

Date: Thu, 10 Dec 1998 15:01:44 -0600
From: Meredith Brown racer@lanl.gov
Subject: Blue Alert: Inadequate OJT

TITLE: Inadequate On-the-Job Training Results in Ad Hoc Area Sweeps

IDENTIFIER:1998-LA-LANL-ESH7-0008 DATE: December 10, 1998

LESSONS LEARNED STATEMENT: Informal on-the-job training may lead workers to subjectively interpret process requirements or to skip steps in multi-step processes. Therefore, safety-related processes such as area sweeps should be documented and formal training should be conducted to ensure consistent performance. Including a checklist in formal documentation helps workers accurately complete multi-step processes.

DISCUSSION: Researchers conducting a radiography experiment involving a high-energy betatron beam failed to notify the guard station, post an exclusion area, and activate warning lights before conducting the experiment. Three security police officers posted in the area were relocated as soon as the procedural violation was discovered, and the officers' dosimeters were sent for immediate processing. Based on survey data and the distance and position of the guards relative to the energy field of the experiment, an estimated potential unattenuated dose of approximately one millirem was calculated for the two guards posted in the unshielded area behind the building where the experiment was conducted.

In a similar event, employees were preparing a remotely operated, general-purpose assembly machine used for criticality experiments when they discovered that they had missed a security guard during their sweep of the radiological controlled area (RCA) associated with the experiment. The employees were performing a hands-on training exercise with the assembly. At one point, the instructors escorted a student to another area to install an additional piece of equipment. After installing the equipment, one of the instructors and the student conducted a sweep of the area in their vehicle while the other instructor performed a sweep of the facility where the equipment was located. The instructors then closed the railroad gate used for access control into the RCA during critical assembly operations.

Neither instructor noticed that a security guard was still in the RCA although the guard sounded his truck's horn in an unsuccessful attempt to get their attention when he saw them at the gate controller. By the time the guard arrived at the gate, which was approximately 50 yards from the building containing the assembly control room, the instructors had enabled the assembly. The guard did not receive an exposure as a result of this occurrence.

ANALYSIS: Investigators determined that the personnel involved in both incidents misunderstood the sweep procedure instructions, which site personnel stated were conveyed through on-the-job training. However, the on-the-job training was informal and it lacked two critical elements: demonstration of skill acquired and documentation of training. Consequently, the "on-the-job training" was really ineffective mentoring. Mentoring, which normally involves a more experienced individual informally teaching a less experienced individual, may be appropriate in some situations but should not be considered equivalent to on-the-job training

because it typically does not include any type of formal acknowledgement that the desired skills or knowledge have been mastered. Additionally, neither the radiography experiment procedure nor the training exercise documentation included detailed specifications regarding how to conduct the sweeps. Consequently, personnel were performing ad hoc sweeps.

Investigators and facility personnel determined that current training was inappropriate for the sweep procedure because it did not reliably protect personnel from the hazards associated with the high-radiation and radiography work performed at the site. Therefore, a standard operating procedure and associated checklist was implemented to ensure that future sweeps are performed in a comprehensive and consistent manner.

ORIGINATOR: Los Alamos National Laboratory

CONTACT: Meredith Brown, 505-667-0604

AUTHORIZED DERIVATIVE CLASSIFIER: Meredith Brown, 505-667-0604

REVIEWING OFFICIAL: Meredith Brown, 505-667-0604

DOE FUNCTIONAL CATEGORY: Conduct of Operations

KEYWORDS: on-the-job training, mentoring, sweep

REFERENCES: LANL Occurrence Reports ALO-LA-LANL-TA18-1998-0006 and ALO-LA-LANL-TA18-1998-0007

FOLLOW-UP ACTIONS: Information in this report is accurate to the best of our knowledge. As a means of measuring the effectiveness of this report, please contact the originator of significant action(s) taken as a result of this report or of any technical inaccuracies you find. Your feedback is appreciated.