

INES Event Rating Form

Event Title:	Overexposure to Radiation Worker
Date of Event:	2015-08-20
Event Location / Facility Name:	Idaho Falls, ID/ International Isotopes, Inc.
Event Country:	USA
Type of Event:	Radioisotope Processing/Handling Facility

INES Rating:	2
Status of Rating:	Final
Date of Rating:	2016-02-12

Impact on People and Environment		
<i>Release beyond authorized limits?</i>	<input type="checkbox"/>	
<i>Overexposure of a member of the public?</i>	<input type="checkbox"/>	
<i>Overexposure of a worker?</i>	X	
Impact on the Radiological Barriers and Controls at Facilities		
<i>Contamination spread within the facility?</i>	<input type="checkbox"/>	
<i>Damage to radiological barriers (incl. fuel damage) within the facility?</i>	<input type="checkbox"/>	
Degradation of Defence In-Depth?	<input type="checkbox"/>	
Person injured physically or casualty?	<input type="checkbox"/>	
Is there a continuing problem?	<input type="checkbox"/>	

Event Description:

Note: When the ERF is published on IAEA NEWS, the first 300 characters of the event description will appear on the NEWS home page.

This is an isotope manufacturing facility. The licensee technician needed to transfer a Co-60 source drawer into a shielded container called a therapy head. A special handling tool had been bolted to the end of the source drawer and this tool was needed to safely transfer the source back inside the therapy head. The technician attempted to move the source drawer in order to gain access to the handling tool but the source drawer was stuck, so the technician pulled on the drawer. In doing so, the drawer slid out of the cask about 22.8 cm (9 inches), bringing the source to within an estimated 5.1 cm (2 inches) of the cask external surface and exposing the technician. The technician quickly pushed the source drawer back inside the cask and noted that the electronic personnel dosimeter (whole body) was reading 56.2 mSv (5.62 rem). The technician was not wearing extremity dosimetry. The technician immediately left the area. The licensee's preliminary calculations are a whole body dose of 169 mSv (16.9 rem). Depending on various assumptions, the extremity dose is estimated to be between 2,370 mSv and 9,500 mSv (237 to 950 rem). The technician's badge has been sent for emergency processing and the individual is being restricted from radiation work for the time being.

UPDATE: The NRC conducted a comprehensive follow up inspection for this event. The NRC and company officials found, through a review of the video surveillance, that the technician actually removed the source drawer from the cask and replaced it within 4-5 seconds. The source drawer contained approximately 135.6 TBq (3,664 curies) of Cobalt-60 and the design of the source drawer was such that the radiation beam was highly collimated. On October 1, 2015, the company informed the NRC that it was assigning a whole body deep dose equivalent of 56.2 mSv (5.62 rem) for the August 20, 2015 event, and a maximum extremity dose of 384 mSv (38.4 rem) to the technician's left hand. The licensee determined that

the root cause of the event was poor coordination and control and the technician's removal of the source drawer. Corrective actions included personnel training and procedure modifications. NRC EN51331

Justification of INES Rating:

Note: When the ERF is published on IAEA NEWS, the justification of the INES rating will only appear to privileged users.

A Level 2 is warranted for exposure of a worker in excess of statutory annual dose limits. See Section 2.3.1 INES Uses Manual 2008 Edition (IAEA-INES-2009) http://www-pub.iaea.org/MTCD/publications/PDF/INES-2009_web.pdf

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Annexes:

Annex Title	Category	Description (optional)
Click here to enter text.	Choose an item.	Click here to enter text.
Click here to enter text.	Choose an item.	Click here to enter text.