

# Safe boiler house?

As de-manning on steam and hot water boiler plant continues to gain momentum, operators need to consider best practice and their legal duties in respect of operational safety, warns S Moore Holmes

With ever tighter financial budgets and increased pressure on operators to reduce costs, one response has been to reduce boiler manpower by increasing reliance on automation and safety controls. However, if not implemented and maintained correctly, this approach could leave users exposed to serious risk.

Looking at the legal framework, all workplaces are subject to the Health and Safety at Work etc Act 1974, and Section 2 includes the provision and maintenance of plant and systems of work that are safe, and without risks to health. Section 3 extends this to protect persons not in their own employment. Next, the Management of Health and Safety at Work Regulations 1999 requires all workplace activities to be subject to a risk assessment. Meanwhile, the Provision and Use of Work Equipment Regulations 1998 (PUWER) addresses equipment (including boilers) operation and maintenance.

Further, in addition to periodic examination of plant by a competent person, Regulation 11 of the Pressure System Safety Regulations 2000 (PSSR) places a three-fold responsibility on duty holders. First, they must provide instructions for safe operation of boilers. Secondly, they need to specify action in the case of emergency. And, thirdly, they must ensure that plant is not operated outside instructions.

All new and significantly modified pressurised plant operating at greater than 0.5 bar must also comply with the Pressure Equipment Regulations 1999 and be accompanied with instructions for safe use.

Finally, Regulation 4 of the Control of Major Accident Hazards Regulations 1999 (COMAH) requires operators to take all measures to prevent major accidents and limit consequences to people and the environment. The point: a serious boiler or safety system failure might have a knock-on effect to plant containing COMAH substances.

For many years, HSE Guidance Note PM5 'Automatically controlled steam and hot water boilers' was the standard reference. It covered installation, controls, maintenance, operational safety and testing. Then SAFed (Safety Assessment Federation) published guidance documents PSG2 'Guidelines for the Operation of Steam Boilers' and PSG3 'Guidelines for the Operation of Hot Water Boilers'.

However, the latter half of 2011 saw two new boiler safety guides. HSE published INDG436 'Safe management of industrial steam and hot water boilers, a guide for owners, managers and supervisors of boilers, boiler houses and boiler plant'.

SAFed, working in combination with the Combustion Engineering Association and the HSE, produced BG01, 'Guidance on the Safe Operation of Boilers'.

Together, these outline essential features for safe boiler operation. In particular, BG01 provides guidance on boiler fittings, controls, limiters and ancillary equipment, under various levels of supervision (PE, November/December 2011, p17).

## Going unmanned

When a duty holder is considering reducing manning levels for boiler operations, it is important that reference be made to the above publications. That said, a systematic review must also be carried out, reconsidering all risks and assessing whether current control measures are suitable and sufficient.

Of particular significance will be the nature and extent of water level and firing controls and limiters, and their safety integrity. Other key factors include over-pressure protection, location and reliability of alarms, as well as responsive action, blowdown arrangements, fire detection and fuel cut-off devices, water treatment and condensate monitoring.

Ultimately, should a control or safety system fail, it must failsafe, rendering the boiler safe until manual intervention arrives. The competent person will also have an interest in any modifications or changes to boiler controls and safety systems that may impact the scope and content of the written scheme of examination – so should be informed of proposals.

The bottom line is that supervision cannot be dispensed with completely. Even with high integrity, self monitoring safety systems, equipped for remote access monitoring, regular boiler attendance by a trained operator is still considered an essential part of safe boiler management. 

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