INES Event Rating Form (ERF)

Version 1

Sender's Name:	Todd Smith
Sender's Organization:	Nuclear Regulatory Commission (NRC) (United States of America)
Event Title:	Worker Exceeded Annual Whole Body Dose Limit
Event Date:	2023-09-26
Location / Facility:	Odessa, TX / Pro Inspection Inc.
Event Country:	United States of America
Event Type:	Radiation Source
INES Rating:	2 - Incident (Final)
Rating Date:	2023-12-06

Impact on people and the environment	
Release beyond authorized limits?	No
Overexposure of a member of the public?	No
Overexposure of a worker?	Yes
Impact on the radiological barriers and controls at facilities	
Contamination spread within the facility?	No
Damage to radiological barriers (incl. fuel damage) within the facility?	No
Degradation of Defence In-Depth?	No
Other information	
Person injured physically or casualty?	No
Is there a continuing problem?	No

Event Description

A radiography trainee received a dose of 0.075 Sv (7.50 rem) to the whole body and 0.258 Sv (25.8 rem) to the extremities due to a disconnected 2.33 TBq (63 Ci) Ir-192 source. This dose was determined through reconstruction of the event and dose calculations. The trainee did not wear his dosimetry badge and he did not turn on his alarming rate meter. He connected the source without supervision and began to take radiography shots of a pipe. After the third shot, he cranked the drive cable without the source back in the camera. He did not perform a survey to make sure the source was back in the camera. He walked up to the pipe and exchanged the film. He moved the end of the guide tube inside the pipe placing his hand approximately four inches from where the source was located. He walked back and cranked the drive cable back to the end of the guide tube and backed away from the cranks during the shot time. He repeated this three more times, and while he was disconnecting the guide tube from the camera to switch to a guide tube with a collimator, he noticed that the indicator on the camera showed that the source was not back in the camera. He checked his personal dosimeter and found it off scale. He reported this to his trainer. The radiation safety officer and an assistant arrived to perform the source retrieval. They inspected the source assembly connector and the drive cable connection, and connected them. They cranked the source back into the camera. The trainee did not have any symptoms of radiation exposure, which was supported by daily pictures of his hands and weekly bloodwork collected for a month. The cause of the incident was failure to properly connect the source assembly to the drive cable followed by a failure to use a survey meter. Another cause was that the trainer did not supervise the trainee. The licensee reported that they have conducted retraining with all radiographers and have suspended the two radiographers in this incident. The licensee has reported that they will increase the frequency of their audits. The dose to the trainee exceeded the U.S. regulatory limit for the annual whole body dose of 0.05 Sv (5 rem). EN56761.

Rating Justification

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

Press Release Attached:	No
Technical Document Attached:	No
Further Information on Web:	

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