PROCEDURE FOR WORKING ON PRESSURE SYSTEMS

OR

INSTALLING NEW PRESSURE SYSTEMS - MODIFICATIONS OR NEW INSTALLATION OF P.S.

CU43
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INTRODUCTION

General

This specification is intended to guide engineers, maintenance staff, designers, installers, consultants, main contractors or sub contractors undertaking this work on behalf of City University on the installation or modification to a pressure system on the City University site as defined by the Pressure Systems Safety Regulations 2000.

Additional advice can be obtained through the City University Contract Safety Coordinator.
DEFINITIONS GUIDANCE

A full copy of the Pressure Systems Safety Regulation 2000 can be obtained from the HSE or via the Internet.

Primary duty of compliance rests with the user in the case of fixed (installed) installations systems or on owners in the case of mobile systems. An exception occurs for leased installed systems where the owner is prepared to assume the users obligations under contract.

"Mobile System" means a pressure system which can be readily moved between and used in different locations but it does not include a steam locomotive. "Pipeline" means a pipe or system of pipes used for the conveyance of relevant fluid across the boundaries of premises, together with any apparatus for inducing or facilitating the flow of relevant fluid through, or through a part of, the pipe or system, and any valves, valve chambers, pumps, compressors and similar works which are annexed to, or incorporated in the course of, the pipe or system.

"Pipework" means a pipe or system of pipes together with associated valves, pumps, compressors and other pressure containing components and includes a hose or bellows but does not include a pipeline or any protective devices.

"Pressure Systems" - means:-

- a system comprising one or more pressure vessels of rigid construction, any associated pipework and protective devices.

- the pipework with its protective devices to which a transportable gas container is, or is intended to be, connected; or

- a pipeline and its protective devices.

which contains or is liable to contain a relevant fluid, but does not include a transportable gas container.

"Protective Devices" means devices designed to protect the pressure system against system failure and devices designed to give warning that system failure might occur, and includes bursting discs.

"Relevant Fluid" means:-

- Steam
  Any fluid or mixture of fluids which is at a pressure greater than 0.5 bar above atmospheric pressure, and which fluid or mixture of fluids is:-

  - a gas, or

  - a liquid which would have a vapour pressure greater than 0.5 bar above atmospheric pressure when in equilibrium with its vapour at either the actual temperature of the liquid or 17.5 degrees Celsius; or a gas dissolved under pressure in a solvent contained in a porous substance at ambient temperature and which could be released from the solvent without the application of heat.
Hint: to determine if the vapour pressure is greater than 0.5 bar above atmospheric pressure use Coulson and Richardson Volume 6, includes Physical Property Bank, use the Antione Equation. Rule of thumb, the liquids normal working point will be in the range 17-30°C.

"Competent Person" means a competent individual person (other than an employee) or a competent body of persons corporate or unincorporated; and accordingly any reference in these Regulations to a competent person performing a function includes a reference to his performing it through his employees.

"User" in relation to a pressure system, or a vessel to which regulation 5 applies, means the employer or self-employed person who has control of the operation of the pressure system or such a vessel.

City University and Pilot Plant Buildings and Refrigeration Plants will come under the regulation.

Hydraulic Systems do not come under the regulations.

Temporary pipework to test permanent installation do not come under the regulation.

All steam systems come under regulations. Other media is subject to vessel rule and pressure limitation.

Complex Systems can be split into smaller systems, providing the boundaries are clearly identified.

Systems containing multi fluid should be considered as one system.

Second hand plant purchased for installation should be "treated" as new equipment/installation.

Modifications and changes to existing system should be "treated" as new installations.

Regulations apply to Hot Water above 100°C - do not apply to temperature below 100°C.

Need to justify, by documentation, the reasons for excluding any system from the regulations.

Items of pressure equipment will be added to the City University Pressure Equipment Inspection Policy.

The competent person is referred to as ‘Engineer Surveyor’.

System with small amounts of stored energy - of less than 250 bar litres (P x V) are excluded - except for steam which is included for any size of system.

Fixed ‘Fire’ system are included in the Regulations (Compressed Gas Bottle).

Buried Underground Services.

Advice should be sought from City University’s Insurers on any “relevant fluid” contained in pipes buried in the ground. If routine access is difficult and it is impracticable to inspect the pipes, and the risk/hazard to people and assets is low, then it may be possible to relax the scheme of examination. For this to happen, both City University and their insurers have to agree and record
in writing the result of the HAZOP investigation and the decision to relax inspections under the written scheme of examination. (Reference H & S 1989 - No 2169 - Part V1 Paragraph 24-1).
PROCEDURE

Scope

This procedure covers all work undertaken by staff or contractors on a "Pressure System" as defined by "The Pressure Systems Safety Regulations 2000".

Modification to an Existing System

Responsibility of the Project Manager, items

Responsibility of the City University Contract Safety Coordinator, items

In the preparation of a CPA for the modification of an existing designated "Pressure System" the Project Manager or the Project Managers designated person will define the section(s) of pressure system to be modified in a clearly identifiable way which would normally be by taking the latest design and "As Built" drawings which are available for the section(s) involved and producing marked up drawings. Formal classification of the system type should be identified.

Following Hazard Study and CPA approval the Project Manager or the Project Managers designated person will have issued design drawings and mark these up from using as reference the reviewed drawings.

The Project Manager or the Project Managers designated person will notify the City University Contract Safety Coordinator of the intended modification and will issue drawings detailing the modification and which will specify the B.S. Code being worked to, welding procedures, valve schedules stress analysis, materials and construction specifications to the Statutory Inspections Controller for his forwarding to the City University Pressure Systems Inspecting Company. An order number for the Engineer Surveyors work may be required.

The Contract Safety Coordinator will assist in the approval from the Inspecting Company and issue written confirmation including any additional requirements that the Engineer Surveyor may require, to the Project Manager. The requirement of the insurers to inspect the works prior to the system being put into operation should be noted at this stage. The Project Manager or the Project Managers designated person is still responsible for gaining this approval.

The Inspecting Company’s Engineer Surveyor will produce or update the written scheme of examination for the installation which will be put on record by the City University Contract Safety Coordinator.

If the modification requires to be inspected by the Engineer Surveyor prior to the system being put into operation, the City University Project Manager will notify the inspector of the time and date of the inspection which will be given to the City University Contract Safety Coordinator by the Project Manager or the Project Managers designated person.

On completion of the modification, the Project Manager or the Project Managers designated person will issue the complete O&M documentation of the modification.

The Project Manager or the Project Managers designated person will organise for the signing off of the change control notices.
**Installation of a New System**

Following the first drafts of the system P&IDs, the Project Manager or the Project Managers designated person will decide, with reference to the definitions contained attached to this specification, if any new "Pressure Systems" are being introduced onto the site. If a new pressure system is to be added to the site then the Project Manager or the Project Managers designated person will notify the City University Contract Safety Coordinator who will notify the Inspecting Company of the proposed installation and who the Project Manager is. Formal classification of the system type should be identified.

The Inspecting Company will make contact with the Project Manager to discuss the project and with the use of available drawings make the Project Manager aware of any assistance they can offer and confirmation of the Inspecting Company's/Engineer Surveyors requirements.

Following Hazard Study and CPA approval, the Project Manager or Project Managers designated person will notify the Contract Safety Coordinator of the intended new installations details and will issue drawings, vessel certification, certificate of conformity, test certificates, welding procedures, valve schedules stress analysis, and materials of construction specifications to the City University Contract Safety Coordinator for his forwarding to the City University Pressure Systems Inspecting Company. An order number for the Engineer Surveyors work may be required.

Before inspection the Project Manager or the Project Managers designated person will forward to the City University Contract Safety Coordinator all pressure test certificates and obtains the Certificates of Conformity "CE".

The City University Contract Safety Coordinator will assist in the approval from the Inspecting Company and issue written confirmation including any additional requirements that the Insurers may require, to the Project manager. The requirement of the insurers to inspect the works prior to the system being put into operation should be noted at this stage. The Project Manager or the Project Managers designated person is still responsible for gaining this approval.

The Inspecting Companies Engineer Surveyor will produce an update the written scheme for the installation which will be put on record by the City University Contract Safety Coordinator.

The City University Contract Safety Coordinator will generate folder/s for the filing of the information of the new system.

The Project Manager or the Project Managers designated person will inform the Contract Safety Coordinator of the date of inspection for the Company Insurers.

The City University Contract Safety Coordinator will notify the Engineer Surveyor’s of the date of inspection.
## REVISION HISTORY

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