Washington University in St. Louis

Environmental Health & Safety **Radiation Safety Office**

August 25, 2010

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555-0001

RE: License No. 24-00167-11
Docket No. 030-02271

Subject: Reply to a Notice of Violation in NRC Inspection Report No. 030-02271/10-03(DNMS)

This letter is submitted on behalf of Washington University in St. Louis (WU), a Broad Scope Type A Medical Licensee, to provide written response to a violation identified in NRC Inspection Report No. 030-02271/10-03(DNMS).

NRC Violation

"Condition 28 of License Number 24-00167-11 states, in part, that the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the Application dated September 30, 2002.

Section BSL 10.6-2 within the application dated September 30, 2002 states that the process in BSL 7.2-4 will be used to make and implement changes to the safe use and emergency procedures submitted here.

Section 7.2-4 within the application dated September 30, 2002 states, in part, that as a Type A broad scope license, the licensee will exercise the flexibility to make changes to the licensed programs and procedures without the need to apply to the NRC for license amendment.

The licensee's procedure regarding the General Rule for Safe Handling of Radioactive Material (RAM), revised in December 2002, requires, in part, that individuals using radioactive material are to handle sources of radioactive material with tongs or tweezers, if appropriate to the operation.

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Contrary to the above, on February 4, 2010, an individual, using an approximate nominal 62 millicuries of bromine-76, did not handle the source with tongs or tweezers and the licensee determined that tongs or tweezers were appropriate to the operation."

WU Specific Response to Notice of Violation

1. **What was the reason for the violation?**

The fundamental cause of this violation was the failure of a radiation worker to use good judgment and thus not utilizing proper ALARA techniques and the appropriate tools, such as tongs, when conducting a radiochemical synthesis using bromine-76 (Br-76) on February 4, 2010.

The radiation worker began his graduate work in radiochemistry in the Fall 2003, and had been employed as a radiation worker since May 2004. In interviews with the Radiation Safety staff, the radiation worker stated that the Br-76 synthesis he performed on February 4, 2010 for the subsequent animal experiment utilizing the radiochemical was important to his PhD thesis work, and that he wanted to be careful not to spill any of the radioactive material. He stated that he knew and understood the proper ALARA techniques and the available tools, but chose not to use many of them during the synthesis because of his concern about spilling any radioactive material. The radiation worker stated he had experienced problems with the Br-76 synthesis in getting the proper contaminant-free radiochemical needed for the animal experiment. As a result, he added extra synthesis steps, which increased his handling time, to re-purify the radiochemical.

2. **What corrective steps have been taken and the results achieved?**

As noted in the NRC Inspection Report No. 030-02271/10-03(DNMS), the following corrective actions were taken:

- effective March 23, 2010, the radiation worker was removed from all radioactive material work and access to radioactive material use and storage areas until a full radiological dose assessment could be completed;

- Radiation Safety staff met with other radiation workers on March 24–26, 2010 who work with similar PET radionuclides to discuss their handling procedures, and to re-emphasize proper ALARA techniques and use of available tools, such as tongs or tweezers, as appropriate, when handling these radioactive materials; and

- Radiation Safety staff again re-emphasized proper ALARA techniques and use of available tools, such as tongs or tweezers, as appropriate, when handling radioactive materials in annual radiation safety training required for all radiation workers.

Following discussions with authorized users and radiation workers who work with similar PET radionuclides, Radiation Safety staff determined that this specific extremity exposure was an isolated incident, and that other radiation workers utilize proper ALARA techniques

and available tools, such as tongs or tweezers, in an appropriate manner when handling radioactive materials.

Radiation Safety staff completed their full radiological dose assessment of this extremity exposure incident in June 2010, and determined that the radiation worker's extremity dose was less than NRC's regulatory limit.

3. **What corrective steps will be taken to avoid further violations?**

The individual involved in this extremity exposure incident was not re-assigned to do radioactive material work prior to his PhD thesis due date of June 2010. The individual is no longer employed or enrolled as a graduate student at WU. Because this was an isolated incident involving this radiation worker, no other corrective steps are needed at this time.

4. **What was the date when full compliance was achieved?**

During the initial investigation of this incident, the radiation worker was removed from radioactive material work on March 23, 2010. Radiation Safety staff determined that this was an isolated incident involving the radiation worker which did not exceed the NRC regulatory limit. Since this individual was not re-assigned to handle radioactive material before leaving WU, we consider full compliance was achieved as of March 23, 2010.

Please let me know if you need further information or have additional questions concerning our response. My phone number is (314) 362-2988 and my e-mail address is langhors@wustl.edu.

Sincerely,

Susan M. Langhorst

Susan M. Langhorst, Ph.D., CHP
Radiation Safety Officer

Cc: Regional Administrator, NRC Region III
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