

COMAH Competent Authority

Mechanical Integrity:

Use of third party expertise on high hazard sites

the Competent Authority



Introduction

This paper is intended to set into context the regulatory framework as it relates to the management of equipment¹ integrity and in-service inspection in relation to the Control of Major Accident Hazards Regulations 1999 (as amended) (COMAH). Specifically it describes what the operator should do when contracting in a third party to demonstrate COMAH compliance. It sets out the main roles and responsibilities of those to whom the regulations apply, the requirement to demonstrate that 'all measures necessary' have been taken and illustrates the need to consider all applicable regulations.

Issue

An important aspect of an operator's duties under COMAH is the maintenance of plant integrity. In this respect there is a lot of common ground with the requirements of other pieces of legislation such as the Health and Safety at Work etc. Act 1974 (HSWA), the Provision and use of Work Equipment Regulations 1998 (PUWER) and the Pressure Systems Safety Regulations 2000 (PSSR).

Frequently the operator may contract in expertise in order to demonstrate their duties under COMAH relating to the management of equipment integrity and in-service inspection. Issues have arisen where the inspection regime formulated to meet the requirements of one set of legislation does not meet the requirements of the inspection part of the plant integrity scheme under COMAH. Reasons for this include:-

- The operator accepting an inspection regime which does not take into account the scope of COMAH - which may need to take account of degradation mechanisms that go beyond the requirements of an alternative regime seeking, for example, to comply only with PSSR, which focuses on risks from steam and pressure alone.
- The operator contracting in a third party who is not aware of the requirements of a COMAH maintenance of plant integrity regime, or does not have the specific knowledge needed to implement it.
- The operator may not have, or be in a position to supply all the detailed plant and process information required to fully understand the complex degradation mechanisms that a major hazard plant may be subject to.

Legislation

As well as COMAH other key legislation exists including:-

- HSWA, the principle statutory instrument in relation to health and safety law in the UK and applies to virtually all workplaces.
- PUWER covering most work equipment, including that covered by PSSR but also pressure systems carrying liquid and non-pressure systems such as atmospheric storage tanks. It is concerned with all hazards and it requires plant to be maintained and inspected.

¹ Equipment or plant referred to in this document is that where its failure could cause or contribute substantially to a major accident, or its purpose is to prevent, or limit the effects of, a major accident.

- PSSR covering pressure systems as defined within the regulations. Unlike some of the other legislation, it returns to a more prescriptive format detailing the type of pressure system, the working fluid and what in general terms needs to be done, e.g. a written scheme of examination (WSE) and the minimum information required in the WSE etc. Inspection under PSSR is often termed 'Statutory' with other non-PSSR inspection termed 'non-statutory'. Clearly, the fact that all inspections are required by statutory legislation means this terminology is misleading but dates back to a time when only steam systems were covered by legislation.

COMAH Regulations

COMAH Regulations (Control of Major Accident Hazard Regulations) implement the Seveso II Directive, European legislation that arose as a result of significant major accidents involving major hazard plant and processes. COMAH applies to a range of high-hazard sites defined by the type and quantity of hazardous substances present on site.

The key phrase is "all measures necessary". The operator will generally be regarded as having met this standard when risks have been reduced 'as low as reasonably practicable' (ALARP). Reasonably practicable involves weighing the risk against trouble, time and money needed to control it. Further guidance on ALARP and COMAH is available at <http://www.hse.gov.uk/comah/alarp.htm>

Responsibilities

In the areas within the scope of this paper there are three principal duty holders within the scope of this paper, the Operator, the Competent Authority (HSE together with the Environment Agency in England & Wales or Scottish Environment Protection Agency in Scotland), and the third parties contracted in to provide expertise.

Operator responsibilities under COMAH

COMAH requirements are more searching than other legislation and under Regulation 4 they require the operator to take all measures necessary to prevent accidents and limit their consequences to persons and the environment and any other relevant features that may cause a COMAH incident, e.g. flammability and/or toxicity. Therefore a relatively small leak that may not cause serious injury to persons from release of stored energy may still be sufficient to compromise Regulation 4 of COMAH. Consequently, the operator is responsible for ensuring the plant is designed, operated, maintained, inspected and decommissioned etc safely. This responsibility cannot be delegated to a third party. This need to provide 'safe' plant and equipment is not in addition to those requirements contained in other legislation (e.g. PSSR, LOLER, PUWER, COSHH) rather it is a necessary extension for the purpose of encompassing those risks specific to a high hazard site.

In terms of in-service inspection the operator must not only consider the risks arising out of or in connection with equipment failure in terms of e.g. the unintentional release of (i) stored energy from a system under pressure; or (ii) a load during a lifting exercise; or (iii) a substance from bulk storage, but they must also consider whether failure of that equipment might also involve the loss of containment of a COMAH dangerous substance leading to a 'major accident as defined.

Competent Authority responsibilities under COMAH

COMAH Regulation 19 requires the Competent Authority to organise an intervention programme. The Competent Authority is therefore required by law to visit sites looking for a demonstration from the Operator that all measures necessary to prevent major accidents have been taken.

Third party responsibilities under COMAH

A third party providing expertise on a major hazard site has no duties under COMAH. Where a third party is acting to provide the operator with a competent source of advice, in seeking to help maintain the integrity of major hazard equipment they have duties under HSWA section 3 and section 36 to ensure the health and safety of persons than their employees, so far as is reasonably practicable, and to act appropriately in their role. This includes ensuring they are competent to carry out the role, they are contracted to deliver.

Making the demonstration under COMAH

Responsibility for managing the integrity of equipment with major hazard potential rests with the COMAH duty holder i.e. the operator and the onus is on the operator to discharge any duties under COMAH. Complex management systems may be required that may involve implementation by a multidisciplinary team throughout the life cycle. Whilst an operator may seek to rely on third party expertise to help provide a COMAH demonstration and apply the relevant good practice they should be fully aware that the duty to comply with COMAH remains with the operator and cannot be delegated.

An examination or inspection regime would normally form part of the demonstration that the operator of a COMAH plant has taken all measures necessary to prevent major accidents and limit their consequences. As such, the technical basis for such a regime, and the arrangements to implement it must be robust. Under COMAH, major accident hazards could be fire, explosion, toxic releases or an uncontrolled release of stored pressure energy. The level of complexity involved to manage the integrity of COMAH equipment means that a multidisciplinary team would normally be needed with access to site specific information and process knowledge to inform technical decisions. In such cases it is unlikely that a team made up entirely of 3rd party experts would suffice.

In- service Examination

If the operator is going to rely on the work of a third party to secure mechanical containment integrity then the operator must ensure that any examination scheme adopted takes account of all relevant degradation mechanisms to prevent both catastrophic failure and also reduce the risk of smaller scale losses of containment (LoC) from the vessel. If this is not the case, for example where the scheme of examination is focussed on PSSR compliance to achieve containment of stored energy and steam, then the operator must decide what further measures are required e.g. to prevent/mitigate the hazards from small scale LoCs.

Competence and Communication

Where an operator relies upon the work of the third party, as part of a COMAH demonstration, to develop and/or apply relevant good practice, the operator must take all appropriate measures such as ensuring:-

- that the third party understands the full scope of the task they have been set;
- that they are competent to do the work;
- that they have access to all necessary plant information and expertise;
- and that what is then provided is sufficient to meet the operator duties under COMAH.

For their part the third party must:-

- understand what is expected from them in relation to requirements under COMAH;
- make efforts to ensure they have all the necessary information on the plant;
- and ensure that they are competent to carry out the work.

Clearly, both good communication between COMAH duty holder and the third party and understanding of their responsibilities is essential under these circumstances.

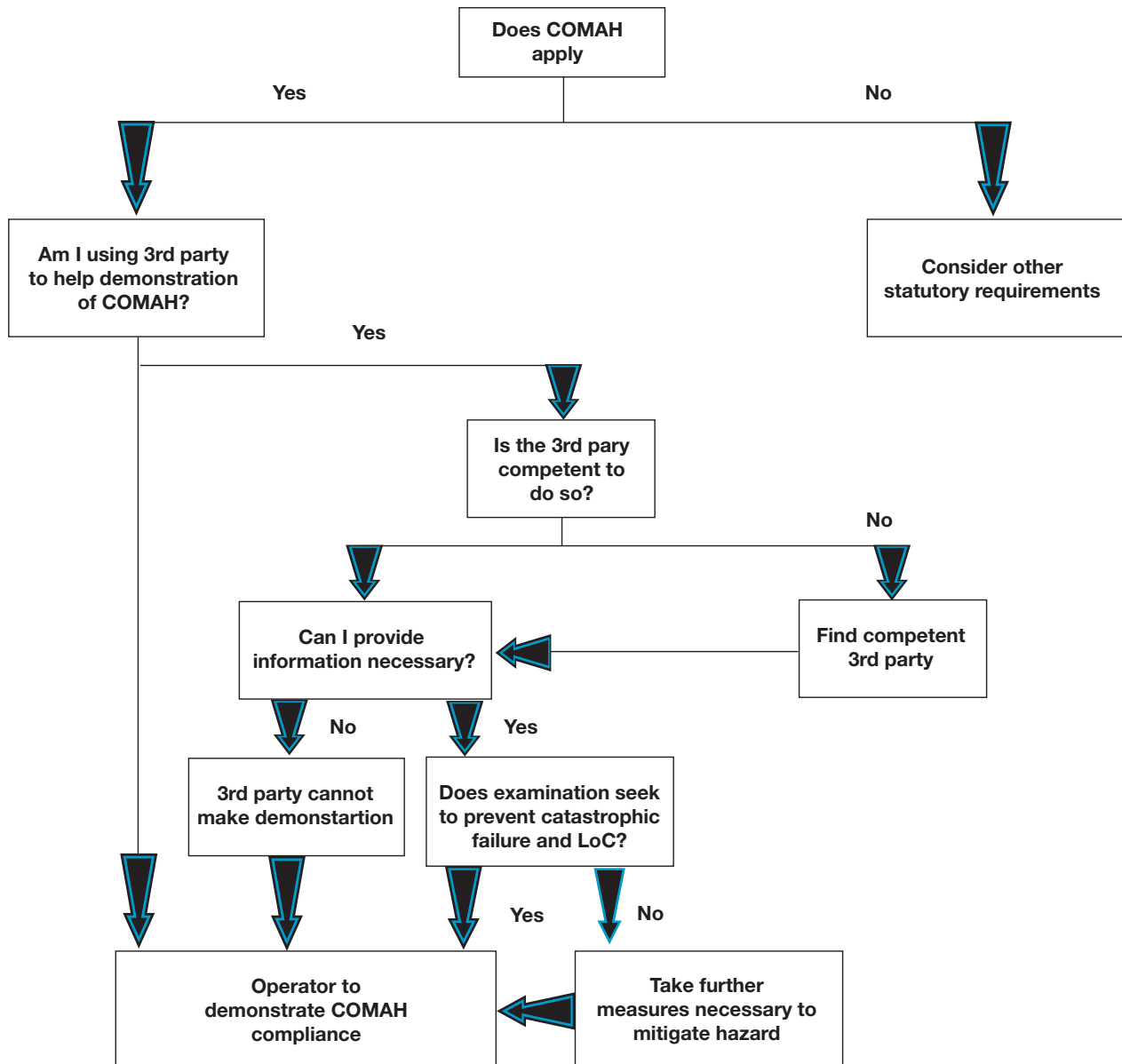
Provision of Information

Major hazard equipment and processes are often complex and can be affected by a range of degradation mechanisms. Knowledge of the plant and process as well as the vessel is necessary to assure that a suitable integrity management strategy is in place.

Where the COMAH Regulations apply, the third party should normally expect to be a member of a multi-disciplinary team with access to site specific information and process safety expertise. The third party should also expect to receive information on where the high risk elements are on site. The operator is responsible for providing all the necessary and current information and for ensuring COMAH equipment is identified and properly managed. It is reasonable for the third party to request information in order to carry out their duties. If the operator does not provide the necessary information then the third party will not be able to demonstrate COMAH compliance on the operator's behalf, the operator must then take further measures to remain COMAH compliant. Where information is not forthcoming it may be possible for the third party to develop or review an inspection regime using a precautionary approach. In such cases the third party must clearly state any assumptions underpinning the resulting inspection regime. An inspection regime developed through a 'precautionary approach' should ensure a fail safe position is adopted to account for missing information. This may involve extending the scope of the inspection to cover a wider range of degradation mechanisms than might otherwise be necessary.

In order to develop or review an examination and inspection regime under COMAH, the sort of information which should be made available includes: safety reports; risk assessments; process hazards/consequences; plant safety and integrity management arrangements; design specification and material selection philosophy; plant-specific operation, maintenance and inspection history. Any integrity management adopted should reflect the complexity of the plant and the potential severity of the consequences of failure.

Flow chart of Operator duties in relation to COMAH and the management of equipment integrity and in-service





Conclusion

As well as COMAH, other key legislation applies to COMAH sites and the management of equipment integrity including HSWA, PUWER and PSSR.

The operator is required to take all measures necessary to prevent major accidents on COMAH sites. This requirement cannot be delegated to a third party and remains with the Operator.

The Operator must ensure that any third party engaged is competent to carry out work related to securing COMAH compliance.

If a third party is contracted to address issues under COMAH they are acting as a competent person under HSWA. In this role they have duties under section 3 and 36 to ensure health and safety of others than their employees and to act appropriately in their role. This includes ensuring they are competent to carry out the role.

The cornerstone of compliance with COMAH is the availability of information with regards to plant and the effect that the processes can have on the ability of equipment to contain the hazardous substances reliably and consistently. If the third party is not supplied with adequate information to carry out their role, it would be reasonable for them to request this. For example, such information is essential in order that all relevant degradation mechanisms may be identified and addressed when developing or reviewing inspection regimes. If information is not forthcoming the third party should take a precautionary approach to develop or review an inspection regime.

If the competent person has carried out reasonable enquiries and notified the operator of any deficiencies which prevent or influence the development or review of an inspection regime, they will have discharged their duties under HSWA. The duty to comply with COMAH remains with the operator.

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