

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No.: Not Applicable

License No.: New Mexico Agreement State License No. IR062-09

Report No.: 150-00030/96006(DNMS)

Licensee: Desert Industrial X-ray, Inc.
P.O. Box 1421
3225 Industrial Drive
Hobbs, New Mexico 88241

Date of Inspection: May 21, 1996

Inspector: Robert P. Hays, Radiation Specialist

Approved By: Monte P. Phillips, Chief
Nuclear Materials Inspection Branch 2
Division of Nuclear Materials Safety

EXECUTIVE SUMMARY

**Desert Industrial X-ray, Inc.
NRC Inspection Report IR062-09/96001(DNMS)**

This was a routine inspection of a New Mexico Agreement State licensee's radiation safety program and industrial radiography activities being conducted in a non-agreement state under a general license authorized by 10 CFR 150.20. The inspection identified one violation for failure to calibrate each alarm ratemeter at periods not to exceed one year for correct response to radiation (Section 4).

Report Details

1. Program Summary

Desert Industrial X-ray, Inc. is the holder of a New Mexico State license with an expiration date of September 30, 2000. The license authorized the use of iridium-192 in sealed sources with an activity limit of 120 Curies per source to be used in Industrial Nuclear Company (INC) Model IR-100 and Source Production Equipment Company (SPEC) Model 2T radiographic exposure devices (cameras) for the performance of industrial radiography. The license also authorized the possession of up to 999 kilograms of depleted uranium as shielding material in the cameras.

The license specifically designated Stephen L. Barnes as the Radiation Safety Officer (RSO) and Scott McPherson as the Assistant Radiation Safety Officer (ARSO). In addition, the license listed ten individuals as instructors, six individuals as radiographers, and three individuals as trainees.

2. Inspection Information

This licensee initially submitted NRC Form 241 to Region IV, signed on March 29, 1996, by Scott McPherson, RSO, notifying the NRC that the licensee would be performing industrial radiography activities in the State of Missouri.

The licensee's activities were initially scheduled to begin on April 1, 1996, and continue until August 1, 1996. The temporary jobsite would be located on a pipeline running along State Highway 72 from Rolla, Missouri, to Salerno, Missouri. Region IV notified Region III of the licensee's proposed activities by fax on April 4, 1996.

3. Inspection Scope

The inspection consisted of an interview of one radiographer performing industrial radiography and the construction job chief inspector. The inspection also consisted of an examination of the licensee's equipment for safety adequacy and compliance with NRC requirements at temporary radiography jobsites.

4. Findings and Observations

The inspector observed the radiography truck parked along State Highway 72 upon arrival at the temporary jobsite. The inspector surveyed the pipeline construction work area and observed activities in progress. The inspector noted that the radiographer was working at the back of the radiography truck and there were no other radiographers or assistants working nearby. The inspector met the radiographer, who was listed as an instructor on the license.

The camera in use on the day of the inspection was an Industrial Nuclear Company (INC) Model IR-100, serial number 4320, and according to the decay chart in possession of the radiographer, contained 18 Curies of iridium-192. The camera's source had last been leak tested on 12/26/95. At the time of the inspection, the camera was located across the highway from the radiography truck, however, it was under the surveillance of the radiographer. Upon examination, the inspector determined that the camera was properly locked and properly labeled. There were high radiation and radiation caution signs with the camera. The inspector surveyed the camera and determined that the exposure rate at the surface was 10 milliroentgens per hour (mR/hr). Exposure rates averaged 5 mR/h at one foot from the camera. No violations or concerns were identified with security, dose rates, posting, labeling, or the IR-100.

The licensee was using a INC Model 2, serial number 90026, survey meter for radiation surveys. The calibration sticker indicated that the survey meter had been calibrated on 3/15/96. Side-by-side comparisons of the licensee's survey meter readings with the inspector's indicated that readings were comparable or slightly lower than the inspector's, but no concerns were identified regarding the operability of the INC Model 2.

An inspector examined the radiographer's dosimetry (a thermoluminescent dosimeter (TLD), a pocket dosimeter, and an alarming rate meter). The pocket dosimeter was a Dosimeter Corporation Model 862, scale 0-200 mR/hr, which indicated a dose of approximately 100 mR at the time of the inspection. The radiographer told the inspector that the pocket dosimeter was being charged daily, indicating the dose had been received so far during that day. A pocket dosimeter charger was available on the INC Model 2 survey meter.

The inspector examined the radiographer's alarming ratemeter, which was a NDS Model RA-500, serial number 18934. The ratemeter calibration sticker indicated that it had last been calibrated on 4/4/95, and that a calibration was "due" on 4/5/96. 10 CFR 34.33(f)(4) requires that each alarm ratemeter be calibrated at periods not to exceed one year for correct response to radiation. As of the date of the inspection, the alarm ratemeter had not been calibrated in over 13 months.

Failure to calibrate each alarm ratemeter at periods not to exceed one year for correct response to radiation constitutes a violation of 10 CFR 34.33(f)(4).

The radiographer informed the inspector that another alarming ratemeter had been ordered but had not been received by the radiographer. The inspector had the radiographer contact his company's Radiation Safety Officer (RSO), by cellular telephone to discuss the alarming ratemeter issue. The RSO then spoke with the inspector and specifically stated to the inspector that he (the RSO) would send by FEDEX overnight, a calibrated alarming ratemeter to the radiographer. During subsequent discussions with the RSO a few days after the onsite inspection, the RSO stated that this had been accomplished.

The radiographer was also asked to demonstrate how the Model RA-500 alarming ratemeter was tested each day prior to use. After some time looking for the testing equipment, the radiographer then tested the ratemeter, which indicated that it would audibly alarm.

According to licensee utilization logs, the licensee began performing industrial radiography in Missouri on April 1, 1996. The utilization logs indicated that radiographic operations at this temporary jobsite had been performed daily except for weekends since that time. Utilization logs indicated that daily equipment inspections and tests had been done but there was no notation in the utilization logs about the alarming ratemeter being out of calibration.

5. Other Areas Inspected

The inspection included review of other areas of the licensee's radiation safety program including, storage area and surveys for the radiographic exposure device, operation and emergency procedures, and transportation procedures.

No violations of NRC regulatory requirements were identified in these areas.

6. Conclusion

The inspection identified one violation for failure to calibrate each alarm ratemeter at periods not to exceed one year for correct response to radiation. When the RSO was notified by cellular phone of the violation, he took immediate corrective action to send a calibrated replacement alarming ratemeter overnight via FEDEX to the radiographer.

7. Exit Meeting

In addition to discussing the violation with the RSO, at the conclusion of the inspection, the inspector discussed the findings with Jack Dolan, Chief Inspector, C.M.I, the client that was installing the pipeline and for whom Desert Industrial X-Ray was performing industrial radiography. Neither the radiographer nor chief inspector identified any information as proprietary.

List of Persons Contacted

Mike Logston, Radiographer
Steve Barnes, Radiation Safety Officer
Jack Dolan, Chief Inspector for C.M.I.

List of Acronyms Used in This Report

RSO	Radiation Safety Officer
ARSO	Assistant Radiation Safety Officer
TLD	thermoluminescent dosimeter

SYNOPSIS

This investigation was initiated by the Nuclear Regulatory Commission (NRC), Office of Investigations, Region IV, on July 17, 1996, to determine whether a Desert Industrial X-Ray (DIX) radiographer made a false statement about the use of an alarming ratemeter and deliberately failed the annual calibration of an alarming ratemeter.

Based on the evidence developed and a review of the NRC inspection report, the allegation that a DIX radiographer made a false statement to an NRC inspector about the use of an alarming ratemeter and deliberately used an out-of-calibration alarming ratemeter was not substantiated.