

National Aeronautics and  
Space Administration  
**Ames Research Center**  
Moffett Field, California 94035-1000

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MAY 10 2016



DNMS

Reply to Attn: of: Radiation Safety Officer: 237-14

April 25, 2016

Jacqueline D. Cook  
Senior Health Physicist  
Region IV  
U. S. Nuclear Regulatory Commission  
DNMS/NMSB - B  
1600 E. Lamar Boulevard  
Arlington, TX 76011-4511

RE: License #04-07845-04 Amendment Request

NASA Ames Research Center requests an amendment to Radioactive Materials License #04-07845-04 to allow for the use of various Curium-244 sealed sources in initial quantities of up to 37 kbq (1  $\mu$ Ci). These sources will be foil or other unregistered sealed sources that will be used in our experimentation to provide a source to excite atoms on a terrestrial surface to determine its composition through X-ray fluorescence spectroscopy with the hopes of repeating the experiment in the future on extraterrestrial surfaces. If this radioisotope model is successful this could greatly decrease the weight of future payloads that currently carry x-ray machines to perform this analysis. These initial "proof of concept" experiments will use small sources and if successful may result in additional amendment requests for larger quantity limits in the future.

We would like this to be a separate line item on our license to aid us in inventory and reporting:

Curium - 244	Unregistered Sealed Sources	Not to exceed 37 kbq (1 $\mu$ Ci) per source and 370 kbq (10 $\mu$ Ci) total.
For use in unregistered sealed or foil sources in research and development as defined in Section 30.4 of 10 CFR 30 and authorized under 10 CFR 32.210(g)(2)(i) and (ii).		

Appropriate safety controls for this source will be in accordance with NASA Ames Research Center Ionizing Radiation Safety Committee (IRSC) approved radiation safety procedures and NRC rules and regulations.

If you have any questions pertaining to this letter, please feel free to contact me at (650) 604-3979.

Sincerely,

Patrick S. Muldoon, CHP

Radiation Safety Officer  
NASA Ames Research Center

PUBLIC

☐ Immediate Release  
☒ Normal Release

NON-PUBLIC

☐ A.3 Sensitive-Security Related  
☐ A.7 Sensitive Internal  
☐ Other: \_\_\_\_\_

Reviewer: AKL Date: 5/11/16

National Aeronautics and  
Space Administration

Moffett Federal Airfield

Mail Code 237-14/RSD

Moffett Field, CA 94035-1000



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Arlington, TX 76011-4511

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## ACKNOWLEDGEMENT - RECEIPT OF CORRESPONDENCE

## Name and Address of Applicant and/or Licensee

Mr. Patrick S. Muldoon  
Radiation Safety Officer  
National Aeronautics and Space Administration  
Ames Research Center  
P.O. Box 1 (M/S 237-14)  
Moffett Field, CA 94035-0001

## License Number(s)

04-07845-04

## Mail Control Number(s)

590865

## Licensing and/or Technical Reviewer or Branch

JAB

This is to acknowledge receipt of your: ☒ Letter and/or ☐ Application Dated: 04/25/2016

The initial processing, which included an administrative review, has been performed.

☒ Amendment ☐ Termination ☐ New License ☐ Renewal

☐ There were no administrative omissions identified during our initial review.

☐ This is to acknowledge receipt of your application for renewal of the material(s) license identified above. Your application is deemed timely filed, and accordingly, the license will not expire until final action has been taken by this office.

☐ Your application for a new NRC license did not include your taxpayer identification number. Please fill out NRC Form 531, Request for Taxpayer Identification Number, located at the following link:

<http://www.nrc.gov/reading-rm/doc-collections/forms/nrc531.pdf>

Send the completed NRC Form 531, by facsimile, to the following number: (301) 415-5387

☐ The following administrative omissions have been identified:

A copy of your action has been e-mailed to our License Fee and Accounts Receivable Branch, in our Headquarters office in Rockville, MD. You will be contacted separately if there is a fee issue involved.

Your application has been assigned the above listed MAIL CONTROL NUMBER. When calling to inquire about this action, please refer to this control number. Your application has been forwarded to a technical reviewer. Please note that the technical review, which is normally completed within 180 days for a renewal application (90 days for all other requests), may identify additional omissions or require additional information. If you have any questions concerning the processing of your application, our contact information is listed below:

Region IV  
U. S. Nuclear Regulatory Commission  
DNMS/NMSB - B  
1600 E. Lamar Boulevard  
Arlington, TX 76011-4511  
(817) 200-1140 or (817) 200-1209

BETWEEN:

Accounts Receivable/Payable  
and  
Regional Licensing Branches

[ FOR ARPB USE ]  
INFORMATION FROM WBL

Program Code: 03610  
Status Code: Pending Amendment  
Fee Category: 3E 3L  
Exp. Date: 10/31/2012  
Fee Comments:  
Decom Fin Assur Req: Y

## License Fee Worksheet - License Fee Transmittal

### A. REGION

#### 1. APPLICATION ATTACHED

Applicant/Licensee: NATIONAL AERONAUTICS & SPACE ADM. AMES RESEARCH CENTER  
Received Date: 05/10/2016  
Docket Number: 3020435  
Mail Control Number: 590865  
License Number: 04-07845-04  
Action Type: Amendment

#### 2. FEE ATTACHED

Amount: \_\_\_\_\_

Check No.: \_\_\_\_\_

#### 3. COMMENTS

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

### B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered / / )

1. Fee Category and Amount: \_\_\_\_\_

#### 2. Correct Fee Paid. Application may be processed for:

Amendment: \_\_\_\_\_

Renewal: \_\_\_\_\_

License: \_\_\_\_\_

#### 3. OTHER \_\_\_\_\_

Signed: \_\_\_\_\_

Date: \_\_\_\_\_