



RECEIVED  
APR 20 2009  
DNMS

April 16, 2009

Elmo E. Collins, Regional Administrator  
U.S. Nuclear Regulatory Commission, Region IV  
612 E. Lamar Blvd. Suite 400  
Arlington, TX 76011  
817-860-8188

Christopher K. Fitz, Medical Physicist/Radiation Safety Officer  
Billings Clinic  
Department Of Nuclear Medicine  
2800 10<sup>th</sup> Ave. North  
P.O. Box 37000  
Billings, MT 59107

Re: Written Report Required per 10 CFR 20.2201(b) for NRC License Number 25-01051-01

In accordance with the requirements of 10 CFR 20.2201(b), Billings Clinic submits this written report for the loss of licensed material which occurred on 13 March 2009. A telephone report was completed on 19 March 2009. Both reports are required due to the loss of approximately 78 millicuries of Xe-133 which is greater than 10 times the quantity specified in appendix C to part 20.

#### **Description of Licensed Material**

The material involved was three vials of Xenon (Xe-133). Xenon (Xe-133) Gas is for diagnostic inhalation use only. It is supplied in vials containing 740 megabecquerels (20 millicuries) of Xenon Xe-133 Gas in 2 milliliters of carrier xenon and atmospheric air. The Xe-133 was calibrated for 18 March 2009. The estimated activity when the material left our site was 78 millicuries.

#### **Description of the Circumstances under which loss occurred**

On the morning of 17 March 2009, the Nuclear Medicine Department reported to the Radiation Safety Officer the possibility of an inadvertent loss of 78 millicuries of Xenon-133 in the late afternoon of 16 March 2009. Following an investigation, the Nuclear Medicine staff believes that a housekeeper may have thrown it away as solid waste.

On 13 March 2009 the courier delivered the material in an opened over-pack. The package was placed on the floor near the trash area. Both nuclear medicine technologists believed that the other one had received the package and performed the proper procedure of opening and receipt of licensed material. Later that same day, the staff suspects that the housekeeper picked up the boxes that the material was located inside of and mistakenly threw them away as waste.

A search of the facility was conducted without success. All trash is compacted on site into a common container. The trash had already been taken to the landfill and buried. The staff did not take any action to recover the material from the dump. The Nuclear Medicine staff and RSO have taken corrective actions with the courier and designated a new storage area for the material in a restricted area. Housekeeping will no longer be handling the boxes. This RSO does not consider the loss be a threat to the health and safety of the community.

**Exposure of individuals and possible Effective Dose Equivalent**

The Radiation Safety Officer believes that no exposure to any member of the public occurred from this loss.

**Actions Taken to Recover the Material**

This RSO and licensee did not take any action to recover the material since it was communicated that the material had been buried and we believe it did not pose a threat to the health and safety of the community.

**Procedures or measures taken to ensure against recurrence**

The RSO and department leaders have changed the delivery process to ensure nuclear medicine staff is aware of packages delivered to nuclear medicine. Changes in policy include a new designated receipt area and the courier delivering packages will not delivery opened over-packs. The nuclear medicine department will now breakdown all packages received. Housekeeping staff working in nuclear medicine will not remove any boxes from nuclear medicine. In-services were held with security, nuclear medicine, and housekeeping. Nuclear Medicine and Radiology have also performed a root cause analysis. All finding have been adopted by nuclear medicine and will be reported to the radiation safety committee at the next quarterly meeting.

If you require addition information, please call me at 406-672-6756.

Sincerely,



Christopher K. Fitz, JD, MS  
Medical Physicist/Radiation Safety Officer