



The pressure IS on

In the post-Buncefield era, both the HSE and competent persons have been finding plant operators failing in their statutory duties. Brian Tinham reports

One of the more worrying stories to surface over the last few weeks has been that some plant operators are under the misapprehension that, in satisfying the requirements of one set of plant integrity legislation, they are also complying with all other applicable regulations. They are not.

The issue apparently came to light over time as HSE discipline specialist inspectors working in HID identified what, at first, seemed like isolated cases of gaps in plant integrity management – but which, on further exploration, were found to be indicative of a more general problem. The executive has since been challenging some on how they are satisfying statutory requirements under COMAH (Control of Major Accident Hazards) – particularly Regulation Four, the general duty placed on plant operators that they shall take all necessary measures to prevent major accidents and limit the consequences to persons and the environment.

According to Glyn Amphlett, principal engineer at Allianz Engineering (who sits on SAFed's TC1 pressure equipment technical committee), HSE had

come across certain sites that should be complying with, for example, both COMAH and PSSR (Pressure System Safety Regulations) – but that had only been focusing on PSSR and assuming they were covered for both. Which is scary.

As Amphlett says: “The big difference between the two is that PSSR is only concerned with mechanical hazards from the release of stored pressure energy, mostly from vessels and almost exclusively from gases or steam, because of their compressibility. However, under COMAH, even a relatively small leak of, for example, low-pressure chlorine from a pipeline flange, would constitute a significant hazard. That would not present itself as an issue under PSSR, because of its minimal pressure energy risk.”

Think this doesn't apply to you? Let's hope so. But before we jump to conclusions, HSE believes there is a substantial number of plants that fall just below the criteria for COMAH (those that have inventories of prescribed substances below the legal thresholds), yet that could present a serious hazard in the event of a leak. These sites, and many others

in the so-called 'low tier' COMAH band (those with low levels of restricted materials, but enough to be bound by statutory notification), may lack in-house expertise, so have to rely on third parties – such as competent persons under PSSR.

Which is where the problem seems to originate. Are they being properly advised? Are they asking the right questions? Competent persons operate under client confidentiality and only feed back to HSE if there is imminent danger, so it's widely recognised that problems can go unnoticed or ignored. That's a potential time bomb from a safety perspective, but plant operators should also be concerned about litigation. Not directly under COMAH maybe, but both PUWER (Provision and Use of Work Equipment) and the Health and Safety at Work Act, either of which could be invoked and result in court cases, if something went wrong.

Russell Breen, team leader in HSE's Hazardous Inspectorate Division, puts it thus: "This is wider than COMAH: the issue is one of properly managing the mechanical integrity of high hazard plant. That requires a thorough understanding of all potential failure modes and consequences, so that suitable measures can be put in place. COMAH requires 'all measures necessary' to be taken – and for non-COMAH plant, under the Health and Safety at Work Act, the same concept is expressed as doing what is 'reasonably practicable'. Where third parties are involved, duty holders need to be aware that their legal duties cannot be delegated. The duty remains with the operators to ensure equipment integrity is maintained to prevent loss of containment and subsequent harm to persons or the environment."

The bigger picture

Meanwhile, Steve Shaw, of HSE's Safety Unit Policy Division, believes that confusion also arises from a lack of understanding of precisely why examinations under PSSR are undertaken. "Internal vessel inspections help prevent the risk of rupture and subsequent release of gas or steam. That is fine for PSSR, but plant operators must look at the requirements of other regulations as well.

"The problem is, they see regulations in isolation. For a boiler, for example, they understand you need PSSR. But what about legionella? Maybe COSHH [Control of Substances Hazardous to Health] for chemicals? How about DSEAR [Dangerous Substances and Explosive Atmospheres Regulations], for flammables? Then there's confined space entry, asbestos... You could go on. It's even more serious if the risk is a ruptured process vessel, especially if it's storing toxics or flammables. Think about the Buncefield blast zone, which extended way beyond the site itself."

Equally, Breen also points to operational issues: "Another problem concerns pipework. PSSR looks at the vessels and that clearly covers a lot of the

pressure energy requirements under COMAH, too. But PSSR doesn't always look so closely at the pipework, because of the relatively small volumes, meaning reduced risk from stored energy [although the update in 2007 now refers to 'pressure systems', including pipes, pumps, valves and compressors]. Yet we could be talking about some really nasty fluids. Also, fluids might start as liquids, but change to gases, due to processing – or vice versa. Again, that's why plant operators need to consider all plant safety regulations."

Third-party reliance

Breen says it's difficult to put numbers on the problem, but that HSE has discussed it with EEMUA [Engineering Equipment and Materials Users' Association] and SAFed, and now believes that the issues associated with engaging third parties for expert advice on integrity management are not always fully appreciated. "HSE is seeking to highlight these issues to help operators be clearer about what they can reasonably expect from third parties, and how duty holders and engaged experts can best work together to ensure that plant integrity is better secured – with a clear understanding of the scope of services required and provided."

Back to Allianz's Amphlett: "A lot of users assume that, because we're on site, we're looking at everything. In fact, as a general point, there is an over-reliance on what competent persons are doing. HSE's COMAH and sub-COMAH findings have changed our approach, and we're now offering risk assessments and defining risk examination procedures. We're also offering written schemes of examination for pressure systems that are specific, rather than generic – very much along the lines required for COMAH plant."

For Shaw, the solution comes down to basic principles: "You need the right group of people and the right amount of time to properly assess site risks. You know, it's interesting: there's no legal requirement to carry out HAZOPs [hazard and operability studies] outside COMAH; only risk assessments. But HAZOPs can reveal all sorts of aspects that would merit more detailed risk assessments, because they are geared to identifying what can go wrong."

Needless to say, plant operators are unlikely to be keen on that suggestion, given the extra time and money likely to be involved.

As Amphlett points out: "There is a view by some users that this is all heavy handedness on the part of HSE – that they believe the only safe plant is one that's shut down. Both the HSE and we would refute that and say we're here to support UK plc, and that these goal-setting regulations have been arrived at over many years for a sound purpose – to keep plant, people and the environment as safe as is humanly possible." 



Glyn Amphlett, principal engineer, Allianz
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Pointers

- HSE has come across plants that should be complying with, for example, both COMAH (Control of Major Accident Hazards) and PSSR (Pressure System Safety Regulations) – yet have only been focusing on PSSR and assuming, wrongly, that they are then covered for both
- HSE is working on guidance with SAFed and other bodies to help plant operators better understand the issues involved with third parties in supporting plant integrity management