

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
WASHINGTON, D.C. 20555

SEPTEMBER 25, 1987

NRC INFORMATION NOTICE NO. 87-45: RECENT SAFETY-RELATED VIOLATIONS OF NRC REQUIREMENTS BY INDUSTRIAL RADIOGRAPHY LICENSEES

Addressees:

All NRC licensees authorized to possess and use sealed sources for industrial radiography.

Purpose:

This notice is being issued to inform recipients about recent safety-related violations of NRC requirements. These occurred during industrial radiographic operations and could have been prevented by proper management control actions and attention to radiation safety procedures. It is suggested that recipients review this information, evaluate their procedures, and consider actions, if appropriate, to ensure that proper management control and proper attention to radiation safety procedures are being practiced by all members of their organization. However, suggestions contained in this information notice do not constitute NRC requirements; therefore, no specific action or written response is required.

Description of Circumstances:

As a followup to an allegation Region V received, the NRC regional offices and eight Agreement States conducted numerous in-depth inspections of a single radiography firm. These inspections were made from February 10 to June 2, 1987, at the firm's many job sites, scattered across the United States. These inspections identified numerous violations that had serious safety significance. In summary, these violations included:

- Allowing individuals to act as radiographers and radiographers' assistants without their completion of the training requirements specified in 10 CFR 34.31(a)(3), 34.31(a)(4), 34.31(b)(3), and the licensee's in-house training program. In addition, training records required by 10 CFR 34.31(c) to be maintained for three years were missing or incomplete.

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- Personnel overexposures were not reported to the NRC, as required by 10 CFR 20.405. In addition, adequate evaluations were not performed of either the causes of the overexposure incidents or of the overexposure doses personnel actually received during these incidents.
- Utilization logs were not completed, as required by 10 CFR 34.27.
- Radiation surveys did not meet the requirements of 10 CFR 34.43 or 20.201.
- High radiation areas were not maintained under the direct surveillance of radiographers or radiographers' assistants, as required by 10 CFR 34.41.
- Radiographers and radiographers' assistants were not audited, as required by 10 CFR 34.11(d), or by specific license condition, or both.
- Daily and quarterly inspection and maintenance operations were not performed on radiographic exposure devices, storage containers, or source changers used by the licensee, as required by 10 CFR 34.28.
- Incompatible equipment was used during a source exchange.
- Records of personnel exposure and survey results were not maintained, as required by 10 CFR 20.401(a) and (b), respectively.

Due to the serious nature of these violations, NRC personnel concluded that stronger management control was needed to administer the dispersed and numerous activities of this licensee, to ensure the health and safety of the public and licensee personnel. Therefore, an Order modifying this license was issued on June 17, 1987. The provisions of the Order are summarized below:

- A responsible, qualified Radiation Safety Officer (RSO) must be appointed for each (continuing) job site or, in the case of temporary job sites, for the centralized facility (field office) controlling licensed activities at temporary job sites.
- All licensed material must be placed in secure storage until the RSO is designated for the job site or field office.
- All required documentation must be maintained by the job site RSO or field office RSO, with a copy sent to the corporate headquarters.
- The RSOs shall have authority, in writing, to suspend any activity which is not in compliance with the license. The overall responsibility for implementing the radiation safety program rests with the corporate headquarters.

The licensee shall obtain the services of one or more independent consultant(s) to assess: employee qualifications; organizational structure; procedural implementation; records maintenance; and audit results.

The recommendations of the independent consultant(s) shall be submitted to the NRC at the same time as they are submitted to the licensee. Within 30 days after receipt of the reports, the licensee must submit an implementation plan to the NRC.

Discussion:

These violations illustrate a significant breakdown in the management oversight and control of the licensee's radiation safety program. This situation demonstrates the importance of:

1. Assuring that all radiographers and radiographers' assistants meet the training criteria specified in 10 CFR 34.31 and as outlined in Attachment 1.
2. Assuring that the number of trained radiographers and radiographers' assistants sent to each work location is sufficient to perform the radiographic operations, perform all required surveys, and maintain direct surveillance of all access points to high radiation areas. Work assignments are also outlined in Attachment 1.
3. Conducting onsite audits of each radiographer and radiographer's assistant, as required by 10 CFR 34.11(d) and specific license condition.
4. Assigning a qualified, experienced radiographer to be responsible for radiation safety at each field office and continuing job site. This individual would have the authority to suspend any activity not in compliance with NRC regulations or the license.
5. Requiring that a person responsible for radiation safety at each field office and continuing job site forwards records to the corporate headquarters for prompt review and follow-up, if warranted.
6. Properly reviewing, evaluating, and reporting all incidents which may have caused personnel exposures in excess of the limits stated in 10 CFR 20.101, 20.104, or 20.105.

It is suggested that copies of this notice be distributed to each field office and continuing job site and that all radiography personnel be reminded of their responsibilities to assure safe operations at each work location.

No specific actions or written response is required by this Information Notice. If you have questions about this matter, please contact the appropriate NRC regional office or this office.

Alan L. Spolans
Richard E. Cunningham, Director
Division of Industrial and *for*
Medical Nuclear Safety
Office of Nuclear Material Safety
and Safeguards

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Attachments:

1. Assignments and Training of Radiographers and Radiographers' Assistants
2. List of Recently Issued NRC Information Notices

**ASSIGNMENTS AND TRAINING OF RADIOGRAPHERS
AND RADIOGRAPHERS' ASSISTANTS**

CATEGORIES OF WORK THAT MUST BE DONE BY A RADIOGRAPHER OR BY A RADIOGRAPHER'S ASSISTANT UNDER A RADIOGRAPHER'S PERSONAL SUPERVISION (REF. 10 CFR 34.44)

- Use of radiography camera, including positioning collimators; use of sealed sources and handling tools; and use of radiation survey instruments (ref. 10 CFR 34.44).
- Performance of required surveys (ref. 10 CFR 34.43).
- Maintenance of direct surveillance of all access points to high radiation areas created by radiographic operations (ref. 10 CFR 34.41).

REQUIRED TRAINING FOR RADIOGRAPHERS (REF. 10 CFR 34.31(a))

- Instruction in radiation safety topics (ref. 10 CFR Part 34, Appendix A); NRC regulations in 10 CFR Parts 19, 20, and 34; NRC license under which the radiographer will work; the licensee's operating and emergency procedures; AND
- Demonstrated competency in the use of the licensee's radiography and radiation survey equipment; AND
- Successful completion of a written examination on radiation safety and regulatory matters; AND
- Successful completion of a field (practical) examination.

REQUIRED TRAINING FOR RADIOGRAPHERS' ASSISTANTS (REF. 10 CFR 34.31(b))

- Instruction in (and copies of) the licensee's operating and emergency procedures; AND
- Demonstrated competency in the use, under the personal supervision of a radiographer, of the licensee's radiography and radiation survey equipment; AND
- Successful completion of an oral or written test and of a field (practical) examination on the above subjects.

TRAINING RECORDS (REF. 10 CFR 34.31(c))

- Keep records of above training including copies of written tests and dates of oral tests and field (practical) examinations.
- Keep records for three years.

LIST OF RECENTLY ISSUED
INFORMATION NOTICES 1987

| Information Notice No. | Subject | Date of Issuance | Issued to |
|------------------------|---|------------------|---|
| 87-44 | Thimble Tube Thinning in Westinghouse Reactors | 9/16/87 | All PWR facilities employing a <u>W</u> nuclear steam supply system holding an OL or CP. |
| 87-43 | Gaps in Neutron-Absorbing Material in High-Density Spent Fuel Storage Racks | 9/8/87 | All nuclear power reactor facilities holding an OL or CP. |
| 87-42 | Diesel Generator Fuse Contacts | 9/4/87 | All nuclear power reactor facilities holding an OL or CP. |
| 87-41 | Failures of Certain Brown Boveri Electric Circuit Breakers | 8/31/87 | All nuclear power reactor facilities holding an OL or CP. |
| 87-40 | Backseating Valves Routinely to Prevent Packing Leakage | 8/31/87 | All nuclear power reactor facilities holding an OL or CP. |
| 87-39 | Control of Hot Particle Contamination at Nuclear Power Plants | 8/21/87 | All nuclear power reactor facilities and spent fuel storage facilities holding an NRC license or CP. |
| 87-38 | Inadequate or Inadvertent Blocking of Valve Movement | 8/17/87 | All nuclear power reactor facilities holding an OL or CP. |
| 87-37 | Compliance with the General License Provisions of 10 CFR Part 31 | 8/10/87 | All persons specifically licensed to manufacture or to initially transfer devices containing radioactive material to general licensees, as defined in 10 CFR Part 31. |

OL = Operating License
CP = Construction Permit

No specific actions or written response is required by this Information Notice. If you have questions about this matter, please contact the appropriate NRC regional office or this office.

Richard E. Cunningham, Director
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