

Date sent: Tue, 01 Sep 1998 15:11:24 -0500
From: Meredith Brown racer@lanl.gov
Subject: Yellow Alert: Near Miss/Falling Pipe

The following Lockheed Martin Energy Research Company (LMER) Lesson Learned Yellow Alert is being distributed to communicate a near-miss incident that occurred at the Oak Ridge National Laboratory (ORNL).

Please forward this information to appropriate personnel. If you have any questions, please contact me.

Thank you,

Connie Arnwine, 423-241-3134
ORNL Lessons Learned Program



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Title: Near Miss Related to Falling Pipe

Identifier: Y-1998-OR-LMERX10-0901
Date: 9/01/98

Lessons Learned Statement: Vent piping which has been supported from below may or may not be anchored independently. In existing buildings and systems, the potential that vent piping is not independently anchored must be considered toward making proper decisions if a disconnected pipe section is to be left in place. Unless detailed drawings and/or notes are available ensuring that it is properly secured, workers must assume that additional action must be taken to secure disconnected vent pipes to prevent them from falling and causing personal injury. Whenever possible, potential for building upgrades or renovations should also be considered in the design of new buildings or systems.

Discussion: On Thursday July 9, 1998, two Environmental Sciences Division employees were eating lunch in a converted lunch room in Building 1506, sitting at the table across from and facing the corner of the room where a vent pipe section was located in the ceiling. There was no warning that a 1 1/4" IPS vent pipe was going to fall. The pipe fell about a foot and a half behind a chair and could have caused personal injury had someone been sitting in the chair or getting up from the table. The weight of the pipe and the distance it fell could have caused significant injury, especially since it gave no warning.

Analysis: The room was adequately designed for its original purpose which was to house an animal cage washer and to store other animal care equipment. The 18" by 24" pump and tank was installed to collect condensate from steam systems which was then pumped to a cooling tank

in the mechanical room. The pump/tank unit was 20 years old when it was removed from service in December 1997 because it was no longer needed.

When the pump unit was removed, all equipment was disconnected including the pipe which extended from the floor to the ceiling section. The pipe fitter intended to and tried to remove the final section of pipe but could not. The difficulty the pipe fitter met in removing the pipe indicated that there was some fastener within the ceiling and roof that held it in place. To take further action to determine exactly how it was fastened would have meant going on the roof and pulling back roofing material and removing the cover to visually inspect the sleeve. Since the pipe seemed to be securely held in place, it was capped inside the room. As a result of the investigation of the incident it was determined that colder temperatures, in December, caused the roofing material to be extremely rigid. The pipe was securely anchored by asphalt, mastic, and oakum. However, hot summer temperatures softened the roofing material. This combined with increased roof activity and the weight of the pipe is presumed to have caused the pipe to fall. The only anchor left after the asphalt seal failed was the mastic and oakum, whose sealant ability might have been weakened by 20 years of thermal expansion.

While trying to determine the cause, the field engineer checked the original drawings and noted that they included the cage washer and the pump with the pipe vented to the outside through the roof. The drawing was of a typical vent flashing detail but such specifications in construction leave some flexibility for the contractor to use best judgement with the information available at the time. The design served its original purpose but did not account for changing operations. Based on the history of older buildings at ORNL no longer used as they were originally intended, the design should have anticipated the potential for upgrades or renovations.

Resolution/Recommended Actions: Unless detailed drawings and/or notes are available ensuring that it is properly secured, maintenance workers must be instructed to assume that additional action must be taken to secure disconnected vent pipes to prevent them from falling and causing personal injury.

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Priority Descriptor: Yellow / Caution

DOE Functional Category: Occupational Safety and Health

LMER Functional Category: Safety and Health

Keywords: Near miss, personnel safety, falling

vent pipe

References: Occurrence Report ORO--ORNL-X10ENVIOSC-1998-0002

Follow-up Action: Information in this report is accurate to the best of our knowledge. As means of measuring the effectiveness of this report, please notify Connie Arnwine at 423/241-3134, e-

mail at a93@ornl.gov of any action taken as a result of this report or of any technical inaccuracies you find. Your feedback is important and appreciated.