



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, ILLINOIS 60532-4352

JUN 13 2013

Richard D. Granberg, CHP  
Radiation Safety Officer  
MPI Research, Inc.  
54943 North Main Street  
Mattawan, MI 49071

Dear Mr. Granberg:

Enclosed is Amendment No. 31 amending your NRC Material License No. 21-11315-02 in accordance with your request. Please note that the changes made to your license are printed in **bold font**.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region III office at (630) 829-9887 so that we can provide appropriate corrections and answers.

Please note, as we discussed, we have not authorized the americium-241 calibration source and the "new" rooms where radionuclides will be used and/or stored. We need additional information as described in the enclosed, "Request for Additional Information". Please send your response as "Response to Request for Additional Information - Control 580702". Please contact me at 630-829-9839 if you have any questions.

You will be periodically inspected by NRC. Failure to conduct your program in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in enforcement action against you. This could include issuance of a notice of violation, or imposition of a civil penalty, or an order suspending, modifying or revoking your license as specified in the General Statement of Policy and Procedure for NRC Enforcement Actions. Since serious consequences to employees and the public can result from failure to comply with NRC requirements, prompt and vigorous enforcement action will be taken when dealing with licensees who do not achieve the necessary meticulous attention to detail and the high standard of compliance which NRC expects of its licensees.

The NRC's Safety Culture Policy Statement became effective in June 2011. While a policy statement and not a regulation, it sets forth the agency's *expectations* for individuals and organizations to establish and maintain a positive safety culture. You can access the policy statement and supporting material that may benefit your organization on NRC's safety culture Web site at <http://www.nrc.gov/about-nrc/regulatory/enforcement/safety-culture.html>. We strongly encourage you to review this material and adapt it to your particular needs in order to develop and maintain a positive safety culture as you engage in NRC-regulated activities.

R.D. Granberg

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

A handwritten signature in black ink, appearing to read "William P. Reichhold". The signature is written in a cursive style with a large, prominent initial "W".

William P. Reichhold  
Materials Licensing Branch

License No. 21-11315-02  
Docket No. 030-08546

Enclosure: Amendment No. 31

## REQUEST FOR ADDITIONAL INFORMATION

Telephone (630) 829-9839

FAX (630) 515-1078

**To: Richard D. Granberg, CHP- Radiation Safety Officer**

**Location: MPI Research, Inc.**

**Date: June 11, 2013**

As we discussed on the telephone on June 12, 2013, we need the following information to complete the review of our request.

### **Americium-241 Calibration Source**

1. Please specify the manufacturer's name and model number of the americium-241 source you wish to use.
2. Please specify the activity of the americium-241 source (such as 5 microcuries).
3. Please specify physical form of the americium-241 (such as sealed source).
4. Please specify the Sealed Source and Device Registration Number for the americium-241 source you wish to use.

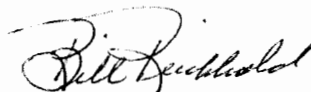
### **"New" Rooms**

1. Please confirm that the "new" rooms (rooms 2110, 2111 & 2112 and rooms 33 & 34) where you will use and store radionuclides are located at 54943 North Main Street, Mattawan, Michigan (the authorized location of use).
2. On the facility diagram(s), please specify the address of use (54943 North Main Street, Mattawan, Michigan).
3. For each room, please indicate the following:
  - a) Please indicate the scale of the facility diagram (such as one inch = one foot). OR Please specify the dimensions of the rooms, (such as 8 feet by 12 feet) where radionuclides will be used or stored.

- b) Please indicate on the facility diagram where radionuclides will be received, prepared for use, stored and waste storage areas.
- c) Please describe the security provided where radionuclides are used or stored (such as entry to the rooms is controlled by doors with keyed locks, keypads, keycards, etc. allowing access only to authorized users).
- d) Please describe the shielding that will be used where radionuclides are used or stored.
- e) If you will be using radionuclides that may become airborne, please describe the ventilation systems, fume hoods, etc.
- f) Please see Appendix K in NUREG-1556, Volume 7 (copy enclosed) for other items you may wish to consider for your "new" rooms where radionuclides will be used or stored.

Please state that your response is a "**Response to Control 580702**". Please include a cover letter on company letterhead, dated and signed (signed by an individual who is authorized to sign official documents on behalf of the licensee) with your response letter. Please call me at 630-829-9839 if you have any questions.

*From the desk of*



*Bill Reichhold*



## **Appendix K**

# **Facilities and Equipment Considerations**

## Facilities and Equipment Considerations

Below is a list of topics that should be considered when developing a description of the facilities and equipment that an ARDL licensee will use or otherwise have available. Not every ARDL applicant will need to address each topic in its application.

- Restricted areas are defined as areas to which access is limited by the licensee to protect individuals against undue risks from exposure to radiation and radioactive materials. The application should contain detailed descriptions and diagrams of the facilities, including information about the shielding properties of the construction materials used. Scaled drawings and sketches should be submitted showing the relationship between restricted areas and unrestricted areas and the location of all pertinent safety-related equipment.
- Bench top or open work areas may be used for sealed sources, for small quantities of solid materials in a form not likely to become airborne or dispersed, and for small quantities of liquids of such low volatility as not to cause airborne contamination or toxicity problems. Trays and/or absorbent surface covers to catch and retain spilled liquids should be used on these open work surfaces and inside closed systems discussed below. Surfaces should be smooth and non-porous, to facilitate decontamination.
- Radioactive materials that are handled or used in unsealed forms should be confined to control the release of material and to prevent the spread of contamination. Gaseous, volatile, and fine particulate solid materials should be handled in closed or isolated systems such as fume hoods or glove boxes with controlled, and possibly filtered, exhaust systems.

Chemical-type fume hoods provide a working area with controlled inward airflow from the room to the hood exhaust system. Hoods are used for gases, for unsealed volatile licensed materials, and for processes such as evaporation that may release gases and vapors. Fume hoods provide emergency ventilation and exhaust for unplanned releases, such as accidental spills and ruptures, as well as routine exhaust of effluents. Filters may be required in the exhaust stream unless monitoring and/or calculations demonstrate that any planned or likely effluent will be in accordance with the limits found in 10 CFR 20, Appendix B.

Glove boxes are sealed boxes with transparent viewing windows, sealable ports or doors for transferring materials and equipment, and gloves sealed to the box through which licensed materials are handled. Glove boxes are used for the containment during storage and use of liquids and solids that can become airborne particulates or aerosols. Glove boxes can be closed or exhausted, with filtration systems if appropriate, to prevent contamination.

- Sink faucets should be designed, where possible, for operation by foot, knee, or elbow rather than by hand.
- Plumbing and ductwork should be designed to avoid radioactive contamination build-up. This build-up of contamination can create external radiation exposure hazards and problems for decommissioning.

## APPENDIX K

- Shielding consisting of lead or other high-density material in the form of bricks, panels, L-shields, storage containers, or other shapes may be used on bench tops, in fume hoods or in glove boxes to reduce radiation exposure from gamma-emitting radioactive materials. Similarly, shielding of low atomic number material, such as high-density plastic, may be used to reduce the exposure from high-energy beta-emitting materials. Shielded shipping containers are frequently used for continued storage after receipt of materials.
- A particular sink should be designated for disposal of liquid radioactive waste to the sanitary sewerage system. In some cases, depending on number of users and distance between areas of use, more than one sink may need to be designated.
- Labeled waste containers should be used. These containers may be shielded as necessary, placed near the waste-generating areas and away from areas frequently occupied by personnel. Additionally, these containers should be effectively enclosed to prevent airborne contamination from radioactive materials deposited.
- Remote handling tools, such as forceps or extension handles, should be used to provide distance in the handling of radioactive materials (ALARA). In addition, shielded handling devices, such as shielded syringes, can be used to protect workers from materials that cannot be handled remotely. Pipetting should be done using appropriate devices. Pipetting by mouth should be strictly forbidden.
- Where appropriate, ventilation systems should be designed such that, in the event of an accident, they can be shut down to prevent the spread of radioactivity.
- Designated areas should be provided for coats and personal belongings, to avoid contamination.
- Areas with background radiation levels should be designated for personnel dosimetry storage when not in use.
- Areas of use should be well-lighted to avoid spills and other accidents that could result in contamination build-up.
- Observation of activities conducted behind shielding with remote tools (or with extended arms and hands, within limits consistent with permissible occupational exposures) can be accomplished by mirrors, through shielded (e.g., leaded glass) windows, through transparent plastic beta shields, or by remote video monitoring.
- The combination of containment, shielding, and handling devices proposed for any use of radioactive materials should be appropriate to the type and quantity of materials to be used and to the type and duration of operations to be conducted.
- If respiratory protective equipment will be used to limit inhalation of airborne licensed material, follow the provisions of 10 CFR Part 20, Subpart H.

- If compaction of waste is performed, ensure that facilities are adequate for the ventilation of the area where the waste is compacted. In addition, also ensure that air sampling for internal exposures is available, if needed per 10 CFR 20.1204.