**APPENDIX 2d - EIS SPECIFICATION FOR WORKSTREAM 4 - PRESSURE PLANT AND SYSTEMS**

**Workstream 4 - Pressure Plant and Systems**

**1. Purpose**:

1.1. For periodic examination to be carried out in accordance with The Pressure Systems Safety Regulation 2000, for pressure systems which are used or intended to be used at work to:

1.1.1. ensure that those parts of the pressure system included in the written scheme of examination are examined by a competent person within the intervals specified in the scheme and, where the scheme so provides, before the system is used for the first time; and

1.1.2. before each examination take all appropriate safety measures to prepare the system for examination, including any such measures as are specified in the scheme of examination.

**2. Scope**

2.1. This workstream covers period examination and testing of:

2.1.1. pressure systems which are used or intended to be used at work in accordance with the Pressure Systems Safety Regulations 2000 (PSSR);

2.1.2. equipment provided for use or used by an employee, in accordance with the Provision and Use of Work Equipment Regulations 1998 (PUWER);

2.1.3. any additional provision relation to pressure systems, equipment used or intended to be used at work, and major accident hazards in accordance with the Health and Safety at Work Act 1974.

2.2. Types of equipment included but not limited to:

2.2.1. Boiler and Steam systems including vessels

2.2.2. Pressure cookers and Autoclaves and retorts

2.2.3. Blowdown vessels

2.2.4. Bulk storage vessels

2.2.5. Café boilers

2.2.6. Calorifiers

2.2.7. Hot water boilers

2.2.8. Jacketed reactor vessels

2.2.9. Pressurisation units

2.2.10. Refrigeration plant and heat exchangers

2.2.11. Air conditioning plant

2.2.12. Compressed air systems (fixed and portable)

2.2.13. Heat pumps

**3. Examination in accordance with the written scheme**

3.1. Examination is to be carried out in accordance with the written scheme of examination:

3.1.1. to ensure that those parts of the pressure system included in the scheme of examination are examined by a competent person within the intervals specified in the

scheme and, where the scheme provides, before the system is used for the first time; and

3.1.2. before each examination the competent person shall take all appropriate safety measures to prepare the system for examination, including any such measures as are specified in the scheme of examination.

3.2. Where a competent person undertakes an examination for the purposes of paragraph 3.1 the competent person shall carry out that examination properly and in accordance with the scheme of examination.

**4. Frequency of periodic examination.**

4.1. The frequency of periodic examination of pressure plant and systems shall be as instructed by the Client and in accordance with the associated written scheme of examination.

**5. Reporting**

5.1. Where a competent person has carried out an examination the competent person shall make a written report of the examination, sit it or add his name to it, date it and send it to the Client; and the said report shall be so sent as soon as is practicable after completing the examination (or, in the case of integrated installed systems where the examination is part of a series, as soon as is practicable after completing the last examination in that series), and in any event to arrive:

5.1.1. with 28 days of the completion of the examination (or, in the case of integrated installed systems where the examination is part of a series, within 28 days of the completion of the last examination in that series); or

5.1.2. before the date specified in the report for any specified repairs or modifications to, or changes in the established safe operating limits of, the parts examined which, in the opinion of the competent person, are necessary to prevent danger or to ensure the continued effective working of the protective devices are to be completed; or the date by which any such changes to the safe operating limits must be made, whichever is sooner.

5.2. The report required in paragraph 5.1 shall:

5.2.1. state which parts of the pressure system have been examined, the condition of those parts and the results of the examination;

5.2.2. specify any repairs or modifications to, or changes in the established safe operating limits of, the parts examined which, in the opinion of the competent person, are necessary to prevent danger or to ensure the continued effective working of the protective devices, and specify the date by which any such repairs or modifications must be completed or any such changes to the safe operating limits must be made;

5.2.3. specify the date within the limits set by the scheme of examination after which the pressure system may not be operated without a further examination under the scheme of examination; and

5.2.4. state whether in the opinion of the competent person the scheme of examination is suitable (for the purpose of preventing danger from those parts of the pressure system included in it) or should be modified, and if the latter state the reasons.

**6. Information to be contained in a report of thorough examination of pressure plant and systems**

6.1. The competent person shall prepare the report in the format requested in the call-off requirements and shall include:

6.1.1. The name and address of the client;

6.1.2. The address, location of system and name of the user (if different from owner);

6.1.3. Whether subject to a written agreement under Schedule 2 of The Pressure Systems Safety Regulations (PSSR) 2000;

6.1.4. Identification of system or parts examined;

6.1.5. The condition of the system or parts examined;

6.1.6. Parts not examined;

6.1.7. Results of the examination;

6.1.8. Any repairs needed and the timescale for completion;

6.1.9. Any changes in the safe operating limits and the date by which they should be made;

6.1.10. Any change in the written scheme of examination;

6.1.11. The date by which the next examination must be completed;

6.1.12. Other observations;

6.1.13. Where the most recent examination due was postponed in accordance with PSSR regulation 9(7), the names of appropriate members of the competent person's and the Client's/user's organisation, the date of giving the relaxation and the new date by which the examination was to be completed;

6.1.14. The date the examination took place;

6.1.15. Name and address and qualifications of the competent person making the report;

6.1.16. Name and address of a person signing or authenticating the report on behalf of its author;

6.1.17. The date of the report.

**7. Action in case of imminent danger**

7.1. If the competent person carrying out an examination under the scheme of examination is of the opinion that the pressure system or part of the pressure system will give rise to imminent danger unless certain repairs or modifications have been carried out or unless suitable changes to the operating conditions have been made, then without prejudice to the requirements of Regulation 9 of the Pressure System Safety Regulations 2000, as amended from time to time, the competent person shall forthwith make a written report to that effect identifying the system and specifying the repairs, modifications, or changes concerned and give it:

7.1.1. In the case of an installed system, to the Client; or

7.1.2. In the case of a mobile system, to the Client and to the user, if any,

and the competent person shall within 14 days of the completion of the examination send a written report containing the same particulars to the enforcing authority for the premises at which the pressure system is situated.

**8. Retention of records**

8.1 Suppliers to retain copies of their examination documentation.

**9. Additional Service (Optional Pricing) - Written scheme of examination**

9.1. A written scheme of examination is to be prepared by a competent person for the following parts of the system:

9.1.1. all protective devices;

9.1.2. every pressure vessel and every pipeline in which (in either case) a defect may give rise to danger; and

9.1.3. those parts of the pipework in which a defect may give rise to danger,

and such parts of the system shall be identified in the scheme.

9.2. The competent person drawing up the written scheme of periodic examination for the Client, shall certify that the scheme is suitable for the purposes of preventing danger from those parts of the pressure system included in the scheme and:

9.2.1. specifies the nature and frequency of examination;

9.2.2. specifies any measures necessary to prepare the pressure system for safe examination other than those it would be reasonable to expect the user (in the case of an installed system) or owner (in the case of a mobile system) to take without specialist advice; and

9.2.3. where appropriate provide for an examination to be carried out before the pressure system is used for the first time.

**10. Additional Service (Optional Pricing) – Review of written scheme of examination**

10.1. If required by the Client, the competent person shall review the content of the scheme of examination:

10.1.1. for the purpose of determining whether it is suitable in current conditions of use of the system; and

10.1.2. make recommendations for any modification required to the content of the scheme arising out of that review to ensure the scheme is suitable for the purposes of preventing danger from those parts of the pressure system that could give rise to danger.

**ANNEX A**

**Competence**

**Qualifications**

A competent person should, as a minimum stipulation, be qualified in their practising profession.

- Level 4 qualification (HND / HNC etc.) in a relevant engineering field.
- NVQ3, HNC, HND or equivalent mechanical engineering qualification
- minimum three to five years' relevant industry experience working with pressure vessels, steam pressure equipment, piping, air receivers and heat exchangers etc
- completed either a time served or Modern Apprenticeship and have significant experience with PS/PV and Steam boilers
- Accreditation to BS EN ISO/IEC 17020:2012[1]

**Experience**

- Hands-on experience in a relevant engineering discipline, such as manufacturing / repair / maintenance.
- Proven technical knowledge of pressure equipment

**Partner or Director** (Chartered Engineer) should hold appropriate qualifications/accreditations and have at least 10 years relevant post-professional qualification experience.

**Senior Professional** (Chartered Engineer) should hold appropriate qualifications/accreditations and have at least 5 years relevant post-professional qualification experience

**Professional** (Incorporated Engineer) should be a professionally qualified/accredited consultant, hold one of the following qualifications and have at least 3 years relevant post-professional qualification experience

**Senior Technician** (Engineering Technician) should be a graduate on a recognised and accredited course for obtaining a professional qualification

**Technician** (Engineering Technician) should be a graduate on a recognised accredited course

**Admin/Junior Technician/Apprentice**

- Administration staff;
- Junior Technician (i.e. Trainee / Undergraduate)
- Apprentice with Apprenticeship entry qualifications.

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[1] Accreditation to organisations performing various types of inspection, surveys, and risk assessments:

- **Engineering Inspection** (including **Pressure Systems**, **lifting equipment/Hoists**, **electrical installations**, **power presses**, **local exhaust ventilation**, cargo / pre-shipment inspection, manufacture of boilers / **pressure vessels**, **welding inspections**, oil and gas metering)

Accredited inspection bodies are classified into three types based on the inspection body's relationship to the parties involved, its organisation structure, and its responsibilities and ownership:

**Type A** bodies provide third party services.

**Type B** bodies are separate and identifiable entities and can only provide inspections to its parent company.

**Type C** bodies are identifiable entities but may not be a separate part of the organisation. Type C can also supply inspection services to parties other than the parent organisation.

**Chartered Engineer**

Must have experience in developing solutions to engineering problems using new or existing technologies, through innovation, creativity and change and/or they may have technical accountability for complex systems with significant levels of risk.

- Use a combination of general and specialist knowledge and understanding to optimise the application of existing and emerging technology
- Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems
- Provide technical and commercial leadership
- Demonstrate effective interpersonal skills
- Demonstrate a personal commitment to professional standards

**Incorporated Engineers**

Must have experience in maintaining and managing applications of current and developing technology, and can undertake engineering design, development, manufacture, construction, and operation and must be able to demonstrate:

- Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology
- Apply appropriate theoretical and practical methods to design, develop, manufacture, construct, commission, operate, maintain, decommission and re-cycle engineering processes, systems, services, and products
- Provide technical and commercial management
- Demonstrate a personal commitment to professional standards

**Engineering Technicians**

Must be able to apply safe systems of work and must be able to:

- Use engineering knowledge and understanding to apply technical and practical skills.
- Contribute to either the design, development, manufacture, commissioning, decommissioning, operation or maintenance of products, equipment, processes, or services.
- Accept and exercise personal responsibility.
- Use effective communication and interpersonal skills.
- Comply with the Code of Conduct of your institution
- Exercise responsibilities in an ethical manner.

**Codes of Conduct**

- Act with due skill, care, and diligence and with proper regard for professional standards
- Prevent avoidable danger to health or safety
- Act in accordance with the principles of sustainability, and prevent avoidable adverse impact on the environment and society
- Maintain and enhance their competence, undertake only professional tasks for which they are competent, and disclose relevant limitations of competence
- Accept appropriate responsibility for work carried out under their supervision

- Treat all persons fairly and with respect
- Encourage others to advance their learning and competence
- Avoid where possible real or perceived conflict of interest, and advice affected parties when such conflicts arise
- Observe proper duties of confidentiality owed to appropriate parties
- Reject bribery and all forms of corrupt behaviour and make positive efforts to ensure others do likewise.
- Raise a concern about a danger, risk, malpractice or wrongdoing which affects others ('blow the whistle'), and support a colleague or any other person to whom you have a duty of care who in good faith raises any such concern
- Assess and manage relevant risks and communicate these appropriately
- Assess relevant liability, and hold appropriate professional indemnity insurance
- Notify your institution (if a member) of any significant violation of the Institution's Code of Conduct by another member.

**Risk**

Identifying, assessing, managing, and communicating risk

- Apply professional and responsible judgement and take a leadership role
- Adopt a systematic and holistic approach to risk identification, assessment, and management
- Comply with legislation and codes, but be prepared to seek further improvements
- Ensure good communication with the others involved
- Ensure that lasting systems for oversight and scrutiny are in place
- Contribute to public awareness of risk

**Sustainability**

- Contribute to building a sustainable society, present and future
- Apply professional and responsible judgement and take a leadership role
- Do more than just comply with legislation and codes
- Use resources efficiently and effectively
- Seek multiple views to solve sustainability challenges
- Manage risk to minimise adverse impact to people or the environment

**ANNEX B**

**Definitions**:

"**competent person**" as described in Annex A.

"**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.

"**examination**" means a careful and critical scrutiny of a pressure system or part of a pressure system, in or out of service as appropriate, using suitable techniques, including testing where appropriate, to assess: a) it's actual condition; and b) whether, 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

"**installed system**" means a pressure system other than a mobile system

"**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 system**" means a) a system comprising one or more pressure vessels of rigid construction, any associated pipework and protective devices; b) the pipework with its protective devices to which a transportable pressure receptacle or is, or is intended to be, connected; or c) a pipeline and its protective devices, which contains or is liable to contain a relevant fluid, but does not include a transportable pressure receptacle

"**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 include bursting discs

"**safe operating limits**" means the operating limits (incorporating a suitable margin of safety) beyond which system failure is liable to occur

"**scheme of examination**" means a written scheme for periodic examination, drawn up by, and/or certified by a competent person, of the following parts of the system that is to say: a) all protective devices; b) every pressure vessel and every pipeline in which (in either case) a defect may give rise to danger; and c) those parts of the pipework in which a defect may give rise to danger, and such parts of the system shall be identified in the scheme.