



EUROPEAN COMMITTEE of USER INSPECTORATES

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ECUI POSITION PAPER

In-service inspection of pressure equipment

Revised October 2007

Summary

In-service¹ inspection of pressure equipment is an activity performed in many industrial sectors across Europe. The European Committee of User Inspectorates (ECUI) is convinced that adoption of the “principles of a flexible approach” – as described in this ECUI Position Paper – would benefit European industry without detriment to safety. By following these ten principles, the intimate and more focused technical knowledge and experience of the User companies can be fully exploited.

The ECUI supports the implementation of flexible, goal-setting regulations that place the responsibility for the safe and proper operation of pressure equipment on the Users (owners or operators) of that equipment. These flexible, goal-setting regulations should be consistent across all Member States.

Therefore, ECUI urges that every opportunity should be taken to incorporate more flexible arrangements for inspection into in-service pressure equipment regulations. The proposal for the harmonization of in-service inspection regulations across EU Member States presents an opportunity to implement flexible arrangements for inspections into in-service pressure equipment regulations.

Introduction

During 1996-98, being aware of the approaching implementation of the European Pressure Equipment Directive (PED) and a consequent need for the national regulations of Member States to be amended, the ECUI regularly conducted amongst its member User Inspectorate (UI) organisations a comparative survey of current and evolving practices. Those relating to new equipment followed similar transpositions to those of the PED, but the practices relating to in-service equipment varied considerably - see below. Therefore ECUI produced this paper with the aim of improving the efficiency and effectiveness of in-service inspection of pressure equipment throughout the EU.

The paper has been periodically reviewed since its initial distribution in 1998 (most recently in October 2007), but no changes to the principles stated below have been found necessary, and there has been a perceptible, if perhaps timid, trend towards more flexibility in the application of the regulations. The paper has now been editorially updated, and is redistributed in view of the current interest in the proposed harmonisation of in-service regulations within the EU.

¹. Note: "In-service", in the context of this paper, means after formal, documented completion of the design, fabrication, construction, installation and commissioning stages.

Synopsis of findings

The findings of the original (1996-98) survey were later (2002) substantiated by a wider ECUI/Bayer study, since adopted by the Commission of the European Communities. These showed that the (then) various EU Member States had regulatory requirements for in-service pressure equipment in terms of the scope, nature and periodicity of inspections and the authorisation of Inspection Bodies (including UIs). Parameters upon which these regulations were based included: history, size and complexity of plant; pressure, volume, contained energy (PV) and temperature of equipment; and inspection and testing methods. The degree of flexibility allowed in the interpretation of these parameters varied considerably: in some countries much *de facto* responsibility was being taken by government authority through prescriptive requirements, which afforded little room for initiative; whereas in others a more flexible regime existed, which placed primary responsibility for safe management of the equipment, subject to safeguards, on the User.

During a thorough review of the flexible approach, it was noted that such a regime had been successfully in force in several Member States, in one case for nearly 20 years – where it had been popularly accepted by all parties involved: government, industry and Inspection Bodies. In other countries, more flexible approaches were being developed or investigated. The principles of a flexible approach are described below.

Principles of a flexible approach

1. The User of pressure equipment should be legally responsible for the safe and proper operation of the pressure equipment in accordance with applicable Regulations.
2. The User should be liable to surveillance by an appropriate government authority for compliance with the Regulations.
3. The Regulations should avoid detailed prescription and place emphasis on User responsibility, to be discharged via three distinct steps:
 - 3.1 Identifying the pressure equipment to be covered
 - 3.2 Formally planning the inspection of such equipment
 - 3.3 Completing the planned inspections.

The above steps, which are elaborated in the paragraphs below, involve two main parties: the User (owner or operator), and the *competent person* - see below.

Notes:

*A: A **competent person** (CP), in the context of a flexible approach, may mean an Inspection Body (IB) or an individual person. Depending on the risk level, the CP may be either a Type B or C Inspection Body to ISO17020 - "General Criteria for the Operation of Various Types of Bodies Performing Inspection", or an individual habilitated or authorized by the User.*

*B: **The steps** 3.1, 3.2 and 3.3 (above) should be regarded as separate activities, not necessarily to be carried out by the same CP.*

4. The User should identify and list the pressure equipment to which the Regulations apply. He may need to consult a CP when compiling this list.

5. The User should have a written, detailed *Inspection Plan* for each individual item of equipment – pressure vessel, heat exchanger, fired heater, piping circuit and so forth – stating the nature and frequency of inspections. Such plans, when combined, should form a complete plan for a particular process plant or part thereof.

6. The Inspection Plan should be drawn up with the help of the CP. It normally would be based on authenticated, recorded experience of the equipment concerned; would relate to recognised international or industry guidelines (for example see EN 13458-3 for the periodic inspection of Cryogenic vacuum insulated vessels); and would include a systematic, professional evaluation taking account of the likelihood and consequences of failure. The Inspection Plan may utilise established risk-based inspection (RBI) techniques.

7. Inspections under the plan should be undertaken by a CP.

8. The results of inspections should be properly recorded and reported by the CP. Such documentation should include details of any relevant subsequent action, recommendations for future action, and the date of the next inspection. Thus, the documentation should, *inter alia*, demonstrate compliance with Regulations.

9. Variations from the inspection plan should be made only via a technical justification, agreed in writing by the User and the CP, and should when required be notified in writing to the appropriate government authority.

10. The Regulations may place other obligations on the User – for example, related to:

- Actions (including reporting) to be taken in the case of dangerous incidents related to pressure containment. ECUI supports the introduction of an EU-wide open reporting system to encourage learning from incidents.
- Knowledge of safe operating limits.

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