210  
Lisle, IL 60532-4352

21 June, 2012

Dear Mr. Null,

This letter and attached documents comprises EMU's response to your request of 15 June 2012 for more information to be used to the renewal process of our NRC Broad Scope Type B license (#21-06885-01).

1. In your application did not request authorization for the Ca-252 source that is currently listed on amendment 28 to your license. If you disposed of the source, please submit evidence that it was properly disposed of. Include a record of disposition to demonstrate that it was transferred to an organization licensed to receive the source.

Our Ca-252 was obtained as a loan from the Department of Energy. We disposed of this material in 2009, by returning it to Oak Ridge National Laboratory. Attached is a copy of the disposition record and an email confirming the receipt of the material by Oak Ridge National Laboratory.

2. Submit a document signed by University executive management and the RSO which describes the delegation of authority given to the RSO. Reference Appendix J to NUREG-1556, volume 11.

Attached is a copy of the signed delegation of authority and the signed acceptance of RSO duties, submitted as part of Amendment #28 to our license (accepted 18 May 2012).

3. Revise your training program to specify a specific frequency that refresher training will be provided. As a minimum, refresher training should be provided on an annual basis. Also, develop and submit a training program for ancillary staff.

We have revised our training program to provide annual refresher training.

• RECEIVED JUN 26 2012

At present, all radioactive material on campus is confined in a single, locked shared-use laboratory. Given the very limited scope of our current program, we simply forbid ancillary staff unsupervised access to this laboratory. For example, neither the janitorial staff nor the University maintenance staff have keys to this room. Instead, trained users are responsible for cleaning this area, and when ancillary staff access is unavoidable (building repair, fire marshal inspection, etc.) all visits must be completely supervised by a trained user or the RSO. Should an expansion of our program make the current policy impractical, we will develop and implement an ancillary staff training program to allow for safe, unsupervised access to laboratories with radioactive material.

4. Appendix C-1 and C-2 describes your internal program for auditing your radiation safety program. Describe the minimum frequency that you will conduct these audits.

We have revised our internal auditing procedures to ensure that inspections will occur at least quarterly. If the scope of our program increases from its current state, then audits will occur more frequently, as recommended by NUREG 1556.

5. Describe your program for conducting periodic radiation level and contamination surveys of laboratories. The program should describe survey requirements (both types and frequencies) that RSO-approved users will be required to implement, as well as types and frequencies of surveys that the RSO will conduct during routine audits of laboratories.

We have clarified our survey program parameters to explicitly state that experimenters are required to survey their workspace after every use of radioactive material. Survey methods must be appropriate to the radionuclide in use; for example swipe tests and LSC are appropriate for  $^3\text{H}$  and  $^{14}\text{C}$ , but survey meters (e.g., Geiger-Muller counters, ion chambers) may be sufficient for high-energy beta or gamma emitting radionuclides.

The RSO will use both swipe tests/LSC and survey meters in the quarterly audits.

6. Revise your waste management procedures to state that waste held for decay will be limited to radionuclides with a half life less than or equal to 120 days.

We have revised our waste management procedures to only hold waste for decay if the half life of the radionuclide in question is less than or equal to 120 days.

Please feel free to contact me if further information or clarification is needed.

Sincerely,

A handwritten signature in black ink, appearing to read 'S. Francoeur', with a long horizontal flourish extending to the right.

Steven N. Francoeur  
Radiation Safety Officer  
Biology Department  
Mark Jefferson Science Complex  
Eastern Michigan University  
Ypsilanti, MI 48197  
734 487-0049 phone  
734 487-9235 fax

U.S. DEPARTMENT OF ENERGY  
ISOTOPE AND TECHNICAL SERVICE ORDER FORM

This form is to be used by all persons (except foreign persons requiring source or special nuclear material) ordering source, special nuclear or by-product material, technical services, stable isotopes, cyclotron produced radioisotopes, or other related services from the U.S. Department of Energy (DOE) or DOE facility contractor.

<b>1. To:</b> <input checked="" type="checkbox"/> U. S. Department of Energy OR <input type="checkbox"/> DOE Facility Contractor  <b>Name and Address:</b> Oak Ridge National Laboratory Managed by UT-Battelle, LLC for the Department of Energy P. O. Box 2008 Oak Ridge, TN 37831-6426		<b>2. BUYERS ORDER NO.:</b>  49-0248 (Eastern Michigan Univ.) 51-0087 (Eastern Michigan Univ.)
		<b>3. DATE:</b>  April 3, 2009
<b>4. SHIP TO</b>  Oak Ridge National Laboratory Managed by UT-Battelle, LLC for the Department of Energy P. O. Box 2008, Building 7920 Oak Ridge, TN 37831-6384 Attn: Julie Ezold 865-574-9594		<b>5. BILL TO:</b>  Eastern Michigan University. Department of Chemistry Ypsilanti, MI 48197
<b>6. VIA:</b>		

**7. MATERIAL OR SERVICE**

CATALOG ITEM NO. (if any)	SOURCE, SPECIAL NUCLEAR, BY-PRODUCT, OR CYCLOTRON PRODUCED RADIOISOTOPES: State isotope, chemical form, desired total activity, and desired specific activity. TECHNICAL SERVICE: State desired service and specification of final product. STABLE ISOTOPE: State isotope, chemical form, quantity, isotopic concentration, (specifying desired enrichments, minimum enrichments), and chemical purity (if applicable).	PURCHASE PRICE	RENTAL FEE
Cf-252	- Return two, loaned neutron sources of <sup>252</sup> Cf from Eastern Michigan University - Transportation to be prepaid by shipper - Terms: net 30 days - Quotation valid for 30 days  Loan file reference number: 49-0248, 51-0087  ***see next page for further details***		
<b>Shipping Schedule and Completion Date:</b>		<b>Technical Service Charge (if applicable)</b>	See next page
		<b>Handling Charge (if applicable)</b>	See next page
		<b>Total</b>	See next page

THIS ORDER CONSISTS OF FOUR PAGES AND IS SUBJECT TO THE TERMS AND CONDITIONS CONTAINED HEREIN. THE AUTHORIZED REPRESENTATIVE OF THE BUYER HAS READ, UNDERSTANDS, AND AGREES TO SAID TERMS AND CONDITIONS.

8. The Buyer certifies that the Buyer or the Buyer's representative is authorized to receive the above described source, special nuclear, by-product, or cyclotron produced material by: (Check block and give license number and expiration date if applicable).

- a) ☐ NRC or ☐ \_\_\_\_\_ License No. \_\_\_\_\_ which expires \_\_\_\_\_, \_\_\_\_\_  
Name of State Month and Day Year
- b) ☐ Exemption or General License provided by U.S. Nuclear Regulatory Commission (NRC) regulations.
- c) ☐ Exemption or General License provided by \_\_\_\_\_ regulations.  
Name of State

<b>9 Accepted for and agreed to by:</b>  <input type="checkbox"/> U. S. Department of Energy OR <input checked="" type="checkbox"/> DOE Facility Contractor  Printed Name _____  Signature _____	<b>10. Authorized and agreed to by the Buyer:</b>  Buyer <u>EASTERN MICHIGAN UNIVERSITY</u> Signature <u>Kathryn E. Wilhoff</u> Printed Name <u>KATHRYN E. WILHOFF</u> Title <u>DIRECTOR, HEALTH &amp; SAFETY</u> Date <u>4-14-09</u>
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Title <u>DOE Form</u> CA-10-90.COM Rev 3 (07/01)		Date _____ <b>U. S. DEPARTMENT OF ENERGY</b> <b>ISOTOPE AND TECHNICAL SERVICE ORDER FORM</b>		Continuation Sheet	
CATALOG ITEM NO. (If any)	SOURCE, SPECIAL NUCLEAR, BY-PRODUCT, OR CYCLOTRON PRODUCED RADIOISOTOPES: State isotope, chemical form, desired total activity, and desired specific activity. TECHNICAL SERVICE: State desired service and specification of final product. STABLE ISOTOPE: State isotope, chemical form, quantity, isotopic concentration, (specifying desired enrichments, minimum enrichments), and chemical purity (if applicable).	PURCHASE PRICE	RENTAL FEE		
	<p><b>DELIVERY:</b> Delivery is FCA Department of Energy facility from which the order is filled. Legal and equitable title and risk of loss or damage pass to the buyer when the material is delivered to the common carrier. Transportation and insurance charges are the responsibility of the loanee/lessee.</p> <p><input type="checkbox"/> Please check this box if insurance against loss or damage is desired during transport. If the box is not checked no insurance will be requested.</p> <p>Return two, loaned neutron sources (SR-CF-156 and OR-CF-204) containing 0.034 µg and 0.34 µg of Cf-252 (as of 03/31/2009) to ORNL (see "Ship To" address, page 1)</p> <p>Container handling and prep (RAMSPAC) charges</p> <p>Source handling, checks, and inventory return prep</p> <p>Shipping container: Type A drum with a polyethylene insert and poly bead shielding (about 6 lbs). ***SUBJECT TO AVAILABILITY***</p> <p>Shipping container will be sent to customer as "F.O.B. ORNL: Freight Collect" and returned back to ORNL (with contents) as "Prepaid Freight"</p> <p>Prior to source return, contact the ORNL Nuclear Materials Control and Accountability Group (865-574-7022, c/o Paulette McGill) to obtain an "IC" number and approval to ship the <sup>252</sup>Cf source.</p>	<p>\$1,425</p> <p>\$8,520</p> <p>\$5,655</p>			
Shipping Schedule and Completion Date: TBD		Technical Service Charge (if applicable)			
		Handling Charge (if applicable)			
		Total		\$15,600	

EagleMail Collaboration Suite

krengan@emich.edu

Friday, April 03, 2009 3:37:23 PM

From: malkemusdw@ornl.gov

To: krengan@emich.edu

Cc: clinerl@ornl.gov

Attachments: Cert of Util No. 49-0248 return- OR-CF-204.doc (38.3KB)

Cert of Util No. 49-0248 return- SR-CF-156.doc (38.3KB)

CA1090R3for 49-0248 return.pdf (40KB)

Krish,

Here is a copy of the CA-10-90 form and the "Certificate Of Californium-252 Utilization" forms for the return of your sources.

Please review the forms. If they are acceptable, you can fill in Box 2 with the PO number (if you have it yet), and sign in Box 10 on the CA-1090, and complete the Certificate of utilization forms, and return to me. You may fax me the signed forms or email them as pdfs.

As always, please contact me if you have any questions or need more information.

-Dairin Malkemus

ORNL Source Program Coordinator for <sup>252</sup>Cf Sources

865-576-8824

865-574-0437

865-574-6986 (fax)

RE: Cf sources - shipping

Thursday, June 04, 2009 4:32:03 PM

From: malkemusdw@ornl.gov

To: krengan@emich.edu

Krish,

We received the sources on Monday, 6/1/09.

I am preparing the invoice- is there a PO number you would like me to put on it?

-Dairin Malkemus

ORNL Source Program Coordinator for <sup>252</sup>Cf Sources

865-576-8824

865-574-0437

865-574-6986 (fax)

-----Original Message-----

From: Krishnaswamy Rengan [mailto:krengan@emich.edu]

~~Sent: Thursday, May 28, 2009 12:47 PM~~

To: Malkemus, Dairin Wade; Ezold, Julie G.

Cc: kathryn wilhoff

Subject: Cf sources - shipping

Greetings.

The package containing the Cf sources was picked up by Roadway Express yesterday. I have attached details about the sources and the package for your information.

The tracking number is 761-155932-4.

Please let me know when you receive the package.

Thanks for all the help.

Have a nice day.

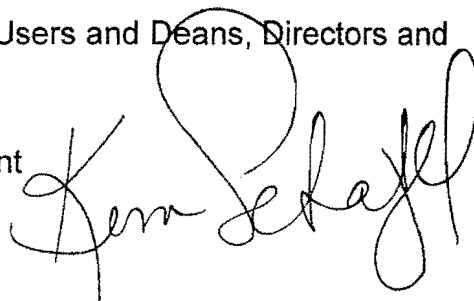
krish

TO: Radioisotope Users, Ionizing Radiation Users and Deans, Directors and  
Department Heads

FROM: Kim Schatzel, Provost and Vice President  
Academic Affairs

DATE: April 30, 2012

SUBJECT: Delegation of Authority for Radiation Safety Officer



In March, Ms. Dzanbazoff from Medical Physics Consultants was appointed the Radiation Safety Officer (RSO) and paperwork was submitted to the Nuclear Regulatory Commission (NRC) to make this change. For the type license the University possesses, the NRC is requiring the RSO to be on-site. The University is reviewing our options to resolve this issue. In the interim, Mr. Steven Franceour, Biology Department, has been appointed Radiation Safety Officer and is responsible for ensuring the safe use of byproduct (i.e. radioactive) material at Eastern Michigan University. The Radiation Safety Officer is responsible for the management of the Eastern Michigan University Radiation Safety Program to ensure the safe use of byproduct materials and ionizing radiation and ensure that such activities are performed in accordance with approved policies and procedures and in compliance with all regulatory requirements. The Radiation Safety Officer is hereby delegated the authority necessary to meet these responsibilities.

The Radiation Safety Officer has complete access to all operations involving the use of byproduct materials and ionizing radiation and the authority to immediately stop any operations in which health and safety may be compromised or may result in non-compliance with NRC requirements. The Radiation Safety Officer does not need to consult with or gain approval from any other person or entity prior to halting apparently unsafe or non-compliant activities.

Mr. Franceour will work with the Radiation Safety Committee and Environmental Health and Safety to fulfill the responsibilities of the Radiation Safety Officer. Environmental Health and Safety will coordinate the Radiation Safety Program.

If you have any questions regarding this appointment, do not hesitate to contact me.



# EASTERN MICHIGAN UNIVERSITY

## RADIATION SAFETY OFFICER

I have reviewed the responsibilities of the Eastern Michigan University Radiation Safety Officer and understand that the Radiation Safety Office is responsible for ensuring the safe use of radioactive materials and compliance with NRC and DEQ regulations.

The Radiation Safety Officer is responsible for management of the Eastern Michigan University Radiation Safety Program to ensure safe use of byproduct materials and ionizing radiation and ensure that such activities are performed in accordance with approved policies and procedures and in compliance with all regulatory requirements. The Radiation Safety Officer is delegated the authority necessary to meet these responsibilities by the Provost.

The Radiation Safety Officer has complete access to all operations involving the use of byproduct (i.e. radioactive) material and ionizing radiation and the authority to immediately stop any such operations in which health and safety may be compromised or may result in non-compliance with NRC or DEQ requirements.

I understand the responsibilities of the Eastern Michigan University Radiation Safety Officer and accept these duties and responsibilities.

Employee Name (print): Steven Francoeur

Employee Signature: 

Dated the 19<sup>th</sup> day of the month of March, 2012



Frucow

EASTERN MICHIGAN UNIVERSITY

Biology Department  
316 Mark Jefferson  
Ypsilanti, Michigan 48197



US NRC Region III -

Materials Licensing Branch

Attn: Kevin Mull

2443 Warrenville Rd.

Suite 210

Lisle, IL 60532-4352

