

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

April 6, 2001

NRC INFORMATION NOTICE 2001-03: INCIDENT REPORTING REQUIREMENTS FOR RADIOGRAPHY LICENSEES

Addressees:

All industrial radiography licensees.

Purpose:

The U.S. Nuclear Regulatory Commission (NRC) is issuing this Information Notice (IN) to provide updated guidance on reporting requirements for radiographers. Licensees should review this information for applicability to their own procedures and consider actions, as appropriate. This includes manufacturers of radiography equipment who advise radiography licensees or potential licensees on the requirements of 10 CFR Part 34. However, information contained in this notice are not new NRC requirements; therefore, no specific action nor written response is required.

Background:

NRC issued IN 1996-04 on January 10, 1996, to alert licensees to, and inform them of, the reporting requirements under 10 CFR 34.30. This IN supersedes IN 1996-04. The guidance provided in Attachment 1 of IN 1996-04 has been revised to reflect the amended requirements in 10 CFR 34.101 and has been incorporated into this IN as Attachment 1. As with IN 1996-04, it is expected that licensees use this notice as a guide when preparing reports in accordance with 10 CFR 30.50(b)(2) and 10 CFR 34.101.

Description of Circumstances:

Since the issuance of IN 1996-04, NRC has identified several instances where licensees have failed to notify NRC, within 24 hours, in accordance with requirements in 10 CFR 30.50(b)(2), after the occurrence of an unintentional disconnection of the source assembly from the control cable, and an inability to retract the source assembly to its fully shielded and secured position.

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Discussion:

Changes to Reporting Requirements in Part 34

On May 28, 1997, NRC amended the regulations in Part 34. This amendment, in addition to other changes, modified the reporting requirements and relocated them from 10 CFR 34.30 to 10 CFR 34.101. These reporting requirements can be found on the NRC web page at <http://www.nrc.gov/NRC/CFR/PART034/index.html> and, as guidance, questions and answers concerning these requirements are listed in Attachment 1.

Notification to NRC of Unintentional Source Disconnects and Source Hang-Ups

10 CFR 30.50 contains conditions for notifying the NRC Operations Center of events immediately and within 24 hours. Notifications are then followed by written reports within 30 days. The requirements apply to all licensees whose licenses are issued in accordance with 10 CFR Part 30. The requirement most applicable to radiography licensees is 10 CFR 30.50(b)(2). The text of this requirement can be found on the NRC web page at <http://www.nrc.gov/NRC/CFR/PART030/index.html>.

Pursuant to the requirements in 10 CFR 30.50(b)(2), unintentional disconnection of the source assembly from the control cable and the inability to retract the source assembly to its fully shielded and secured position (i.e., source disconnects and hang-ups) are examples where licensees must notify NRC within 24 hours. Disconnects would include not only separation of the source assembly from the drive cable, but also loss of radioactive material from the source capsule, separation of the source capsule from the source assembly, and separation of the drive cable along its length. Hang-ups may occur at any point along the intended travel of the source, including the S-tube, the outlet fittings, the guide tube, and any fittings connected to the end of the guide tube (e.g., collimator, end stops, etc.). The notification must be made by telephone (301-816-5100) to the NRC Operations Center, in accordance with 10 CFR 30.50(c)(1). The text of this requirement can be found on the NRC web page at <http://www.nrc.gov/NRC/CFR/PART030/index.html>.

In addition to notifying NRC within 24 hours, the licensee must also submit a written report to NRC within 30 days of the occurrence, as required by 10 CFR 30.50(c)(2) and 10 CFR 34.101(a)(1) [source disconnect] or (2) [source hang-up]. One report can satisfy both of these requirements, but it must include information required by 10 CFR 30.50(c)(2) and 10 CFR 34.101(b). Guidance on the contents of this report and to whom the report should be sent is contained in Attachment 1.

Reporting such problems to NRC is important because it provides the opportunity for NRC to verify that the material has been properly secured and has not been released into the public domain. If notified early, NRC can help ensure that all necessary regulatory actions are completed.

NRC reviews information submitted in reports to determine if trends or generic safety issues exist that have the potential to cause a significant safety hazard. If a generic safety issue is

identified, those licensees that may be affected will be notified and informed of the proper actions to reduce or eliminate similar incidents in the future and to protect the health and safety of occupational workers and the public. Licensee failure to make the required reports hampers this effort and violates NRC regulations.

Summary:

The radiography reporting requirements discussed above and in Attachment 1 are those most specific to industrial radiography licensees. NUREG-1556, Vol. 2, "Program-Specific Guidance About Industrial Radiography Licensees," provides a complete listing of reporting requirements, including those contained in 10 CFR Parts 20 and 30, and contains additional guidance. This NUREG and others can be found on the NRC web page at <http://www.nrc.gov/NRC/NUREGS/indexnum.html>.

Any licensee with questions concerning compliance with NRC or Agreement State requirements related to reporting industrial radiography incidents should contact either NRC Regional personnel or its corresponding Agreement State for advice. Manufacturers of radiography equipment may also want to distribute this IN to customers or incorporate this information into guidance provided to customers. This could help licensees avoid violations of regulatory requirements and provide valuable information to NRC. Trends or generic issues associated with the construction or use of radiography equipment can be identified and appropriate actions can be taken to reduce or eliminate similar incidents in the future.

This IN requires no specific action nor written response. The guidance contained in this IN is intended to inform licensees of some regulatory reporting requirements that have been overlooked in the past. This IN is not all inclusive, and licensees should refer to an updated copy of the Code of Federal Regulations to ensure full compliance. If you have any questions about this matter, please contact the technical contact listed below, or the appropriate NRC regional office. This IN and others can be found on the NRC web page at <http://www.nrc.gov/NRC/GENACT/GC/index.html#IN>.

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Attachments:

1. Questions and Answers for Radiography Reporting Requirements
2. List of Recently Issued NMSS Information Notices
3. List of Recently Issued NRC Information Notices

**QUESTIONS AND ANSWERS FOR
RADIOGRAPHY REPORTING REQUIREMENTS**

1. WHAT INCIDENTS MUST BE REPORTED?

10 CFR 34.101(a), paragraphs (1)-(3), describe the types of events that must be reported to the U.S. Nuclear Regulatory Commission (NRC) in a written report within 30 days of the occurrence. These events include: (1) unintentional source disconnects involving a separation of the source capsule or source assembly from the drive cable; (2) hang-ups that prevent the source assembly from being retracted to the fully shielded position, and to be secured in this position, as designed and intended; and (3) the failure of any other component (critical to safe operation of the device) of the radiography equipment that could cause the equipment to operate in an unsafe manner. Disconnects would include not only separation of the source assembly from the drive cable, but also loss of radioactive material from the source capsule, separation of the source capsule from the source assembly, and separation of the drive cable along its length. Hang-ups may occur at any point along the intended travel of the source, including the S-tube, the outlet fittings, the guide tube, and any fittings connected to the end of the guide tube (e.g., collimator, end stops, etc.). Examples of the failure of other components to operate properly, causing the device to operate in an unsafe manner, include: (1) failure of the lock or securing mechanism to adequately secure the source assembly in the fully shielded position, thereby allowing unintended movement of the source assembly; (2) failure of the guide tube or controls to connect to the exposure device as intended, or operate properly; (3) failure of the coupling between the source assembly and the control cable; and (4) failure of source position indicators to show actual source position. The licensee is responsible for evaluating events that may be reportable under 10 CFR 34.101(a) and using appropriate judgment as to whether the event is reportable. If, after evaluation, the licensee is not sure whether to report the event, we recommend that the licensee make the report to the Commission, according to 10 CFR 34.101, and include the reasons why the licensee is unsure whether the event is reportable.

As discussed in the body of this Information Notice (IN), the licensee should determine if this event is also reportable, under 10 CFR 30.50(b)(2), and make the necessary notifications. In addition, in accordance with 10 CFR 21.21(a), the licensee should consider whether the failure constitutes an equipment defect that could create a substantial safety hazard. Additional guidance on compliance with 10 CFR Part 21 is available in IN 91-39, "Compliance with 10 CFR Part 21, Reporting of Defects and Noncompliance."

2. WHEN AND WHERE SHOULD THE REPORTS BE SENT?

Within 30 days of an event that is determined to be reportable under 10 CFR 34.101(a), two copies of the report must be submitted to NRC, to the addressees listed in 10 CFR 34.101(a). The addressees can be found on the NRC web page at

<http://www.nrc.gov/NRC/CFR/PART034/index.html>. If the event also requires a written report under 10 CFR 30.50(c)(2), the report must be submitted to NRC to the address included in that provision, the text of which can be found on the NRC web page at <http://www.nrc.gov/NRC/CFR/PART030/index.html>, with a copy to the appropriate NRC Regional office. NRC Regional office addresses can be found in 10 CFR 30.6(b)(2) or on the NRC web page at <http://www.nrc.gov/NRC/WHATIS/directio.html>.

3. WHAT MUST THE REPORTS INCLUDE?

The requirements for what must be included in a report are contained in 10 CFR 34.101(b), and are detailed below:

- *A description of the equipment problem;* The description should include the type of incident (disconnect, hangup, lock failure, etc.) along with an explanation of how the event occurred. This explanation could include the number of exposures taken before the incident happened, the arrangement of the equipment at the time of the incident, and the environment in which the incident occurred (a roadside trench, an exposure cell, excessively hot, cold, or humid conditions, etc.). The report should always include how the incident was noticed. For example, a disconnect may be noticed by a sudden release in tension on the cable or a high survey meter reading approaching the exposure device.
- *Cause of each incident, if known;* The licensee should attempt to determine the root cause of the incident to the best of its ability and describe it in the report. We are especially interested in why a licensee believes a part has failed, whether caused by a manufacturing problem, a design flaw, improper use, or insufficient maintenance.
- *Manufacturer and model number of equipment involved in the incident;* This would include the source assembly, exposure device, guide tube, control assembly, and any fittings, placed on the end of the guide tube, that were involved in the incident. In all cases, information on the camera and source assembly involved in the incident should be provided. This section does not require serial numbers of equipment, although a licensee may include serial number(s) in the report, and in some cases, this information is helpful.

- *Place, time, and date of the incident;* The place should be a complete street address, if possible. If the site has no address, the licensee should describe the site to the best of its ability, including the name of the site, the nearest road to the site, the nearest town or city, and any other descriptive information that would be useful in identifying the location of the incident. The time (including a.m. or p.m.) the incident occurred and the date(s) it occurred on must also be included in the report. If the description of the incident includes events that occurred over several days, the date each event occurred should be clear.
- *Actions taken to establish normal operations;* This includes any action, taken by the licensee or other persons, after the incident, to return to a normal and safe situation. It would include actions like attempting to get the equipment to operate properly, posting barriers and maintaining surveillance of the area while a source is exposed, and source retrieval procedures. It does not include investigation into the cause of the incident nor corrective actions after the investigation (see next section).
- *Corrective actions taken or planned to prevent recurrence;* This includes training personnel to better detect incidents and better respond during incidents. It also includes investigations into the causes of the equipment failure, any repairs made on the equipment, whether such equipment were removed from service, and whether such equipment were sent for testing. If testing took place, the results from such testing should be provided.
- *Qualifications of personnel involved in the incident.* This section does not need to be extensive. All that is needed is a description of the types of personnel involved. For instance, was the radiographer or the radiographer's assistant operating the equipment when the incident was noticed? Who was operating the equipment before that time? Was the radiation safety officer involved at any time? Specific names are not required, only the positions of the people involved. However, the field experience of the personnel involved may be useful information to include.

If the report is also being submitted in accordance with 10 CFR 30.50(c)(2), it should also contain the following:

- *The extent of exposure of individuals to radiation or to radioactive materials without identification of individuals by name.* This information can include personnel dosimetry results, self-reading dosimeter readings, and estimates based on calculations. The information provided, however, should not contain the individuals' names or any personal privacy information (e.g., social security numbers, phone numbers, dates of birth, etc.).

4. **WHAT IF DETAILS OF THE INCIDENT ARE REPORTABLE UNDER ANOTHER REGULATION?**

Unless a specific exclusion is contained in the regulations, all reports required in the regulations must be submitted, regardless of whether the information has been provided in accordance with the regulations in another separate report. However, in some situations, one report can be submitted to multiple addressees to satisfy several requirements. An example of this is described in the body of this IN [i.e., 10 CFR 30.50(c)(2) and 10 CFR 34.101(a)]. As another example, 10 CFR 34.101(b) requires that reports of overexposure, submitted under 10 CFR 20.2203, which involve failure of safety components of radiography equipment, must also include the information specified further in that paragraph (discussed in Number 2, above). Therefore, the report submitted under 10 CFR 34.101(b) may also be submitted to meet part or all of the requirements contained in 10 CFR 20.2203. Reports submitted under regulations other than 10 CFR 34.101 should contain a statement that the incident is also reportable under 10 CFR 34.101, so that the reports can be properly cataloged by the Commission.