



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
2443 WARRENVILLE RD. SUITE 210  
LISLE, IL 60532-4352

**NOV 06 2015**

James Schweitzer, Ph.D., CHP  
Radiation Safety Officer  
Purdue University  
Radiological and Environmental Management  
550 Stadium Mall Drive  
West Lafayette, IN 47907

Dear Dr. Schweitzer:

We have reviewed your July 31, 2015 letter requesting an authorization to use radioactive material at trade show and professional society venues, government and corporate facilities, and at academic institutions. As discussed during our September 16, 2015, site visit to Purdue University, and during our November 5, 2015, phone conversation, additional information is needed to complete our review.

Accordingly, for continued review of the request, please resubmit your request in the entirety, including:

1. Describe the polonium-beryllium neutron source, and how that source will be used. Include a diagram showing the prototype neutron detector, the polonium-210 static eliminator, and the beryllium metal.
2. Explain why the described neutron source is needed at this time, and how approval of the requested use is otherwise in the public interest. For example, discuss other neutron-source options that have been considered by the licensee, and why those sources do not meet the licensee's needs.
3. Explain why the licensee will need to use the described source outside the licensee-controlled facilities at Purdue University, and why other facilities were inadequate to meet the licensee needs.
4. Confirm that any transfer of licensed material will be in accordance with U.S. Department of Transportation regulations.
5. Confirm that the licensee's Radiation Safety Committee (RSC) will review any requests by licensee staff to use material pursuant to the requested authorization. Highlight the minimum criteria the RSC will consider in reviewing requests to use the described device.
6. Describe how safety and security of the device is controlled by the licensee, including, but not limited to:
  - How is physical control over the material accomplished? Discuss any secure storage, physical barriers, or limitations to use by licensee staff that will be used to assure licensee control at all times over the described neutron source.

- How are occupational and public dose controlled while the source is in use? Discuss the minimum shielding requirements, maximum time that the neutron source will be assembled, and the minimum distance the licensee will require for both members of the licensee staff and of the public. Include Attachment 1, "Estimated Dose Rate for an Improvised Po-Be Neutron Source," to the licensee's July 31, 2015, letter, with your response.

If you have any questions in responding to this request, please call me at the Region III office at (630) 829-9892 so that our office may provide appropriate corrections and answers.

In accordance with Title 10 of the *Code of Federal Regulations* Section 2.390, a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the NRC's ADAMS, accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,



Sara A. Forster, M.S.  
Health Physicist  
Materials Licensing Branch

License No. 13-02812-04  
Docket No. 030-00696