

(Extracted from U.S. NRC, Office of Federal & State Materials & Environmental Management Programs, Licensee Newsletter, NUREG/BR-0117, No. 09-02, Summer 2009)

## Reporting Requirements

In recent months, the NRC staff has recognized that some confusion exists as to when industrial radiography licensees are required to make reports under 10 CFR 30.50(b)(2). Specifically, some licensees are not making the required 24-hour notification for incidents in which the sealed source assembly does not return to the fully shielded position within the exposure device.

For example, one licensee could not retract the sealed source assembly within the exposure device because the safety latch mechanism tripped prematurely, locking the source assembly outside of the exposure device. The licensee determined that the cause of the safety latch malfunction resulted from sand deposits within the latch mechanism and decided not to make a 24-hour notification of the event because the device worked appropriately once the sand was blown out. However, 10 CFR 30.50(b)(2) states, in part, that a 24-hour report is required when equipment is disabled or fails to function as designed when the equipment is required by regulations to prevent unnecessary exposures to radiation. The equipment is required to be operable when it is disabled or fails to function and no redundant equipment is available to perform the required safety function.

In the above example, the safety latch mechanism failed to function as designed, because the source assembly was locked outside of the exposure device instead of inside the device in the fully shielded position. This safety latch is required by regulations, as described in 10 CFR 34.20. Specifically, 10 CFR 34.20(c)(2) states that the radiography exposure device must automatically secure the source assembly when cranked back into the fully shielded position within the device; the safety latch is intended to fulfill this requirement. In addition, no redundant equipment was available to perform the function of the safety latch mechanism. Therefore, this event would require both a 24-hour notification under 10 CFR 30.50(b)(2), as well as a 30-day written report, described in 10 CFR 34.101 and in 10 CFR 30.50(c)(2).

Another example of a radiography incident that is reportable under both 10 CFR 30.50(b)(2) and 10 CFR 34.101 occurred in March 2009 and involved a malfunction of the key-lock mechanism of the exposure device. In this event, the radiographer locked the device and removed the key before realizing that the source assembly was still outside of the exposure device in the unshielded position. Once locked, however, the radiographer was unable to unlock the device so that the source assembly could be returned to the shielded position. Encountering this scenario, the radiographer contacted the radiation safety officer, who in turn contacted the device manufacturer for assistance. Over the telephone, the device manufacturer explained the steps to dismantle the locking mechanism, and return the source assembly to the fully shielded position within the exposure device. From the manufacturer's comments, the licensee believed that the malfunction was caused by ice on the device and was not reportable under 10 CFR 30.52(b)(2).

**However, the NRC wants to point out that whether the cause of the inability to retract the source assembly was caused by sand, ice, or any other contaminant, the malfunction is still considered an inability to retract the source assembly and represents a failure of a safety mechanism on the exposure device to function as designed. Therefore, the licensee is required to report the incident to the NRC or Agreement States within 24 hours of the occurrence.**

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