

May 16, 2001

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

Subject: Reporting Requirements of 10CFR 34.101(b)
Event Number 37991

As required in 10CFR 34.101(b) I am providing the following information.

Description of the Equipment Problem

The guide tube was crushed when the magnet used to position the source on the tank wall fell and landed on the tube. The camera, control cables and guide tube were located on the inside of a 80' diameter flat bottom tank. The exposures were being performed with the source on the inside and film on the outside of the tank wall. Temperature at the time of the incident was approximately 70° F.

The radiographer was in the process of cranking the source on the second exposure for the day. While in the process of exposing the source he saw the magnet fall from the tank wall. He immediately tried to retract the source to the shielded position however, the guide tube was crushed by the magnet and the source could not be returned to the safe position in the camera.

Cause of Incident

The magnet which is approximately 6" long and 2" wide fell for two reasons. One, spatter on the tank wall prevented the magnet from achieving adequate magnetic field strength to secure it to the tank wall. Two, the magnet was positioned horizontally instead of vertically to the tank wall. Positioned vertically, the magnet requires a greater downward force to remove it from the tank.

Manufacturer and Model Number of Equipment

The control cables, exposure device and guide are all manufactured by AEA Technology. The control cables are 25' long and the guide tube is 7' long with an end stop. The exposure device is a Model 660A, S/N A3782. The source is manufactured by CIS-US, Model 702, S/N S3999. The activity of the source on the date of the incident was 85.3 curies.

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As reported above, the magnet is 6" long and 2" wide. A rod is attached to the back of the magnet which serves to hold the collimator (1/2" tungsten) and guide tube in position for each exposure. At the time of the incident, the collimator and guide tube were being positioned 12" from the tank wall.

Place, Time and Date of Incident

The radiographic inspection was being performed on a flat bottom tank located approximately ¼ mile south of Heron Lake, Minnesota. The job site is a tank farm located along State Highway 60. The incident occurred at approximately 9:00am on May 8, 2001.

Actions Taken to Establish Normal Operations

Immediately following the incident, the radiographer pulled on the control cable and straightened the guide tube. He attempted to crank the source in and out but determined the source and control cable would not move.

The radiographer and radiographer's assistant proceeded to secure the radiation area using ropes and signs. No other personnel were present on the job site at this time. The radiographer contacted the Radiation safety Officer using his cell phone. The RSO instructed the radiographer to call a second more experienced radiographer in the area to assist with the incident.

Upon arrival of the second radiographer, two bags of portland cement were obtained and positioned over the source to serve as shielding. An attempt was made to pound the crushed area out of the tube and retracted the source. This action was ineffective.

Following our emergency procedures, the radiographer cut the guide tube and disconnected the source from the control cable. The exposure device was removed from the tank and away from the radiation area. At that time, the damaged guide tube was removed from the exposure device. The radiographer returned the exposure device to the inside of the tank, connected the control cable to the source assembly and retracted the source to the shielded position. A survey of the exposure device and immediate area showed that the source was in the safe position within the camera.

Corrective Actions

Personnel have been trained to use clamps instead of magnets to position the source whenever possible. If clamps cannot be used, our personnel have been instructed to position the magnet vertically instead of horizontally on the tank wall. In addition, when using a magnet to position the source, a second magnet will be used to secure the assembly to the tank wall.

The damaged guide tube was replaced with a new guide tube following the incident.

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Qualification of Personnel

At the time of the incident the radiographer was operating the exposure device and the radiographer's assistant was on the outside of the tank. The radiographer has two years of experience and the assistant has 10 months of experience.

The second radiographer called to the job site to assist in the retrieval has eight years of experience.

The radiation safety officer was contacted immediately following the incident. The RSO was in contact via telephone throughout the retrieval process.

Exposures

The radiographer received 300mr while the second radiographer received 450mr. The assistant received 25mr.

The radiation readings were taken from pocket dosimeters. A dosimeter charger was present on the job site to recharge the dosimeters for each individual prior to going off-scale.

If you have any questions or desire additional information, please call me at (651) 659-7330.

STORK/TWIN CITY TESTING



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