



October 5th, 2012

U.S. Nuclear Regulatory Commission, Region III
2443 Warrenville Road, Suite 210
Lisle, Illinois 60532-4352

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Dear Sir or Madam,

This letter is to serve as a written report of a reportable event identified at Reid Hospital and Health Care Services, license number 13-03284-02, located at 1100 Reid Parkway, Richmond IN. The details of the event are as follows:

On Monday, September 17th, 2012 at 8:00AM, the radiation safety officer for Reid Hospital was notified that a radioactive high dose-rate brachytherapy source of Iridium-192 had been delivered to the loading and receiving dock of Reid Hospital on Saturday, September 15th, 2012 at 9:00AM. This shipment of radioactive material was unexpected, having arrived without prior notification from the supplier or consent from Reid Hospital, as required per agreement between Reid Hospital and the associated vendor. The source was not properly accepted or logged into inventory with appropriate radiation survey or wipe test procedures. Furthermore, the source remained in the warehouse portion of the loading and receiving area for 47 continuous hours. This warehouse area is limited to employee-only access via identification badge-controlled door locks, but is nonetheless defined as an unrestricted area.

Upon discovery of the delivery, the radiation safety officer immediately moved the source to the hot lab located in the radiation oncology area of the hospital, which is defined and controlled as a restricted area. The source was then surveyed with a calibrated ion chamber survey meter and wipe-tested appropriately. The radiation survey resulted in a recorded measurement of 24 mrem/hour at the surface of the source container, and a recorded measurement of 0.8 mrem/hour at a distance of 1 meter from the surface of the container. The wipe test survey yielded results that were indistinguishable from background radiation.

It was determined that two employees of Reid Hospital, defined as non-radiation workers, were working in the vicinity of the source while it was in the unrestricted area between Saturday September 15th and Monday September 17th. Both employees were interviewed by the radiation safety officer.

Employee #1 stated that they were in close proximity to the source while carrying the container from the dock portion of the loading and receiving area to the warehouse portion of the loading and receiving area. This is a distance of approximately 25 feet and was estimated to have been traversed in a time not exceeding one minute. Estimated exposure for this case is assumed to be at the surface of the container (dose rate = 24 mrem/hour) for a time of 1 minute, resulting in an effective dose equivalent of 0.4 mrem. Furthermore, Employee #1 stated they were in near proximity to the source for several

IE72



additional minutes total throughout their workday on Saturday September 15th. A conservative estimate of exposure in this case is assumed to be at 1 meter from the surface of the container (dose rate = 0.8 mrem/hour) for a time of 1 hour, resulting in an effective dose equivalent of 0.8 mrem. Therefore, Employee #1 is estimated to have received a total effective dose equivalent of no more than 1.2 mrem stemming from this incident.

Employee #2 stated that they were in near proximity to the source for a maximum of 1 hour total during their workday of Sunday September 16th. A conservative estimate of exposure in this case is assumed to be at 1 meter from the surface of the container (dose rate = 0.8 mrem/hour) for a time of 1 hour, resulting in an effective dose equivalent of 0.8 mrem. Therefore, Employee #2 is estimated to have received a total effective dose equivalent of no more than 0.8 mrem stemming from this incident.

The occurrences listed above have been self-identified as a reportable event as described in 10 CFR 20.2203 (Reports of exposures, radiation levels, and concentrations of radioactive material exceeding the constraints or limits). Specifically, section (3) part (ii) states that "Levels of radiation or concentration of radioactive material in an unrestricted area in excess of 10 times any applicable limit set forth in this part or in the license (whether or not involving exposure of any individual in excess of the limits in §20.1301)" must be reported to the NRC via written report within 30 days of discovery of the occurrences. Furthermore, 10 CFR 20.1301 states that "The dose in any unrestricted area from external sources, exclusive of the dose contributions from patients administered radioactive material and released in accordance with § 35.75, does not exceed 0.002 rem (0.02 millisievert) in any one hour." Because the source was located in an unrestricted area, and because the dose rate at the surface of the source container (24 mrem/hour) was in excess of 10 times the applicable limit in § 20.1301 (10 x 2 mrem/hr = 20 mrem/hour), the occurrence(s) constitute a reportable event which must be reported to the Nuclear Regulatory Commission via written report within 30 days of discovery of the occurrence(s).

The occurrences as listed above did not require immediate or twenty-four hour notification of the incident as detailed in 10 CFR 20.2202. Specifically, the incident did not involve the release of any radioactive material requiring such notification, nor did any personnel receive or have the potential to receive effective dose equivalents requiring such notification. This was verified by the radiation safety officer of Reid Hospital via a phone call to the NRC Operations Center and subsequent conversation with Angela McIntosh of NRC Region III on Tuesday, September 18th, 2012.

The delivery of a high-dose rate radioactive brachytherapy source on a weekend day or holiday is in violation of agreement between Reid Hospital and the associated vendor of the HDR brachytherapy source (Varian Medical Systems). Procedure dictates that the vendor must contact the radiation safety officer at Reid Hospital at least several days prior to a source being shipped in order to verify an acceptable date and time of delivery on a standard workweek day during facility business hours. In this case, the vendor did not properly contact the radiation safety officer prior to the shipment of the source to schedule a date and time for delivery. Furthermore, the vendor did not ensure with the courier (FedEx Express service) that the source would arrive on a proper day and time. The radiation safety officer of Reid Hospital has discussed the matter with the radiation safety officer and administrative staff of the associated vendor, and has reiterated that the delivery of radioactive material to Reid Hospital must follow the agreement as described above, and that delivery of radioactive material on a



weekend day or holiday is unacceptable. The vendor admits to being in violation of agreement with Reid Hospital in this case, and agrees to take appropriate steps to prevent future occurrences. Specifically, the vendor has stated that in the future, they will contact the radiation safety officer of Reid Hospital several days prior to any radioactive material being shipped, as per agreement. Furthermore, the vendor reports that they have been in contact with administrative staff of the associated courier, who admits that in this case the source was delivered in error on an unintended day and time. The courier's director of D.O.T. and HAZMAT related concerns has stated that a reminder has been circulated to all of the courier's national and regional offices and will be redistributed to all delivery personnel of their policies governing the delivery of radioactive materials from this vendor. Specifically, the policy states that deliveries of radioactive material from this vendor must occur only on standard workweek days during facility business hours.

Since the occurrence, the radiation safety officer of Reid Hospital has held an in-service presentation for all dock personnel regarding the pertinent rules and regulations governing the shipment and receipt of radioactive materials as detailed by Department of Transportation regulations and NRC 10 CFR 20.1906. The format of Hazardous Communication Marking labels and Transport Index labels was reviewed so that dock personnel can quickly and easily identify any package containing radioactive materials. Furthermore, a procedure has been implemented with appropriate staff for the handling of unexpected deliveries of radioactive materials. Specifically, it has been stated that for any unexpected deliveries of radioactive materials, particularly those arriving without prior notice and/or on a weekend day, holiday, or after standard business hours, the radiation safety officer is to be contacted immediately and before accepting delivery of any package containing radioactive materials. If dock personnel are unable to immediately contact the radiation safety officer for any reason, the delivery of any package containing radioactive material is to be refused and immediately removed by the courier. An in-service presentation reviewing this procedure will be held by the radiation safety officer of Reid Hospital on an annual basis for all dock personnel, and for any newly hired employees of this area.

Thank you for your consideration of this written report. Please contact me with any questions or necessary clarifications of this occurrence.

Respectfully,

A handwritten signature in black ink that reads "James W. Longacre". The signature is written in a cursive style with a large, looping 'L' at the end.

James W. Longacre, M.A., D.A.B.R.
Chief Physicist/Radiation Safety Officer
Reid Hospital and Health Care Services
1100 Reid Parkway
Richmond, Indiana 47374
James.Longacre@ReidHospital.org
Office: (765) 983-3466