Mail Control Number: 636284
Docket Number : 3006420
License Number : 42-09388-01
Licensee Name : National Aeronautics and Space Administration

National Aeronautics and Space Administration

Lyndon B. Johnson Space Center
2101 NASA Parkway
Houston, TX 77058-3696

July 5, 2023

Reply to Attn of: SD-23-021

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DNMS

Nuclear Materials Licensing Branch
U.S. Nuclear Regulatory Commission, Region IV
1600 E. Lamar Boulevard
Arlington, TX 76011-4511

Subject: Amendment Request to Allow for Possession of Radium-226 Source

Ref: License #4~~2-093688-01~~ 42-09388-01

The NASA Johnson Space Center (JSC) would like to amend its radioactive material license to include a Radium-226 (Ra-226) foil source integrated into an acceleration sensor system, which, in turn, is built into a spaceflight payload designated as Microgravity Acceleration Measurement System (MAMS). We are requesting this amendment since JSC is unable to assure this source is registered pursuant to 10 Code of Federal Regulation (CFR) 32.210 as required by License Condition 6D. The Ra-226 foil is mounted within the hermetically sealed metal hexagonal prism, identified as the Miniature Electrostatic Accelerometer (MESA). The MESA is located inside the OARE Sensor Subsystem (OSS) aluminum enclosure, a main component of the MAMS payload to be flown on the International Space Station (ISS).

The MESA and OSS were designed and built by a Michigan company, Canopus Products Incorporated. OSS markings show a manufacturing date of March 1996. Information about the Ra-226 foil source was provided by the manufacturer in the late 1990s and used by NASA personnel on an internal datasheet:

1. Isotope: Radium-226
2. Total Quantity: 0.0016 millicuries
3. Chemical Form: Impregnated Gold Foil Chip
4. Physical State: Embedded within a hermetically sealed housing covered by an aluminum enclosure.
5. Details: 0.062" x 0.062" x 0.006" thick, one dull (foil) side, one bright (radium) side
6. Sealed Source - YES

7. Manufacturer - United States Radium Corp., Morristown, New Jersey

This request by the NASA JSC is to allow for the possession of one such item. The Ra-226 foil will remain within the hermetically sealed MESA chamber, which in turn, will remain within the OSS aluminum enclosure. The source will be used for research and development purposes as defined by 10 CFR 30.4. Functionally, the Ra-226 foil is used to provide an ionized gas conduction path to discharge the beryllium-proof mass within the accelerometer; the MAMS payload makes acceleration measurements onboard the ISS. This spaceflight hardware was on station for many years and is currently being repaired by a NASA contractor. The MAMS payload will be shipped to the NASA Glenn Research Center following repair to allow for system testing prior to being returned to the ISS.

This licensed Ra-226 source will be used by or under the supervision of individuals identified in license condition 11.B. Use and storage locations of the MAMS payload shall afford appropriate configuration controls and shielding to assure that external doses to members of the public are compliant with 10 CFR 20 - Subpart D. Storage and security considerations shall satisfy requirements of 10 CFR 20 - Subpart I.

Should you have questions or require additional information, you may contact Mary Van Baalen, Ph.D. CHP Radiation Safety Officer via e-mail at mary.vanbaalen-1@nasa.gov, office (281) 483-9998, or cell (713) 264-2600.

Sincerely,

MARY VAN BAALEN Digitally signed by MARY VAN BAALEN
Date: 2023.07.05 15:13:22 -05'00'

Mary Van Baalen, Ph.D. CHP
Radiation Safety Officer
NASA Johnson Space Center/White Sands Test Facility
Space Medicine Operations Division

and Space Administration

Space Center

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Nuclear Materials Licensing Branch
U.S. Nuclear Regulatory Commission, Region IV
1600 East Lamar Boulevard
Arlington, TX 76011-4511

X-RAYE

From:	Carol Hill
To:	Giavanna Muffelletto
Subject:	NASA - Please set this one up.
Date:	Wednesday, July 19, 2023 12:41:29 PM
Attachments:	Untitled (00C).pdf

From: Carol Hill <Carol.Hill@nrc.gov>
Sent: Tuesday, July 18, 2023 7:55 AM
To: R4 Licensing Action Submittals <R4LicensingActionSubmittals.Resource@nrc.gov>
Subject: Untitled (00C).pdf

NRC FORM 532
(05-2016)

U.S. NUCLEAR REGULATORY COMMISSION

ACKNOWLEDGEMENT - RECEIPT OF CORRESPONDENCE

Name and Address of Applicant and/or Licensee	
Mary Van Baalen, Ph.D., CHP 2101 NASA Parkway Houston, TX 77058	**Date** 07/19/2023 **License Number(s)** 42-09388-01 **Mail Control Number(s)** 636284 **Licensing and/or Technical Reviewer or Branch** Giavanna Muffelletto

This is to acknowledge receipt of your: ☑ **Letter and/or** ☐ **Application** **Dated:** 07/05/2023

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 complete and submit NRC Form 531, Request for Taxpayer Identification Number, located at the following link:** http://www.nrc.gov/reading-rm/doc-collections/forms/nrc531.pdf

Follow the instructions on the form for submission.

☐ **The following administrative omissions have been identified:**

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) 200-1103 or (817) 200-1140

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 3P
Exp. Date: 01/31/2025
Fee Comments:
Decom Fin Assur Reqd: N

License Fee Worksheet - License Fee Transmittal

A. REGION

1. APPLICATION ATTACHED

Applicant/Licensee: National Aeronautics and Space Administration
Received Date: 07/13/2023
Docket Number: 3006420
Mail Control Number: 636284
License Number: 42-09388-01
Action Type: Amendment

2. FEE ATTACHED

Amount: N/A

Check No.: N/A

3. COMMENTS

Signed: Giavanna Muffelletto

Date: 19Jul23

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: ______