



Environment, Safety and Health Bulletin

Boiler Safety Valve Test Failures

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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.

Safety Advisories are issued to provide information to the DOE Complex on potentially significant safety or health issues.



Figure 1. Examples of pressure safety valves

PURPOSE

This Safety Bulletin is being issued to alert readers to boiler safety valves that did not lift within the range specified by American Society of Mechanical Engineers (ASME) Section I, PG-72.1, which requires that valves attain full lift at a pressure no greater than 3 percent above their set pressure.

BACKGROUND

On October 18, 2005, at the Idaho Nuclear Technology and Engineering Center (INTEC), operations personnel were performing the annual safety checks of a high-pressure steam boiler before returning it to service. When the operations personnel tested the newly installed safety valves, they did not lift within 3 percent of the set pressure of 160 psi. North American Safety Valves, Inc. of North Kansas City, MO, who had assembled and tested the valves, retested the valves and found that they did not meet the ASME specification. North American reset, retested, and returned a total of 17 valves. [ORPS Report EM-ID--CWI-LANDLORD-2005-0011]

On November 1, 2005, at the Idaho Specific Manufacturing Capability facility, operations personnel tested recently installed ASME Section I high pressure steam boiler safety valves supplied by North American after being notified of the problematic valves at INTEC. They found that three valves on one boiler failed to release at the appropriate setting, while three valves on another boiler released satisfactorily. The boiler with the problematic valves was shut down and tagged out of service. Another six North American-supplied safety valves were found in storage and have been returned to the local distributor. [ORPS Report NE-ID--BEA-SMC-2005-0008]

IMPLICATIONS

The failure of pressure safety valves to operate as designed can result in catastrophic damage to facilities and possible injury or death to personnel.

RECOMMENDED ACTIONS

Each site should:

- Review procurement documentation to determine if any ASME Section I safety valves were acquired from North American Safety Valves, Inc.
- Conduct safety valve testing for any ASME Section I safety valves furnished by North American Safety Valves that do not have a documented site test history.
- Any ASME Section I safety valves that fail the above testing should be treated as defective items or materials. The test failures should be reported in the Occurrence Reporting and Processing System (ORPS), and guidance for disposition of the valves should be sought from the local Office of Inspector General.

Questions concerning this Environment, Safety and Health Safety Bulletin should be directed to Tom Williams at (301) 903-4859 or e-mail Thomas.E.Williams@eh.doe.gov.

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PREVENT EVENTS

Learning from Industry Experience

PREVENT EVENTS is intended for use by personnel during morning meetings, pre-job briefings, and work unit meetings to communicate key industry experience.

Management

1. Have we implemented a process for testing boiler pressure relief valves prior to installation?
2. Do we ensure that our established maintenance program for boilers keeps them well within their design requirements?
3. Do our workers recognize the potential safety significance of installing pressure relief valves that do not meet ASME specifications?

Procurement

1. Do we clearly describe the necessary specifications of items we seek to procure?
2. Do our contracts with vendors incorporate language that affords us legal options for addressing receipt of items that do not meet our specifications?
3. Do we seek timely, appropriate technical and legal remedies when we receive items that do not meet our specifications?

Individual Worker

1. Do I use appropriate PPE (safety goggles, face shield) when working around boilers?
2. If I see evidence of a boiler leaking, do I know what to do?
3. Do I know whom to contact if I notice a boiler problem?

