ENVIRONMENT, SAFETY AND HEALTH BULLETIN

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Vertical-Rail Fall Protection

Special Operations Reports *are issued to initiate management actions in response to events whose subject matter represents significant departmental safety concerns.*

Environment, Safety and Health Alerts *are issued to initiate immediate action on potentially significant safety issues.*

Environment, Safety and Health Bulletins *are issued to share information and recommend actions on potential safety issues.*

Operating Experience Summaries *are issued to share lessons learned information, operating experience information, and best practices from significant events or important individual DOE activities.*

PURPOSE

The Office of Nuclear Energy, Science and Technology has expressed concern regarding the integrity of vertical-rail fall protection systems. A recent failure occurred at the Idaho National Laboratory where the top of the rail detached from the structure, rendering it ineffective for fall protection. Vertical-rail fall protection systems are used throughout the DOE complex to provide safe access to elevated structures. Correct design, installation, and maintenance of these systems are essential for worker safety.

BACKGROUND

A pipefitter was near the top of a 40-foot fixed ladder attached to the side of a million-gallon water storage tank at the Reactor Technology Complex (RTC) when the 4-foot top rail section of the vertical-rail fall protection tubing separated from the main vertical rail (Figure 1). He was holding the top rail section at the moment the rail separated, and was able to reattach the top rail. The pipefitter descended the ladder and reported the incident to management. (ORPS Report ID--BEA-ATR-2005-0007)

A design weakness in the rail system contributed to the incident. The connection for the upper section uses a twist-lock design that incorporates a metal pin (main section) and "L" groove. The locking mechanism between the pin and the L-groove was defeated when the alignment slot and the retaining pin became aligned (Figure 2). Only one of eleven systems at RTC is of this design. The manufacturer of the failed system, Antenna Products (http://www.antennaproducts.com), helped to develop a repair for the rail that entails installing a set screw to secure the top portion of the tubing.

Figure 1. Rail Installation at RTC

IMPLICATIONS

Any decline in the integrity of a vertical-rail protection system (e.g., separation) could result in a worker's safety line becoming detached from the rail, leading to serious injury or death.

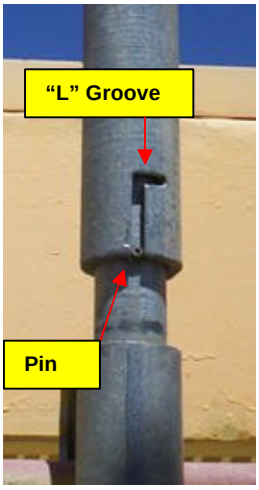

Figure 2. Rail Assembly Detail

ACTIONS

Site managers need to ensure that they:

- evaluate the integrity of vertical-rail fall protection systems in use at their sites;
- ensure vertical-rail fall protection systems are regularly inspected and maintained; and
- report any broken vertical-rail fall protection systems in the Occurrence Reporting and Processing System (ORPS).

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