

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 030-20982/87-01

Priority 1

Docket No. 030-20982

License No. 37-23370-01

Category C1

Licensee: North American Inspection, Inc.
P.O. Box 88
Laurys Station, Pennsylvania 18059

Facility Name: North American Inspection, Inc.

Inspection At: 3906 Main Street, Laurys Station, Pennsylvania and a field
site in Romansville, Pennsylvania

Inspection Conducted: April 24, 27, 28, and 30; and June 30, 1987

Type of Inspection: Routine, Unannounced

Inspectors: *F. Costello*
F. Costello, Senior Health Physicist

12/16/87
date

T. K. Thompson, Health Physicist

date

J. D. Kinneman
A. H. Ladun, Health Physicist

12/16/87
date

Approved by: *J. D. Kinneman*
J. D. Kinneman, Chief,
Nuclear Material Section A

12/16/87
date

Inspection Summary: Routine, unannounced inspection on April 24, 27, 28, and
30, 1987 at a field site and on June 30, 1987 at the licensee's main office
(Report No. 30-20982/87-01).

Areas Inspected: Management control systems, licensee internal audits,
surveys, uses of materials facilities and equipment training, inspection and
maintenance, personnel monitoring, and Independent Measurements/Radiation
Safety at a Field Site.

Results: Four apparent violations were identified: Failure to record storage
survey (paragraph 7); failure to recharge pocket dosimeter at the start of
each shift (Paragraph 8); failure to perform a survey outside the restricted
area; (Paragraph 9); and, excessive levels of radiation in an unrestricted
area (Paragraph 9.)

DETAILS

1. Persons Contacted

*D. B. Shumway, President, North American Inspection Inc. (NAI)
J. C. Hanson, Radiographer
J. R. Farlkner, Assistant Radiographer
R. E. Farmer, Supervisor Columbia Gas
C. S. Bixler, Operations Supervisor Columbia Gas

*Denotes those present at the exit interview

2. Management Control Systems

The management structure of the organization is as described in the license application.

Currently there are 14 radiographers, assistants, and helpers working at 6 field sites in Pennsylvania, Maryland, New York, and West Virginia. Four radiography trucks operate out of the Laurys Station Office where five iridium-192 sources are currently stored.

No violations were identified.

3. Internal Audits

The inspectors reviewed the records of licensee internal audits for selected personnel and determined that each radiographer and radiographer's assistant who were involved in radiography operations had been audited during the fourth quarter of 1986. In addition, the radiation safety officer performs quarterly internal record reviews. The inspectors reviewed the records of these reviews and noted that deficiencies were identified and corrective actions were documented.

The inspectors also reviewed with the licensee the Radiography Program Evaluation performed by Hydro Nuclear Services, Inc. on December 4, 1986 at the Laurys Station office. The inspectors noted that the three deficiencies identified in this report had been corrected by the licensee.

No violations were identified.

4. Uses of Materials, Facilities and Equipment

The inspectors observed that no radiography was taking place in the Laury's Station facility at the time of the inspection. Licensee representative stated that no radiography had been conducted there since June 1985.

All devices not in the field were stored in locked containers in a inner room at the facility. This room is also used as an office and its door is capable of being locked. At the time of this inspection, the room was not locked; however, the inspectors' presence was immediately challenged by licensee personnel when the inspectors approached the area.

At the Romansville field site, the radiographer had in his possession two Ludlum Model 14G survey meters bearing a calibration date of March 23, 1987. One survey meter (serial #31299) was inoperable and was not in use because of a "needle-sticking problem". The other meter appeared to be functioning properly. The inspectors noted that licensee personnel used the properly functioning survey meter when performing radiation surveys.

No violations were identified.

5. Training

The inspectors reviewed the training records for the two radiographers who were employed at the Romansville, Pennsylvania field site where the licensee performed radiography operations from April 20 to April 30, 1987. The inspectors also reviewed the training records for five additional radiographers who work out of the Laurys Station office in 1987. The records indicated that all training and retraining had been conducted as required and that written and oral examinations had been conducted, documented and the results reviewed by management.

No violations were identified.

6. Inspection and Maintenance

A review of licensee records indicated that radiographers had inspected their radiographic exposure devices each day before use in accordance with regulatory requirements to ensure that the devices were fully operable and in a safe condition.

No violations were identified.

7. Survey Records

The inspectors reviewed records of surveys performed by radiographers working out of the Laury's Station office including surveys performed at the Romansville, Pennsylvania job site. They noted several instances in which the survey records indicated less than "2mR/hr" in all directions at the same distance over an extended period of time. The surveys records did not appear to reflect the changing geographical conditions which would cause the radiological conditions to vary with the field conditions. The licensee representative acknowledged this and stated that radiographers would be instructed to pay greater attention to detail in completing these survey forms and that he would frequently emphasize to them the importance of recording accurate data.

Discussions with a radiographer on April 24, 1987 indicated that a record of the storage survey was not made when that storage survey was the last one performed on the work day at the Romansville, Pennsylvania field site.

This is an apparent violation of 10 CFR 34.43(d). See Section 9. for further details.

8. Personnel Monitoring Control

The licensee uses the Landauer film badge service and the badges are processed on a monthly basis. Each radiographer assistant and helper is assigned a film badge and dosimeter. A review of the film badge records indicated that no individual had received an exposure in excess of regulatory limits.

On April 24, 1987 the inspectors determined that a pocket dosimeter worn by a radiographer at the Romansville, Pennsylvania field site was not recharged at the start of the work shift.

This failure constitutes an apparent violation of 10 CFR 34.33(a). For further details see Section 9.

9. Independent Measurements and Radiation Safety at a Field Site

On April 21, 1987, the licensee began performing radiography operations at the Romansville, Pennsylvania field site for the Columbia Gas Company. On April 24, 1987, the pipe line operation approached a residential housing development.

The NRC inspectors contacted the occupant of a private residence, closest to the path of the pipe line, explained their purpose, and obtained permission to observe the radiographic operation from a room nearest to the pipeline open ditch. The windows of the room afforded the inspectors a clear, unobserved, and unobstructed view of the radiography operations being conducted approximately 80 feet away.

Between 11:25 a.m. and 11:59 a.m. on April 24, 1987 the radiographer performed six radiographic exposures averaging 135 seconds each using a 93 curie iridium-192 source. The inspectors recorded the following dose rates during this time interval inside the room:

Exposure #1	-	15 mR/hr.	Exposure #4	-	12 mR/hr.
Exposure #2	-	35 mR/hr.	Exposure #5	-	35 mR/hr.
Exposure #3	-	15 mR/hr.	Exposure #6	-	15 mR/hr.

Calculations based on the above recorded readings indicated that the individual would have received approximately 4.5 millirem during that time period.

Prior to the completion of the first radiographic exposure the inspectors advised the occupants of the residence to move to an adjoining area of the home where the radiation levels would be near at or near background levels.

The finding that the radiation levels in the room were such that an individual continuously present in the room would have received a dose in excess of 2 millirems in an hour constitutes an apparent violation of 10 CFR 20.105(b).

Observations by the inspectors and subsequent discussions with radiographer indicated that he failed to perform a survey (evaluation) to assure compliance with 10 CFR 20.105(b) which limits radiation levels in unrestricted areas in any given hour.

This finding constitutes an apparent violation of 10 CFR 20.201(b).

During subsequent discussions with the inspector, the radiographer stated that he had placed a "Caution-High Radiation Area" sign upon the end of the collimator and two "Caution-Radiation Area" signs atop a six-foot high pile of dirt which lay parallel to the ditch. Since the six-foot high and five-foot thick dirt pile lay between the residence and the radiography source, the radiographer believed that the radiation levels on the other side of the dirt pile would not exceed 2 mR/hr. The radiographer did not think a survey was necessary since the earth appeared to be a effective shield. However, the inspector noted that there was a direct, unshielded, line-of-sight over the top of the dirt pile between the source and the residence which stood on elevated ground.

On the next workday, April 27, 1987, the licensee's Radiation Safety Officer appeared on site and ordered the following corrective actions to preclude a recurrence of these apparent violations:

- 1) Use of a heavier collimator to ensure greater shielding;
- 2) Use of 45-second X-ray film to reduce the length of the radiographic exposure; and,
- 3) Requiring that all radiographic exposures in residential areas be done in the ditch.

As a added measure the RSO assigned a radiographer's assistant to the operation to provide increased surveillance of the high radiation areas and restricted areas.

10. Exit Interview

The inspectors met with the licensee president at the conclusion of the inspection on June 30, 1987. The inspectors summarized the scope and findings of the inspection.