The University of Surrey Pressure Systems Policy	
Operational Owner:	Director of Health and Safety
Executive Owner:	Chief Operating Officer (COO)
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Related documents:	Piped Compressed Gas Systems attached to Gas Cylinders and Stand-Alone Compressed Gas Cylinder Installations Policy Health and Safety Policy

Approval History

Version	Reviewed by	Brief reason for review	Approved by	Date
1.0	Health And Safety	New Policy	Health and Safety Consultative Committee	15th June 2021

1 Introduction

1.1 Purpose

1.1.1 This Policy establishes the framework for the effective risk management of using and maintaining pressurised systems for the University of Surrey which includes:

a) The design and installation of pressurised systems and facilities.
b) Identifies the roles and responsibilities for all faculties and departments who are responsible for pressurised systems.
c) The roles of staff, students and others who will use or work on these systems.
d) Notes the key legal and compliance requirements specified in the relevant health and safety legislation and supporting guidance.

1.1.2 The purpose of this Policy is to prevent any injury to persons and or damage to property resulting from the system failure or misuse of pressure systems.

1.2 Scope

1.2.1 This Policy applies to all staff, students, contractors, and visitors who are either controlling, using or that could be affected by pressurised systems used at the University of Surrey.

1.2.2 This Policy applies to all premises and equipment under the control of the University of Surrey, including outdoor spaces.

1.2.3 There will be a range of pressure systems in use throughout the University of Surrey, in Appendix 1 there is a list of the most common examples of qualifying pressure systems that could be used or owned by University of Surrey, this list is not exhaustive.

1.2.4 In recognition of its statutory duties to comply with the PSSR 2000 and its Approved Code of Practice (ACOP), this Policy is not designed to replace detailed, technical guidance from relevant associations, but defines pressure systems, details roles and responsibilities, organisational arrangements, and the required information needed for the users of pressure systems.

1.2.5 This document does not include aspects of piped compressed gas systems attached to gas cylinders and standalone compressed gas cylinder installations, as they are detailed in its own policy, however they must still adhere to this overarching policy in relation to duties and requirements of pressure systems. Piped compressed gas systems attached to gas cylinders and standalone compressed gas cylinder Installation's policy can be found at piped-compressed-gas-systems-policy.pdf (surrey.ac.uk).

1.3 Definitions

1.3.1 A pressure system is:

- Any system comprising of one or more pressure vessels of rigid construction, their associated pipework, and protective devices.
- The pipework with its protective devices to which a transportable pressure receptacle is or is intended to be connected.
- A pipeline and its protective devices, which contain or are liable to contain a relevant fluid but does not cover transportable pressure receptacles.

1.3.2 A relevant fluid is:

- Steam at any pressure.
- 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— (i) a gas, or (ii) 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.
- 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.

1.3.3 Definition of pipeline and pipework:

- A 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.

1.3.4 The term protective device means any device fitted to pressure systems that are designed to protect the pressure system against system failure, or devices designed to give warning that system failure might occur, which also includes bursting discs.

1.3.5 Definition of Installed and mobile pressure systems:

- The term installed system" means any pressure system other than a mobile system.
- The term mobile system means a pressure system which can be readily moved between and used in different locations.

1.3.6 The term competent person means a competent individual person (other than an employee) or a competent body of persons corporate or unincorporated, who's has responsibilities under regulations 8 and 9 of Pressure Systems Safety Regulations 2000 (PSSR 2000).

1.3.7 The term danger in relation to a pressure system means reasonably foreseeable danger to persons from system failure, but (except in the case of steam) it does not mean danger from the hazardous characteristics of the relevant fluid other than from its pressure.

1.3.8 The term system failure means the unintentional release of stored energy (other than from a pressure relief system) from a pressure system.

1.3.9 The term Written Scheme of Examination as established in regulation 8 of PSSR 2000, refers to the careful and critical scrutiny of a pressure system or part of a system, in or out of service,

using suitable techniques, including testing where appropriate, to assess:

- It's actual condition.
- That for the period up to the next examination, it will not cause danger when properly used if normal maintenance is carried out, and for this purpose "normal maintenance" means such maintenance as it is reasonable to expect the user (in the case of an installed system) or owner (in the case of a mobile system) to ensure is carried out independently of any advice from the competent person making the examination.

1.3.10 The term construction work means the carrying out of any building, civil engineering or engineering construction work and includes the installation, commissioning, maintenance, repair, or removal of mechanical, electrical, gas, compressed air, hydraulic, telecommunications, computer or similar services which are normally fixed within or to a structure.

2 Policy

2.1 Principles

2.1.1 The University will ensure that all pressure systems as defined by this Policy are adequately managed and maintained to reduce the risk of danger occurring from system failures and or misuse.

2.1.2 The University will:

- Ensure that all pressure systems are adequately designed, installed, maintained, and modified by qualified, skilled, and knowledgeable persons to relevant British Standards and in accordance with relevant legislation.
- Appoint a Duty Holder in Estates Facilities and Commercial Services (EFCS) who will authorise any construction work, which will involve the installation or modification of any pressure systems that are considered part of a building's infrastructure, including but not limited to pipelines, protective devices, and associated plant.
- Appoint Duty Holders, Responsible Person(s) and Deputies within each School/Department to ensure compliance with this policy.
- Ensure all pressure systems and equipment are designed and manufactured from suitable materials and to appropriate standards.
- Fit suitable protective devices and ensure they function correctly, making sure that, where fitted, relief valves discharge to a safe place.
- Appoint appropriate Competent Person(s) to ensure that, where required, Written Schemes of Examination are in place and undertaken before the system is used for first time, if modified, and then within the specified timescale as defined in the Written Scheme of Examination for each pressure system.
- Ensure that no qualifying systems are operated without clear and detailed safe operating limits and procedures in place, ensuring a suitable system is established for recording and retaining this information, including updating this information when there are changes made to the pressure systems.
- Appoint in writing a qualified, knowledgeable, and skilled Authorising Engineer (Pressure Systems) to manage and monitor compliance with PSSR 2000 and who will manage pressure system related works in relation to the EFCS permit to work system.

- Ensure that there is a University wide pressure systems asset register that will be continually maintained and updated.
- Ensure that all pressure systems are adequately maintained providing the resources to upkeep these systems in accordance with PSSR 2000, ACOP and The Provision and Use of Work Equipment Regulations 1998 (PUWER 1998) requirements.
- Ensure that all reasonable risks associated with use, maintaining, installation, modification and decommissioning of any pressure systems are adequately assessed and controlled.
- Ensure that effective management processes are in place for pressure systems, and that there is a robust justification process in place for transportable gas cylinders used in laboratories and work areas.
- Ensure appropriate user checks are undertaken and recorded.
- Ensure that all those using and working on pressure systems are adequately skilled and trained to do so.
- Ensure that all relevant information and instructions have been given to those managing, using and or working on any pressure system used by the University of Surrey.
- Ensure there is a system in place for the auditing and review of pressure system compliance in relation to the requirements of this Policy and PSSR 2000.

2.2 Policy Procedures

2.2.1 Ownership.

The University, as an employer has accepted and ensures the fulfilment of all its statutory duties to its employees and others who may use or access its premises. Key personnel have documented functional and professional responsibilities within this Policy for ensuring that all university pressure systems are managed and operated safely.

2.2.1.1 Duty Holders

The Director of EFCS is the recognised owner of all pressurised systems that are considered to be a part of a buildings fabric, services, and essential infrastructure, including but not limited to pipelines, plant equipment and protective devices. Heads of Schools/Directorates/Departments are the owners for any pressure systems that they may design, manufacture, purchase, install and use within their areas of responsibility, that are not deemed to be under the ownership of the Director of EFCS.

2.2.1.2 Rented Equipment

Where any pressure systems are rented from an external source, the University will not be the recognised owner and all owner responsibilities as defined within PSSR 2000 will fall to the rental company. The exceptions to this, is when as part of the rental agreement we have taken on ownership responsibilities or if the rental company has no place of business or a representative in Great Britain, then the University will then be the recognised owners of these items, which will then come under the responsibility of the Duty Holder that engaged in the rental. Any Duty Holder and or their nominated staff member who engaged in the rental of any pressure system, will still be required to fulfil all user responsibilities as defined within PSSR 2000 (see Appendix 5).

2.2.2 Design, Installation And Modification

All pressure systems shall be designed, manufactured, and installed to be safe and without undue risks to health and safety. Adequate documentation shall be provided to the user to ensure that the system can be maintained and operated safely and without risk to health.

When planning installations or modifications to systems, Duty Holders, or their delegated Responsible Person(s) or Deputies, including the Authorising Engineer (Pressure Systems) for Capital Works, will ensure that all pressure systems fitted are in accordance with relevant standards and that the required new installation or modification checks are carried out (see Appendix 5). All modifications or changes to existing installations should only be conducted, if sufficient risk assessment has been done adhering to manufacturers recommendations, specifying all control measures or work methods required to conduct work safely. All associated drawings, inspection and testing documents should be created or updated by the systems designer and given to the Authorised Engineer (Pressure Systems) and the Responsible Person(s) or Deputies who manage the pressure system on completion of the installation or modification. All new installations or modifications to existing pressure systems must have a Written Scheme of Examination or an existing Written Scheme amended to suit the modified system, which must be undertaken by a Competent Person. Any new or modified qualifying pressure system must be inspected by a Competent Person on completion or before the system is used for the first time.

2.2.3 Safe Operating Limits and Documentation

2.2.3.1 Documentation

Where a Duty Holder, Authorised Engineer (Pressure Systems), designated Responsible Person(s) and/or Deputies accept a pressure system (brought or rented), they must accept the system on behalf of the University of Surrey and ensure that all required documentation is handed over to their control (see Appendix 5). If this documentation is missing or incomplete, then the pressure system must not be accepted. If these systems are built within the university, then it is the responsibility of the Duty Holder, Authorised Engineer (Pressure Systems), designated Responsible Person(s) and Deputies who constructed these systems to create all the required documentation as required in regulation 14 of PSSR 2000 ACOP (see Appendix 5).

Any pressure system purchased, built, rented, or modified by the University must be registered with the Authorised Engineer (Pressure Systems) and added to the pressure systems asset register, with all required documentation being supplied. The Authorised Engineer (Pressure Systems) and each School/Department Responsible Person(s) (including Deputies) are responsible for maintaining the documentation for pressures systems that they are responsible for, ensuring all documents are available for review by Competent Person(s), maintenance engineers and the Health and Safety Executive (HSE). All documentation must be retained and made available for auditing purposes and for future transfer of the pressure systems to a new owner or user.

2.2.3.2 Safe Operating Limits

The safe operating limit for a pressure system will depend on the complexity and operating conditions of the particular system, but must include a suitable margin for error, beyond which system failure will occur. A suitable system for recording and retaining information about safe operating limits and any changes to them should be produced and maintained.

Where a standard system is installed, the designer/manufacturer should have assessed the safe operating limits of the system or parts and pass this information to the Authorised Engineer (Pressure Systems), the designated Responsible Person(s) and/or Deputies.

In cases where the University of Surrey has specified the design or built a pressure system in house, then the responsibility for establishing safe operating limits sits with the Authorised Engineer (Pressure Systems), the appropriate Responsible Person(s) and or Deputies who authorised the installation of the pressure system. If the required expertise or knowledge to establish safe operating limits is not available within the University, then advice will be sought from appropriate external bodies, which may include the University's appointed Competent Person(s) or appropriately qualified specialist engineers from other external companies.

Information (including updates) relating to safe operating limits on new installations and changes to safe operating limits for existing pressure systems due to modifications, repairs and or from examinations. must be sent to the Authorised Engineer (Pressure Systems) for recording on the University's pressure system register. It is also the responsibility of the School/Department Responsible Person(s) and/or Deputies, and the Authorised Engineer (Pressure Systems) for EFCS owned systems, that all safe operating limits including changes are clearly marked on the pressure systems and that it is recorded in all local documentation, including user guides, user induction information, and other safe systems of work information.

2.2.4 **Written Scheme of Examination**

A certified Written Scheme of Examination will be carried out and available for all qualifying pressure systems owned by the University. The University will ensure that each Written Scheme of Examination is sufficient; however, advice may be sought from appropriate internal staff like the Authorised Engineer (Pressure Systems) or sources external to the university like a recognised Competent Person(s). All Written Schemes of Examination will be reviewed at the point of each examination to ensure they are still sufficient. The Competent Person(s) will specify the nature and frequency of examinations and any special measures needed to prepare the system for examination.

No qualifying pressure systems shall be operated without a Written Scheme (see exemptions section 3.2.1, Appendices 1, 2 and 3), outside the scope of safe operation or beyond the further examination date identified on the current examination report for the pressure system. It is illegal to operate a (non-exempt) pressure system without a Written Scheme of Examination and to operate a pressure system that has not been examined by a Competent Person. Where an amendment or change of a pressure systems examination date is required or warranted, this must be approved in advance and in writing by a Competent Person.

The extent of examination for each system will be clearly outlined within its Written Scheme of Examination (see Appendix 4). The University's Competent Person(s) in consultation with the University's Authorised Engineer (Pressure Systems) and Responsible Person(s), will ultimately decide which systems require inspection and examination under the PSSR 2000.

2.2.5 **Reporting**

2.2.5.1 **Pressure Systems Annual Report**

The Authorised Engineer (Pressure Systems) will be responsible for compiling an annual report on the University's pressure systems including its management, compliance with this Policy and PSSR 2000, including any pressure systems related safety incidents, which will be sent through to EFCS Compliance Management Group for review.

2.2.5.2 **Escalation Process as a Result of Defects from Safety Inspections or Examinations**

In the event that there is a defect to any part of a pressure system that affects the safety of the operation, the following escalation process will occur:

- The Competent Person(s) will issue a notice of defect with a required timescale to correct defects recorded. If it is a serious defect that could result in imminent danger, the Competent Person(s) will immediately withdraw the pressure system from use, locking off and making safe as needed, informing local users (if present) and relevant Responsible Person(s) or Deputies indicating the required actions to remedy the fault. Appropriate reports will be issued to relevant bodies following the inspection.
- Where user inspections or authorised maintenance work has been conducted and found a fault with the pressure system, which is deemed to be dangerous, the operators will immediately take the equipment out of use using appropriate locking off procedures. They should contact their Schools/Departments Responsible Person(s) or Deputies and or EFCS the Authorised Engineer (Pressure Systems). The Responsible Person(s), Deputies or Authorising Engineer (Pressure Systems) will then organise required works or examinations notifying the Competent Person(s), if required.
- It is the responsibility of the Schools/Departments Responsible Person(s), Deputies or Authorised Engineer (Pressure Systems) to inform local users and Duty Holder of a shutdown and what pressure systems will be affected. They will be required to put mitigations in place to reduce impact to business-critical activities, if needed.
- The pressure system will only be returned to use following completion of repairs to the satisfaction of the Competent Person(s), Responsible Person(s) and Deputies, Authorised Engineer (Pressure Systems) and/or relevant Duty Holder.

2.2.5.3 **Responsibilities as a Result of Explosions and Dangerous Occurrences**

In the event of either an explosion or dangerous occurrence involving a pressure system, the incident will be handled in accordance with the University of Surrey's Incident Management Plan, be investigated by the Central Health and Safety Team and the affected Faculty's Health and Safety Advisor. All serious incidents concerning pressure systems must be reported to the Health and Safety Executive within twenty-four hours of the incident occurring (see flow chart Appendix 6).

2.2.6 **Training, Information, and Instructions**

The University will ensure that all staff are appropriately qualified and trained to the level required for the different roles and levels of responsibility for the pressure systems in use across

the University of Surrey. Training, information, and any instructions will be supplied in a range of formats according to specific needs of the users or those working on the systems.

Contractors and companies engaged to work on university owned pressure systems will be required to prove and demonstrate appropriate training levels and experience before undertaking any work on site. The University will inform all contractors of the health and safety procedures on site, including any specific information and measures in relation to the pressure system and safe systems of work in place, including the requirements of the EFCS permit to work system.

2.3 Roles and Responsibilities

2.3.1 Director of Health and Safety

The Director of Health and Safety is responsible for:

- The provision of advice and guidance on the application of the legislative requirements.
- Where necessary, liaising with the enforcement authorities. Ensuring that pressure system related incidents are appropriately investigated and, where necessary, reported under RIDDOR.
- Monitoring compliance with the requirements of this Policy.

2.3.2 Director of Estates, Facilities and Commercial Services (EFCS), Duty Holder

The Director of EFCS is responsible for, or must provide adequate resources to ensure:

- The correct installation, management, maintenance, and inspection of all pressure systems that are owned and used by the University of Surrey, that are considered part of the buildings fabric, services, and essential infrastructure.
- Authorise installations of pressure systems that come under the term 'construction work', in accordance with the University's Management of Contractors Policy.
- The appointment of Competent Person(s) as defined within this Policy, ensuring that those engaged have necessary qualifications, experience, and skills to undertake this role, considering the variety of pressure systems used across the University.
- The appointment, in writing, of an Authorising Engineer (Pressure Systems) with responsibility to manage EFCS pressure systems, administer and monitor pressure systems at the University.
- Advising Faculties/Departments of EFCS managed inspection and maintenance schedules in a timely manner.
- Keeping all records with regards to installation, inspection and maintenance of the pressure systems and maintain a University pressure system asset register.
- Supply a copy of inspection documentation to the respective Faculties for their pressure systems. Advising in a timely manner any defect highlighted within routine examinations or other inspections carried out by the Competent Person(s).
- To ensure that any incidents involving pressure systems are investigated and reported as required in consultation with the Director of Health and Safety.

The Director EFCS should seek advice and, where appropriate, delegate these responsibilities to the Head of Projects and Maintenance Services and the Authorised Engineer (Pressure Systems).

2.3.3 **Head of Projects and Maintenance Services**

The Head Projects and Maintenance Services is responsible for, or must provide adequate resources to ensure:

- Risk assessments for pressure systems under EFCS control are in place, periodically reviewed, and risk controls implemented.
- A planned preventative maintenance programme is in place for all EFCS owned pressure systems.
- Safe systems of work and procedures are in place for pressure systems, that they are followed and reviewed.
- Any permit to work requirements that involve pressures systems are clearly understood and followed, including within the Faculties.
- Line management of the appointed Authorised Engineer (Pressure Systems), ensuring, that this individual has sufficient experience, knowledge, and competence to undertake this role.
- All EFCS staff members and contractors engaged to work on pressures systems are competent and qualified to do this work.
- The requirements of this Policy are considered within any capital works at the project design stage.

The Head of Projects and Maintenance Services can delegate certain tasks to appropriate knowledgeable, skilled, and competent EFCS staff, notably the Authorised Engineer (Pressure Systems).

2.3.4 **Heads of Schools/Directorates/Departments, Duty Holders**

Heads of Schools/Directorates/Departments are responsible for, or must provide adequate resources to ensure the:

- Appointment, in writing, of appropriate Responsible Person(s) and Deputies to ensure compliance to this Policy.
- The development and regular review of a pressure systems management plan for their, School or Department, which outlines PSSR management arrangements, and the roles and responsibilities of staff.
- All pressure systems that are designed, manufactured, purchased, installed, and used by their School/Department in accordance with this Policy and reported to EFCS Authorised Engineer (Pressure Systems) for recording in the University's pressure systems asset register.
- All qualifying pressure systems under their ownership have all required documentation, including a Written Scheme, and are examined by a Competent Person(s).
- Approval of pressure systems exemptions (see Section 3.2.1) based on advice from knowledgeable persons (Faculty Health and Safety Managers/Advisors, Authorised Engineer (Pressure Systems) and or Competent Person(s)).
- All staff within their School/Department are trained and instructed on pressure systems to an appropriate level, based on their level of responsibility and use of pressure systems.
- Safe systems of work are in place including all required instructions to safely inspect, maintain and operate all pressure systems under their ownership.
- All pressure systems and work involving pressure systems have been risk assessed and risk controls implemented.

- Before work commences, obtaining approval from the Director of EFCS for any installations and modification to existing installations that will come under the term construction work or that are a part of a building's fabric, services, and essential infrastructure, or involving any pressure systems deemed under the Director of EFCS ownership.
- Any incidents involving pressure systems are reported in accordance with the requirements of this Policy

The Head of School/Directorates/Department may delegate day to day responsibilities to appointed Responsible Persons (and their deputies).

2.3.5 **School/Department Responsible and Deputy Responsible Person(s)**

For pressure systems under their control, Responsible Persons and their Deputies are responsible for:

- Implementing a preventative maintenance contract and ensuring that all contractors engaged are qualified for such maintenance work.
- All pressure systems are designed, manufactured, purchased, installed and or used in accordance with requirements of this Policy. This will include the completion of installation or modification checks and reporting of the pressure system to the Authorised Engineer (Pressure Systems) for inclusion of the pressure systems asset register.
- Risk assessing pressure systems under their responsibility, reviewing these assessments regularly or when there is a significant change.
- Facilitating access for Competent Person(s) to any pressure systems on the agreed upon dates organised through the Authorised Engineer (Pressure Systems), ensuring all pressure systems are prepared, as required, for the examination.
- Ensure all pre-use, weekly and monthly checks of pressure systems are carried out, recorded, and signed off to confirm these have been completed.
- Ensuring that any faults with pressure systems are rectified within the time period prescribed by Competent Person(s) or service contractor. Ensuring if a pressure system is deemed as unsafe, that it is appropriately locked off and communicated to all relevant parties as out of use. If needed, organise any alternative measures to ensure business critical works can safely proceed.
- Liaising with the Authorised Engineer (Pressure Systems) to ensure all qualifying pressure systems have a Written Scheme and are examined within the time frames specified within the scheme.
- Liaising with the Competent Person(s) for any pressure systems that are believed to be exempt which will be signed off by the relevant Duty Holder (see section 3.2.1), record and rationale for exception should be noted in University's pressure system asset register.
- Informing and training all users in how to use pressure systems safely, organising pressure system and gas safety awareness courses prior to allowing staff to use these systems.
- Producing safe systems of work, including adherence to other procedures such as the EFCS permit work system. Ensuring that all pressure systems have the required instructions and safe operating limits clearly displayed.
- Maintaining all required documentation, including the updating of any information relating to change in pressure systems operation, design, and safe working limits.
- Immediately reporting any incidents involving pressure systems to Central Health and

Safety Team and assisting with the investigation if needed.

All appointed Responsible Persons and Deputies must have completed a pressure and gas safety awareness course or have an equivalent qualification, experience, or knowledge.

2.3.6 **Authorised Engineer (Pressure Systems):**

The Authorised Engineer is responsible for:

- Keeping updated with any changes in relevant regulations, standards, and industry guidelines, including updating relevant stake holders of these changes (i.e. Duty Holders, Responsible Persons and Deputies, Authorised Skilled Maintenance Persons and the EFCS Compliance Management Group).
- Ensuring Authorised Skilled Maintenance Personnel are trained to required level and that their skills and knowledge are checked before being approved to work on pressure systems. Conducting assessments of pressure systems skilled staff every three years, to ensure they are capable of performing work safely. Maintaining the records for any training and assessments carried out.
- Assessing the competency of any Authorised Skilled Contractors engaged by EFCS, assessing their qualifications and skill set before being approved to work on any pressure systems under ownership of EFCS Duty Holder.
- Maintaining the EFCS master compliance spreadsheet for pressure systems, bringing to the attention of the Director of Health and Safety, relevant Duty Holders, and the Compliance Management Group any emerging risks.
- Maintaining the University's pressure systems asset register including recording any changes to safe operating limits.
- Being the point of contact for any audit requirements.
- Producing an annual report on pressure system compliance to the EFCS Compliance Management Group.
- Organising pressure systems awareness training for EFCS staff and for other staff within Faculties as requested by School/Department Responsible Person(s) or their Deputies.
- Organising the City & Guilds Level 3 – Gas & Pressure Systems training (or equivalent) for nominated Authorised Skilled Maintenance Persons.
- Providing advice and guidance to Duty Holders and other staff members on pressure systems that are part of buildings infrastructure including, but not limited to, plant and pipelines and safety devices.
- Being the point of contact for the University's Competent Person(s) and the School/Departments Responsible Person(s) and their Deputies.
- Consulting with the Competent Person(s) for any EFCS owned and used pressure systems that are believed to sit under the exemption criteria (section 3.2.1); this must be recorded, and rationale noted for exemption in the University's pressure system asset register.
- Arranging with the Competent Person(s) the development of Written Schemes and required examinations for all pressure systems owned by the University. This Includes liaising with School/Department Responsible Person(s) and/or Deputies to develop these schemes and to ensure access to required locations.
- Ensuring that all EFCS owned pressure systems are shutdown, depressurised, locked off and made available to Competent Person for any examination, informing any impacted stakeholders in advance of the examinations.

- Ensuring that any faults with EFCS pressure systems are rectified within the time scale prescribed by Competent Person(s) or service contractor. Ensuring if a pressure system is determined as unsafe, that it is appropriately locked off and communicated to all relevant parties as out of use. If needed, organise any alternative measures to ensure business critical activities can safely proceed.
- Producing safe systems of work and procedures for all pressure systems under ownership of EFCS, including assessing and authorising permits to work in relation to pressure systems.
- Immediately report any incidents involving pressure systems to the Central Health and Safety Team and the Director of EFCS.

An Authorised Engineer for pressure systems must be certified to JSP 375 Volume 3 Chapter 4, MOD UK, or equivalent. Boiler & Pressure Systems Certified, HSG 253 Safe Isolation of Equipment or equivalent and required to keep themselves qualified by doing appropriate refresher training.

2.3.7 **Authorised Skilled Maintenance Persons (Pressure Systems)**

All Authorised Skilled Maintenance Persons (Pressure Systems) must:

- Follow all procedures, safe systems of work and operating instructions in place for pressure systems, including the requirements of EFCS permit to work system.
- Only carry out work on pressure systems if they have been authorised to do so by the Authorised Engineer (Pressure Systems), who has determined them as competent. They will have received instruction and training to such a degree that they possess the skills and knowledge to carry out the task safely, and only use the tools and equipment for which they have been trained.
- Report to the Authorised Engineer any defects, faults, or any conditions they think are un-safe, or are likely to become so. Where any plant or part of a pressure system has developed a fault or malfunctioned, efforts should be made to make this safe, providing this does not put the employee in any danger.

All Authorised Skilled Maintenance Persons working on pressure systems must have at least City & Guilds Level 3 – Gas & Pressure Systems qualification or equivalent qualifications, experience, or knowledge.

2.3.8 **Authorised Skilled Contractors (Pressure Systems)**

All Authorised Skilled Contractors (Pressure Systems) must:

- Follow all procedures, safe systems of work and operating instructions in place for pressure systems including the requirements of EFCS permit to work system.
- Only carry out work on pressure systems if they have been authorised to do so by the Authorised Engineer (Pressure Systems) or the School/Department Responsible Person(s) or their Deputies, who have determined them as competent. They will have received all necessary instruction and information so as to carry out the task safely.
- Report to the Authorised Engineer (Pressure Systems) or the School/Department Responsible Person(s) or their Deputies any defects, faults, or any conditions they think are un-safe, or are likely to become so. Where any plant or part of a pressure system has

developed a fault or malfunctioned, efforts should be made to make this safe, providing this does not put the contractor in any danger.

All Authorised Skilled Contractors (Pressure Systems) working on pressure systems must have at least City & Guilds Level 3 – Gas & Pressure Systems qualification or equivalent qualifications, experience, or knowledge.

2.3.9 **Competent Person/s**

Competent Person/s engaged by the University will be required to:

- Review all existing Written Schemes of Examination and confirm whether they are sufficient after the examination of all qualifying pressure systems.
- Write and develop any new Written Schemes of Examination for new, built, or modified pressure systems.
- Review all recorded operating limits for pressure systems at the time of each examination and report any issues to appropriate Responsible Person(s), their Deputies and to Authorised Engineer (Pressure Systems).
- Conduct all examinations for pressure systems in accordance with the Written Schemes of Examination and produce a written report for each examination, to be provided to the University within 28 days of the examination.
- Notifying the user/owner of any repairs required, issuing a notice of defect before leaving site which require a qualified repair.
- Respond where there is imminent danger, providing a notice of defect and acting to make safe in all such cases, providing a formal report to the University, HSE and or local authority within 28 days of examination.
- Agree postponements of examination in writing, where required.
- Advise the University of other matters relating to pressure system regulations. In such circumstances, a Competent Person would be acting solely as an advisor, rather than a Competent Person as defined.

A Competent Person can perform one, some or all of these duties. The University can also engage the services of more than one Competent Person to cover different types of pressure systems used by the university.

Bodies holding United Kingdom Accreditation Service (UKAS) accreditation to BS EN 17020:2004 or equivalent accreditations for the scope of in-service inspection of pressure equipment, can provide competent persons meeting the appropriate criteria to perform this role.

2.3.10 **Users: Approved Staff, Students and Visitors**

User are required to:

- Read and comply with all requirements of any risk assessments, operating procedures, and safe systems of work for any pressure system they are using.
- Conduct and record any user/pre-use checks required.
- Must only use pressure systems that they have been trained to use or been approved to use by the Authorised Engineer (Pressure Systems) and/or the appropriate

School/Department Responsible Person(s) or their Deputies.

- Use pressure systems for purposes that they are designed for and are not to make any unauthorised changes or modifications to systems without prior approval, approval will need to be gained in writing from either the School/Department Duty Holder, or the Authorised Engineer (Pressure Systems) if the modification is to part of or affects a pressure system under the ownership of EFCS.
- Participate in all required training, including any refresher training as requested by a School/Department Responsible Person(s), their Deputies and/or the Authorised Engineer (Pressure Systems).
- Report any shortcoming in the health and safety arrangements to the School/Department Responsible Person(s), their Deputies or the Authorised Engineer (Pressure Systems), even when no immediate danger exists.
- Report any incidents concerning pressure systems to the Faculty Health and Safety advisors or to the Central Health and Safety team.

All users of pressure systems must complete basic pressure systems and gas safety awareness courses before being an approved user.

2.3.11 **EFCS Compliance Management Group**

The purpose of the Group is to contribute to the development and direction of health and safety compliance management across the University Estate. The Group monitors health and safety performance in respect of defined compliance areas, including pressure systems, and provides a forum for obtaining input from relevant departments on such compliance matters.

The Terms of Reference of the Group can be viewed here.

3 Governance Requirements

3.1 Implementation / Communication Plan

3.1.1 This Policy is communicated via the University's website via the policy webpage**.** Relevant training/information will be provided to all staff involved with the use, management or maintenance of pressure as defined by PSSR 2000. This Policy and other relevant information are also published on the University Health and Safety intranet site and is referenced in Health and Safety Handbook.

3.1.2 Schools/Departments/Directorates will be responsible for complying with the requirements set out within this Policy. They should set out clearly what processes are in place, with specific procedures and clear roles and responsibilities recorded and disseminate to all staff under their remit.

3.2 Exceptions to this Policy

3.2.1 For a comprehensive list of exemptions or partial exemptions to PSSR 2000 requirements see Schedule 1 (parts I and II) of PSSR 2000 ACOP or please refer to Appendix 2 and 3.

Acceptable exemptions can be given where:

- The pressure system is the subject of a research experiment comprising of temporary apparatus used within the experiment.
- Where It is not reasonably practicable to comply with the relevant regulations.

3.2.2 Partially exemptions to parts of PSSR 2000 regulations are allowed for very small pressure vessels, where the product of the internal volume and pressure of the vessel is less than 250 bar litres, unless the relevant fluid in question is steam. However, they must conform to other parts of the regulations, such as the need to be maintained and inspected.

Any exemption from a Written Scheme of Examination does not mean that that an annual examination by a Competent Person(s) is not required. These examinations are also often a requirement of the University's insurers. These exemptions do not remove other statutory responsibilities set out in PSSR 2000 or other health and safety legislation, for example the requirements of PUWER 1998 and HSWA 1974 still remain, where adequate precautions must be taken to protect all personnel and ensure the system is always in a safe condition.

Any exemptions for a pressure system will need to be approved by appropriate Head of School/Department or for EFCS the Authorising Engineer (Pressure Systems). An exemption should be given only after relevant personnel have been consulted which may include Faculty Health and Safety Advisors, members of the Central Health and Safety Team, Authorised Engineer (Pressure Systems) and the Competent Person(s). Whilst research may require equipment to be designed from new or in temporary use, once the system is brought into regular use, it must have a Written Scheme developed and an examination undertaken. All exemptions must be approved and rationale for exemption must be noted on the University's pressure system asset register.

3.3 Review and Update

3.3.1 This Policy is reviewed in accordance with The University of Surreys Policy on policies.

Minor changes will be reviewed through Estates, Facilities and Commercial Services Compliance Management Group, and approved through Health and Safety Committee.

Major changes will be reviewed through Estates, Facilities and Commercial Services Compliance Management Group, approved through Health and Safety Committee, and submitted to Executive Board for approval, if required.

Review will be every three years or in line with any relevant changes to Legislation (if sooner). Health and Safety Consultative Committee will be consulted during the review process, as required.

3.4 Legislative context

3.4.1 The requirements of:

- The Health and Safety at Work Act 1974 and associated subordinate legislation, Pressure Systems Safety Regulations 2000, Pressure Equipment Safety Regulations 2016, Provision and Use of Work Equipment Regulations 1998 and Reporting of Injuries, Diseases, and Dangerous Occurrences Regulations 2013.
- The Equality Act 2010.

3.4.2 It is a requirement of the University, as the insured body to comply with all regulations imposed by any competent authority and take all reasonable precautions to prevent or

minimise accident, loss, injury, or damage. In addition, the University will comply with manufacturers recommendations made in respect of plant and machinery and follow the appropriate guidance and recommendations of relevant professional bodies, wherever reasonably practical.

3.4.3 *Policy Legal Statement*

This policy sets out to comply with the required 'duty of care' placed upon the University. Under Health and Safety Law a 'duty of care' is generated between organisations and individuals when carrying out activities that could foreseeably cause harm.

The primary duty of care is owed through the employer-employee relationship in which the employer owes a duty of care to ensure that work activities that could result in harm to the employee are assessed and controlled. That duty of care is put into practice by the line management responsibilities as set out in the hierarchy of the organisation.

This duty of care cannot be delegated away; instead, the act of delegation must be accompanied by a realistic and workable system of monitoring or supervision to ensure that the delegated task has been adequately implemented (i.e. the responsibility is not met by giving directions; it is met when those directions have been confirmed as carried out). The result is a cascade of delegated accountability that runs through the organisation via the line management network, accompanied by a system of monitoring, supervision, and feedback.

The duty of care extends to assurance that services provided by others (be they another department of the university or contractors) are undertaken safely. The level of assurance required should be commensurate with the risk of the activity. In addition, anyone carrying out an activity owes a duty of care to anyone who may be put at risk by the activity, such as students, staff, and visitors.

3.5 Stakeholder Statements

3.5.1 **Equality:** Consideration is given to the protected characteristics of all people groups identified in the Equality Act 2010. The protected characteristics include age; disability; gender reassignment; marriage and civil partnership; pregnancy and maternity; race; religion or belief; sex; and sexual orientation. The duty to make reasonable adjustments, as far as possible, to ensure that all staff and students (and others where the University has a duty-of-care) with a disability have equal access to everything they need to do a job or study safely. All information, duties and instructions that relate to this policy, will be produced in as many formats as required to ensure there is no discrimination to any person affected by this policy.

3.5.2 **Health & Safety:** This Policy forms part of the overarching statement on health and safety for the University.

3.5.3 **Executive Board, Health and Safety Committee, Estates, Facilities And Commercial Services Compliance Management Group and Health and Safety Consultative Committee (as required).**

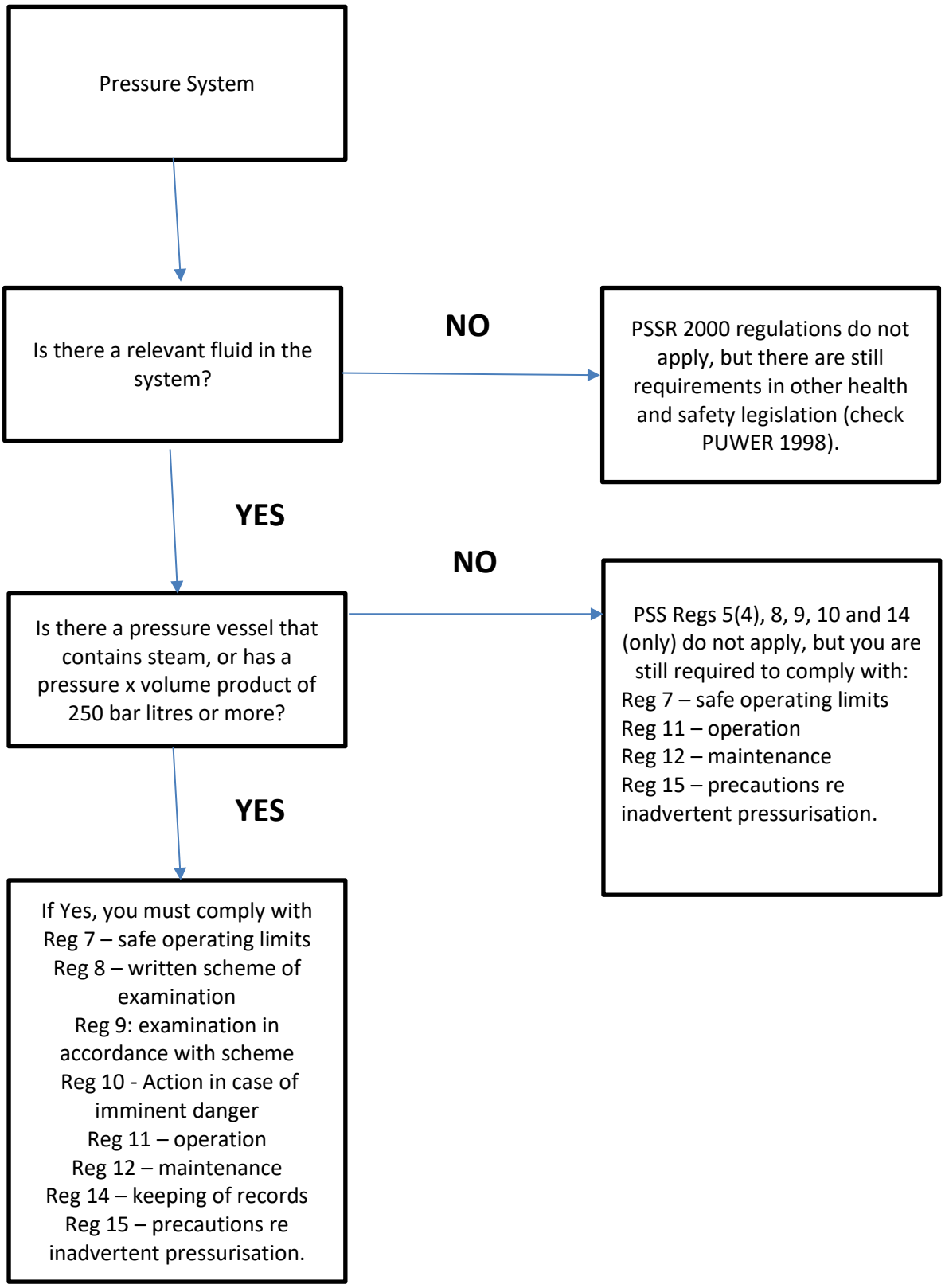
Changes to this Policy will be consulted, reviewed, and approved at the appropriate level, in line with policy guidance.

Appendix 1: Examples of types of Pressure Systems

The following list is an example of the most common types of pressure systems expected to be found and used at the University of Surrey, this list is not exhaustive.

- Autoclave and associated pipework and protective devices.
- Steam boiler and associated pipework, calorifiers, heat exchangers and protective devices.
- High temperature hot water boilers and associated pipework, calorifiers, heat exchangers and protective devices.
- Pressure cookers.
- Certain coffee machines.
- Portable hot water/steam – cleaning unit fitted with a pressure vessel.
- Vapour compression refrigeration system where the installed power exceeds 25 KW.
- Piped gas systems.
- Pressure process plant and piping.
- Compressed air systems (fixed and portable).
- Heat exchangers and refrigeration plant.
- Valves, steam traps and filters.
- Pipework and hoses.
- Pressure gauges and level indicators.

Appendix 2: PSSR 2000 Flow Chart.



Appendix 3: Key Exemptions

Exempt from all regulations

- Pressure systems that form part of any braking, control, or suspension system of a wheeled, tracked or rail mounted system.
- Any part of a system that is only pressurised by a relevant fluid for the purpose of leak testing the system (not including pipelines) and is not otherwise a pressure system.
- Systems that are pressurised unintentionally (where pressurisation is not reasonably foreseeable).
- Pipelines pressurised by a relevant fluid solely as part of a test or line clearance operation unless the pipeline is used for conveyance of a relevant fluid or is pressurised beyond safe operating limits.
- Any pressure system (or part thereof) which is the subject of a research experiment or comprises temporary apparatus being used in a research experiment, but only if it is deemed not reasonably practicable to comply with the regulations.
- Any water-cooling system on an internal combustion engine or on a compressor.
- Any tyre used (or intended to be used) on a vehicle.
- Vapour compression refrigeration systems incorporating compressor drive motors (including standby compressor motors) having a total installed power not exceeding 25kW.
- Any portable fire extinguisher with a working pressure below 25 bar at 60°C and having a total mass not exceeding 23kg.
- Any part of a tool or appliance designed to be held in the hand which is also a pressure vessel.

Exempt From Certain parts of PSSR 2000

Any pressure system containing a relevant fluid (other than steam) is exempt from regulations 5(4), 8 – 10 and 14, if the product of the pressure in bar and the internal volume in litres of its pressure vessels is less than 250 bar litres.

- Reg 5(4) Marking of pressure vessels by manufacturers.
- Reg 8 Requirements for Written Scheme of examination.
- Reg 9 Examination in accordance with Written Scheme.
- Reg 10 Action by competent person in case of imminent danger (due to removal of requirement for examination under written scheme).
- Reg 14 Keeping of records of examination in accordance with written scheme of examination.

***Note:** This list covers some of the exemptions most likely to apply to University users but is not exhaustive. For a complete list of all exemptions (partial and complete) see Schedule 1 (parts I and II) of PSSR 2000. If you believe the pressure system is exempt from these regulations or parts of them, please contact your Department Health and Safety Advisor or Central Health and Safety Team for further guidance.

Appendix 4: Written Schemes and Examinations

All pressure systems that contain steam or any other relevant fluid above a pressure x volume product of 250 bar litre must not be used unless they are subject to an individual Written Scheme of Examination. The scheme enables a periodic and systematic inspection of the main safety hazards of the specific equipment. The Written Scheme will identify which parts are to be examined, how it should be checked and how often it is required to be examined. It will deal with the first examination before a pressure system is put into service, and subsequent examinations throughout the system's working life. The user/owner is responsible for ensuring the suitability of the scope of the scheme and that it covers all the pressure vessels, protective devices, and pipework, if unsure on suitability of a Written Scheme, users should contact the Authorised Engineer within EFCS for assistance.

Examination In Accordance With The Written Scheme

The owner/user must ensure that the equipment is periodically examined by a Competent Person in accordance with the Written Scheme. They must also ensure the safety of the examiner by performing the required preparatory work. Examination periods will vary depending on the type of system, its age, and its use, but this will be clearly recorded in the Written Scheme for each pressure system.

Examination Report Details

The report obtained from an examination should include:

- Name and address of the owner.
- Address and location of the system and name of the user if different.
- Whether subject to a Written Scheme.
- Identification of system or parts examined.
- Condition of system or parts examined.
- Parts not examined.
- Result of examination.
- Any repairs needed and the timescale for completion.
- Any changes in the safe operating limits and the date by which they should be made.
- Any change in the Written Scheme of Examination.
- Date by which the next examination must be completed.
- Other observations.
- Where the most recent examination was postponed names, date of relaxation and new date examination was to be completed.
- Date examination took place.
- Name and address of Competent Person.
- Signature of Competent Person with date of report.

Appendix 5: User and Owner Advice

Keep Documentary Records

The owner/user should keep the following documents readily available:

- The most recent examination report under the Written Scheme.
- Designer/manufacturer/supplier's documents relating to parts of the system included in the Written Scheme.
- Any documents required to be kept by the Pressure Equipment Safety Regulations 2016.
- Any agreement or notification relating to postponement of the most recent examination under the Written Scheme.
- All other reports which contain information relevant to the assessment of system safety.
- Records of abnormal or particularly arduous operating conditions should be kept if they will be of use or relevant to the competent person during the next examination.

Where a system is either sold or changes hands, the previous owner has a duty to pass over all documents held under this regulation to the new owner/user.

New Systems and Modification of System Checks

When planning any pressure system installation, the duty holder or delegated responsible person/s must ensure the following:

- Ensure that those undertaking the installation have the required training, skills, and experience.
- Provide adequate supervision, considering the complexity of the system being installed.
- Decide on the most suitable method of lifting and handling the vessel(s), protective devices, and pipework, so as to avoid accidental damage.
- Check for signs of damage in transit.
- Protect the system from adverse weather conditions before and during installation.
- Remove any protective packaging carefully before commissioning.
- Ensure that any hot work, such as welding or cutting, will not affect the integrity of the system and has been through EFCS permit to work system.
- Ensure that protective devices are clear of obstruction, operate correctly without hindrance or blockage and that the discharge is routed to a safe place.
- Ensure that any access doors/hatches are clear of obstruction and operate correctly.
- Ensure that any labels or markings attached to the system are clearly visible.
- Provide adequate access for maintenance and examination purposes.
- Provide suitable physical protection against mechanical damage, e.g. accidental impact by vehicles.
- Allow sufficient space for access around and beneath valves, in particular drain valves.
- Clear away any debris such as metal shavings or dust arising from the installation process.

This list is not exhaustive and there may be further actions required.

Regular Routine Maintenance And Other Checks

In addition, there is a requirement for regular inspection / maintenance checks which technically fall outside of the requirements of the Written Scheme of Examination and typically include:

- Before use: visual examination of the condition of the equipment.
- Regular creep test.
- Systems low pressure leak test at normal operating pressures.
- Visual and functional check of all system components.
- Routine replacement of high-pressure system components.

Daily Checks

All checks should be in accordance with the manufacturer's recommendations.

These may include:

- Pressure settings and gauge readings.
- Fluid levels.
- Valve operations, including signs of regular discharges.
- Control-system operation.
- Condition of protective devices.
- General cleanliness (housekeeping) in and around the system.

These regular checks should form part of a safe system of work, which includes:

- Provide safe and suitable equipment.
- Ensure that equipment is suitable for the intended purpose.
- Ensure that the materials of manufacture are suitable for the liquids or gases they will contain.
- Ensure that the system can be operated safely without having to climb or struggle through gaps in pipework.

Particular care should be maintained when building your own, repairing or modifying a pressure system.

Consider:

- What are the operating conditions?
- Is the gas or liquid toxic or flammable?
- What are the process pressures and temperatures?
- What are the safe operating limits?
- Is there a set of operating instructions for all of the equipment?
- Have the operators had suitable training on the operating instructions?

Make sure you adhere to all requirements of the Pressure Equipment (Safety) Regulations 2016.

Appendix 6: Response in the Event of a Pressure System Causing An Explosion Or Dangerous Occurrence