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ALERT

To Power Boilers Owners/Operators and Equipment Suppliers

Brass Ball Valve Failure in Power Boiler Service

A threaded NPS 2 forging brass ball valve, with a marked steam working pressure of 150 psig, failed while in service as a high pressure steam boiler blow-off valve. The boiler was designed to operate at a maximum allowable pressure of 125 psi. The failure occurred when the body of the valve, which was of two-piece construction, came apart, resulting in the release of high temperature water and steam from the boiler. In this incident, a worker in the vicinity of the boiler received serious burns and later died in hospital.

The preliminary findings of ABSA's investigation into the incident indicate the forging brass material specification of the valve was not permissible for a boiler external piping application.

Alberta regulations require that boiler blow-off valves and the piping that joins the valves and other fittings to the boiler must be designed and constructed in compliance with the requirements of the ASME B31.1 Power Piping Code for "boiler external piping". The material specification of the valve body design was identified as ASTM B283 C37700, forging brass. While this material is permitted by ASME B31.1 for use in some applications, **its use in boiler external piping is specifically prohibited** (see Note 1 of Table A-6, ASME B31.1).

All power boiler owners and equipment suppliers are asked to review the material specifications of valves and other fittings used in power boiler service and to replace immediately any inappropriate ones when they are found.

It is important to note that markings on valves and other fittings may not provide complete information to allow a user to determine whether or not these fittings are suitable for a given application, such as boiler external piping. Also, material identification may not be on a fitting, nor in the manufacturer's sales brochure of the fitting. It is the user's responsibility to ensure that any fitting he or she is using is suitable for the intended purpose and complies with the Regulation and the applicable Code adopted under the Regulation. Where full information is not immediately available, the user should contact the supplier or the manufacturer to get the necessary details.

K. T. Lau, Ph.D., P.Eng.
Chief Inspector and Administrator
Pressure Equipment
Province of Alberta