DEPARTMENT OF LABOUR

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Guidance Notes to the Pressure Equipment Regulations July 2009

Department of Labour

Occupation health and safety Act, 1993

Revision 2

Foreword

The notes are meant to help and guide users, manufacturers, importers and approved inspection authorities in the application of the Pressure Equipment Regulations.

INTRODUCTION

PURPOSE

These guidance notes are intended to help, users, manufactures, approved inspection authorities and importers of Pressure Equipment to understand the content as well as to assist with the interpretation and implementation of the Pressure Equipment Regulations but cannot substitute the Regulations.

REGULATION 1 – DEFINITIONS

In these Regulations any word or expression to which a meaning has been assigned in the Act shall have the meaning so assigned and, unless the context otherwise indicates

"accreditation authority" means the South African National Accreditation System (SANAS) established by section 3 of the Accreditation for Conformity Assessment, Calibration and Good Laboratory Practice Act, 2006 (Act No. 19 of 2006);

Notes:

(a) None

"appliance" means an appliance as defined in SANS 1539;

Notes:

(a) Definition out of SANS 1539: complete operating unit that uses LPG and Natural Gas as operational fuel

(b) Refer also to the definition of gas system and reticulation

"ASME" means the American Society of Mechanical Engineers;

Notes:

(a) None

"authorised person" means a person who is registered as competent within the scope of work for which an organisation approved by the chief inspector has registered that person;

Notes:

Notes:

(a) SAQCC (CP) competent persons for in service inspection

(b) SAQCC (IPE) inspector of pressurised equipment

(c) SAQCC (Gas) registered gas practitioner in the applicable field

(d) *SAQCC (Fire) registered fire technician*

"certificate" means a written declaration of conformance to these Regulations;

Notes:

(a) For Regulation 17 a Certificate of Conformance (CoC) is issued by a Gas Practitioner that certifies that the gas installation and pressure equipment conforms to the PER. Where the gas practitioner is also the manufacturer only one certificate is required.

(b) certificate of manufacture means written declaration of conformance by the manufacturer or authorised person to the relevant health and safety standard(s) and to the relevant national legislation

"construction" includes materials, design, fabrication, modification, repair, installation, examination, inspection, testing and certification;

Notes:

(a) None

"dangerous substance" means a substance defined and classified as such in terms of SANS 10228;

Notes:

(a) None

"design pressure" means the gauge pressure used in the design formulae to determine the dimensions of the component parts of the pressure equipment;

Notes:

(a) When equipment is subjected primarily to static head and the applied pressure above the liquid level of the equipment is less than 50 kPa, then such equipment is excluded from the PER.

(b) PER does not regulate external pressure (vacuum)

"design temperature" means the temperature used in the design formulae to determine the dimensions of the component parts of the pressure equipment;

Notes:

(a) None

"design verification" means verification that the pressure equipment complies with the applied design of the relevant health and safety standard and the requirements of these Regulations;

Notes:

(a) Independent process to run separate calculations to confirm correctness of the original design. Refer to SANS 10227

"fire extinguisher" means a rechargeable container which has a fire extinguishing substance that is expelled by the action of internal pressure for the purpose of extinguishing a fire;

Notes:

(a) None

"fluid" means gases, liquids, vapours in pure phase and mixtures thereof and may contain solids in suspension;

Notes:

(a) None

"gas" means gases, liquefied gases, gases dissolved under pressure, vapours and those liquids whose vapour pressure at the design temperature is greater than 50 kPa above normal atmospheric pressure;

Notes:

(a) For example: Liquid water at 300°C at elevated pressure is defined as a gas.

(b) When containment is lost and the fluid changes from liquid to gas (flashes), then the fluid is defined as a gas.

"gas system" means an assembly of tubes, pipes or similar ducts, fittings and valves for the reticulation, circulation and conveyance of a gas, excluding a pressure vessel or transportable gas container connected to the system;

Notes:

(a) Refer also to the Definition of Reticulation

(b) General process piping in processing plants is not deemed to be gas systems but shall comply with the requirements of SANS 347.

(c) This includes fixed gaseous fire suppression systems.

(d) gas system means reticulation and/or recirculation including all related piping, pressure and safety accessories.

(e) recirculation means a refrigeration system referring to the movement of refrigerant gas via piping and heat exchangers through the process of condensation and evaporation;

***"latent defect"** means a fault inherent in pressure equipment, resulting from deficiencies in the design or manufacturing process that may cause a health and safety risk;*

Notes:

(a) means a defect in a component that could not be discovered by a reasonable inspection or test method which could include design error but does not include patent defect which should have been easily discovered by a reasonable inspection or test method

"manufacturer" means any person who has overall control and is responsible for the construction of the pressure equipment;

Notes:

Where the design, material supply, part construction and the installation are done by different parties, a contractual agreement may be required to define who the manufacturer is. The intent is that the party that is in overall control of the above mentioned actions will take this responsibility and liability. This party is then responsible for issuing the Certificate of Manufacture. This can be for example the engineering contractor, the user, etc.

"modification" means any change to the original design conditions of pressure equipment, including re-rating, or the addition or removal of elements that could affect the integrity of the pressure equipment, and

Notes:

(a) Component replacement with different material types is deemed a modification

(b) Component replacement with different material grades or the replacement of obsolete materials can be deemed as a modification, depending on the rules and requirements of the applicable health and safety standard or in-service health and safety standards.

"modify" has a corresponding meaning;

Notes:

(a) None

"non-metallic" means glass, thermoplastic or thermosetting polymeric reinforced and un-reinforced materials or combinations thereof;

Notes:

(a) None

"pipeline" means piping or a system of piping designed for the transport and distribution of any fluid from an installation that is onshore or offshore, starting from and including the last isolation device located within the confines of the installation, including all the auxiliary equipment designed specifically for that pipeline;

Notes:

(a) None

"piping" means pipes, tubes or flexible pressure hose elements intended for the transport or distribution of any fluid at a pressure of 50 kPa or above when connected together for integration into a system, including heat exchangers consisting of pipes for the purpose of cooling or heating air;

Notes:

(a) Instrument tubing is included in the PER

"pressure accessory" means devices with an operational function having pressure-bearing housing;

Notes:

(a) Some examples include but are not limited to: pressure gauges, bladder and piston type accumulators, level gauges, valves, strainers, bellows, flow meter, magnetic level indicators and instruments.

"pressure equipment" means a steam generator, pressure vessel, piping, pressure accessory and safety accessory, transportable gas container, and fire extinguisher and includes, but is not limited to an accumulator, a hot-water geyser and hyperbaric chambers;

Notes:

(a) None

"pressure vessel" means a housing designed and manufactured to contain a fluid under a design pressure equal to or greater than 50 kPa;

Notes:

(a) Includes but is not limited to storage vessels, beer kegs, plate heat exchangers, mobile pressure vessels, road tankers, rail tankers, intermediate bulk containers (ICB's), ISO containers, accumulators other than bladder or piston type, multi element gas containers, fired heaters, hermetic compressors, etc. but excludes transportable gas containers and fire extinguishers which have their own definitions.

"provincial director" means the provincial director as defined in regulation 1 of the General Administrative Regulations promulgated by Government Notice No. R 1449 of 6 September 1996;

Notes:

(a) None

"re-certification" means activities undertaken to determine appropriate design parameters for pressure equipment where such data is unknown or unavailable;

Notes:

(a) See PER 9 Note (c)

(b) Equipment that was not previously certified cannot be re-certified. The intent is that it only applies to equipment where traceability or identification is lost. (Use proposed future Annex to SANS 347 as a guide)

"repair" means restoration to original standard by the application of heat or welding to any pressure equipment, or the replacement of expanded tubes, and in the case of non-metallic equipment it means the application of heat, welding, solvent cement, laminate or curing of thermo-set;

Notes:

(a) Component replacement with different material grades or the replacement of obsolete materials can be deemed as a repair where no changes to the original design are effected. The repair shall be in accordance with the rules and requirements of the applicable health and safety standard or in-service health and safety standards.

"re-rating" means any change in the design parameters of pressure equipment which affects the certification;

Notes:

(a) Re-rating includes up-rating and down-rating

(b) See PER 9 Note (d).

"reticulation" means the conveyance of gas by pipeline with a general operating pressure of no more than 200 kPa to the ultimate points of consumption;

Notes:

(a) This does not include transmission or distribution systems.

(b) General process piping in processing plants is not deemed to be reticulation, distribution or transmission systems.

(c) Refrigeration and air conditioning systems are closed recirculation systems and are not deemed to be a gas reticulation systems

(d) The design pressure may be more than 200kPa

(e) reticulation means the conveyance of gas by piping from or within a property boundary up to and including the ultimate points of consumption;

"risk-based inspection" means an inspection scope based on the results of a formal risk assessment, including inspection and test intervals;

Notes:

(a) None

"safety accessory" means a device designed to protect pressure equipment;

Notes:

(a) For example pressure relief valves or bursting disks

(b) This excludes non-pressurised safety accessories

"SANS 151" means the Standard Specification for fixed electric storage water heaters, SANS 151, published by the South African Bureau of Standards;

Notes:

(a) None

"SANS 347" means the Standard Specification for categorisation and conformity assessment criteria for all pressure equipment, SANS 347, published by the South African Bureau of Standards;

Notes:

(a) None

"SANS 10227" means the Standard Specification for the criteria for the operation of inspection authorities performing inspection in terms of the Pressure Equipment Regulations, SANS 10227, published by the South African Bureau of Standards;

Notes:

(a) None

"SANS 10228" means the Standard Specification for the identification and classification of dangerous goods for transport, SANS 10228, published by the South African Bureau of Standards;

Notes:

(a) None

"SANS 10254; means the Standard Specification for the installation, maintenance, replacement and repair of fixed electric storage water heating systems, SANS 10254, published by the South African Bureau of Standards;

Notes:

(a) None

"SANS/ISO 17020" means the Standard Specification for general criteria for the operation of various types of bodies performing inspection, SANS 17020, published by the South African Bureau of Standards;

Notes:

(a) None

"steam generator" means any apparatus to convert water continuously into steam at a pressure higher than that due to the atmosphere and where the heat is derived from a source other than steam, and includes any super heater or economiser which is an integral part of a steam generator or is separately fired there from, fired steam and hot-water boilers, waste-heat boilers, waste-incineration boilers, and electrode or immersion-type electrically heated boilers;

Notes:

(a) Note that only steam generators with a design pressure equal to or greater than 50 kPa are included in the PER

(b) Autoclaves that generate steam shall be classified as steam generators. All others remain as pressure vessels.

"the Act" means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993);

Notes:

(a) None

"transportable gas container" means any refillable vessel for the storage and conveyance of liquefied, dissolved or compressed gases, of water capacity from 0,5 litres to 3 000 litres;

Notes:

(a) Transportable gas container has the same meaning as the term "pressure receptacle" as defined in SANS 10019.

(b) Transportable gas containers smaller than 0,5 litres are not regulated but shall be manufactured to a relevant health and safety standard when available.

(c) Non refillable refrigerant, LP gas, butane and propane pressure receptacles compliant to SANS 10019 are deemed to be included in this definition.

(d) Where LP gas, butane or propane is used as propellants only, within non refillable pressure receptacles these are excluded from the PER.

(e) Mobile air compressors or transportable pressure vessels containing air are deemed not to be transportable gas containers but pressure vessels.

"unique mark" means the mark and accreditation reference number of the approved inspection authority.

Notes:

(a) *Accreditation reference number is the PER number (approval number) issued by the Department of Labour*

REGULATION 2 - SCOPE OF APPLICATION

(1) These Regulations shall apply to the design, manufacture, operation, repair, modification, maintenance, inspection and testing of pressure equipment with a design pressure equal to or greater than 50 kPa, in terms of the relevant health and safety standard incorporated into these Regulations under section 44 of the Act.

(2) Regulations 3, 4, 5, 9(1), 9(2) and 9(3) shall not apply to pressure equipment in use or on order prior to the publication of these Regulations, which equipment shall be designed and constructed according to the requirements applicable at the time of order.

(3) The following pressure equipment shall be excluded from these Regulations:

(a) Piping for the supply, distribution and discharge of water below its boiling point at atmospheric pressure and associated pressure equipment and headraces such as penstocks, pressure tunnels, pressure shafts for hydro-electric installations and their related specific pressure accessories;

(b) aerosol dispensers;

(c) pressure equipment intended for the functioning of road and rail vehicles, excluding a fuel gas system;

(d) pressure equipment comprising casings or machinery where the dimensioning, choice of material and manufacturing rules are based primarily on requirements for sufficient strength, rigidity and stability to meet the static and dynamic operational effects or other operational characteristics and for which pressure is not a significant design factor, and such pressure equipment may include —

(i) engines, including turbines and internal combustion engines;

(ii) reciprocating steam engines, gas turbines, steam turbines, turbo-generators, compressor engines, pumps and actuating devices;

(e) open metal-making pots and blast furnaces

(f) housing for electrical machinery such as switchgear, control gear, transformers and rotating machines;

(g) tyres and flexible pressurised casings used for recreational purposes;

(h) fixed electrical hot-water storage container of water capacity from 15 litres to 450 litres operating at a maximum pressure of 600 kPa manufactured to the requirements of SANS 151, which shall be installed in accordance with the requirements of SANS 10254.

Notes:

(a) Order placement means the date that the contract is placed by the user for basic engineering design

(b) Any health and safety standard in SANS 347 may be used as if it was incorporated in previous Regulations. Equipment that was manufactured and certified to a Health and safety standard under previous acts/regulations prior to implementation of PER are deemed to be certified.

(c) The intention of PER 2(3)(a) was to exclude piping and pipelines used for the transport of water.

(d) The intention was to exclude only piping and pipe lines used for the transport of water, but not to exclude gas filled accumulators used for the regulation of pressure surges.

(e) Locomotives (steam generators on rail or road) were not intended to be excluded.

(f) Existing pressure equipment that was manufactured prior to PER that requires to be replaced must follow the rules of the PER. Pressure Equipment that was regulated under previous regulations may be repaired and modified with full AIA involvement and does not need to be

categorised.

(g) An existing pressure vessel that was not regulated under previous regulations but could now fall within the scope of the PER does not need to comply to PER provided that any modification to be done will not cause the pressure vessel to have been regulated by the previous regulations in force at the time of construction. If the pressure vessel after the modification falls within previous regulations, the pressure vessel now needs to comply to the PER requirements.

(h) Equipment categorized as SEP as per the relevant SANS 347 graphs are regulated but need not meet any other regulatory requirements, but shall be manufactured to SEP rules as required in SANS 347

(i) PER does not regulate external pressure (vacuum.)

(j) PER only regulates pressure equipment with a design pressure equal to or greater than 50 kPa irrespective of any contradictory definition given in the PER.

(k) Pressurised road tankers, rail tankers, intermediate bulk containers (IBC's), ISO container and multi element gas containers are regulated by the PER.

(l) Equipment manufactured prior to 23 October 1992 and which was designed, constructed and manufactured in accordance with regulations in force at that time do not require a certificate of manufacture (see regulation 2 of VUP). Re-certification to the PER is not a requirement.

(m) Hydraulic and pneumatic cylinders, or actuators meeting the requirements of PER 2(3)(d) are not regulated

(n) Refrigeration and air conditioning compressors of the semi-hermetic and open drive type are excluded

(o) Hermetic compressors are classified as pressure vessels and for categorization purposes the free volume of the refrigerant shall be used for categorization.

(p) Plate heat exchangers shall be classified as pressure vessels and shall be categorised as per SANS 347.

(q) Imported pressure equipment with a design pressure of 50kPa that is not conformity assessed and is exempted from the PED, does not meet the requirement of the PER.

(r) All flexible hoses that fall within the scope of the PER shall be manufactured, modified or repaired in accordance with approved health and safety standards and shall meet the conformity assessment requirements of SANS 347.

(s) Internal pipe coils in atmospheric storage tanks shall be handled as piping.

(t) Beer kegs are regulated by the PER.

(u) Fuel gas vehicles are regulated by the PER.

(v) The intent of Regulation 2.(2) was not to make any of the Regulations within the PER retrospective.

(w) The Water referenced in 3 (a) above is raw water and potable water.

REGULATION 3 – GENERAL REQUIREMENTS

(1) Any person who manufactures, imports, sells, offers or supplies any pressure equipment described in these Regulations for use in the Republic shall ensure that such equipment complies with these Regulations.

(2) Any person who erects or installs any pressure equipment for use in the Republic shall ensure, as far as is reasonably practicable, that it is erected or installed in a safe manner and without risk to health and safety when properly used.

(3) All pressure equipment for use in the Republic shall be categorized and submitted to the applicable conformance assessments of SANS 347 in addition to the requirements of the relevant health and safety standard incorporated into these Regulations under section 44 of the Act.

Notes:

(a) Existing equipment which was regulated under previous regulations need not be categorized provided full AIA involvement is maintained during repairs or modifications.

(b) The relevant health and safety standards are not listed in section 44 of the act. They are listed in, Annex A of SANS 347 but have been updated and gazetted for incorporation in the existing schedule.

(c) Requests for the inclusion of additional health and safety standards into SANS 347 shall be submitted to the DoL (Occupational Health and Safety Department, private bag X117 Pretoria 0001) with motivation and copy of the relevant Health and Safety Standard in English.

REGULATION 4 - DUTIES OF MANUFACTURERS

(1) The manufacturer shall have an obligation to ensure that all equipment designed and manufactured for use in the Republic shall be conformity assessed and subjected to the requirements set out in SANS 347.

(2) Subject to the requirements set out in the relevant health and safety standard incorporated into this Regulation under section 44 of the Act, the manufacturer shall ensure that the pressure equipment as manufactured, modified, inspected, tested or repaired is safe and without risks to health when properly used.

(3) Subject to the requirements of this regulation a manufacturer shall issue a certificate of manufacture for all pressure equipment supplied, with a verification signature by an approved inspection authority when so required.

(4) Subject to the requirements of this regulation a manufacturer shall comply with any other duty assigned to the manufacturer in these regulations.

(5) A manufacturer who determines that pressure equipment in use has a latent defect shall advise the chief inspector in writing forthwith thereof and of measures being taken to correct the defect.

Notes:

(a) The certificate of manufacture must declare conformance to the Pressure Equipment Regulations. The Certificate of Manufacture is equivalent to the Certificate of Conformity as stated in SANS 347.

(b) Categorization may be done by another party (for example the user) provided the manufacturer formally accepts such categorisation and maintains full responsibility for compliance.

(c) The certificate of manufacture, has the same meaning as certificate of conformity, manufacturers data report and declaration of conformity.

(d) Manufacturers shall ensure that for refrigeration and air conditioning systems an approved health and safety standard is used.

(e) Locally manufactured pressure equipment that are ASME or CE marked for use in the Republic shall also undergo a conformity assessment review, to ensure the additional requirements of PER are met, and shall be verified by an AIA where applicable.

(f) Where it has been agreed that the user's original design is to be used on a total replacement in accordance with Regulation 6 guide note (i), a comprehensive method statement on the entire construction shall be mutually agreed to by the user, manufacturer and AIA. Cognisance of any applicable code revisions should be considered.

(g) No pressure vessel or steam generator shall be manufactured, modified or repaired to the RSA/CI/OHSA certification requirements by a Manufacturer who's Quality Management System is not accredited by an approved Certification Body in-accordance with Annex C of SANS 347 from the date of gazette of the PER Revision 2 Guide Notes.

REGULATION 5 - DUTIES OF IMPORTERS AND SUPPLIERS

(1) Importers and suppliers shall ensure that pressure equipment sold complies with the requirements of this Regulation.

(2) The importer shall assume the liability of the manufacturer in terms of this Regulation.

(3) Any pressure equipment that requires a permit to be issued by an organisation approved by the chief inspector shall ensure that such approval is obtained by the importer or manufacturer before the pressure equipment is placed in the market: Provided that such equipment shall comply with the relevant health and safety standard incorporated into these Regulation under section 44 of the Act.

Notes:

(a) The importer is the entity which imports pressure equipment for use and/or re-sale in South Africa. The importer must be a juristic person in RSA.

(b) The importer of pressure equipment into the RSA assumes the liability of the manufacturer and must declare conformance in writing to the PER. This conformity assessment review shall be countersigned by an AIA as applicable. The AIA shall only verify conformity assessment reviews for imported pressure vessels, steam generators and assemblies for Category II equipment and higher.

(c) Category I equipment and below does not require verification of the conformity assessment review by the AIA.

(d) Where users or their agents appoint entities to manage procurement and construction of imported pressure equipment, this entity is in overall control and is deemed the importer.

(e) The permit referenced in PER 5(3) is applicable to fire extinguishers in accordance with SANS 1475, LPG cylinders to SANS 10019 and other verification schemes as mandated by the Chief Inspector.

(f) Importer shall ensure that the foreign inspection and certification bodies meets the requirements of PER 7(3)(b) with respect to ISO 17020, 17021 or higher accreditation and scope of accreditation together with the applicable health and safety standard.

(g) Series produced pressure equipment with type test certification and a declaration of conformity by the manufacturer may be conformity assessed by the importer and verified by an AIA where applicable using a once off conformity assessment review certificate for that type provided the manufacturer and notified body and the country of origin remains the same.

(h) Imported pressure vessels, safety accessories and pressure accessories categorised under the PED need not be re-categorized in accordance with SANS 347 where the fluid group differs.

(i) Reasonable steps required from the Importer to fulfil his liability as the manufacturer are:

(i) The Importer is obligated to perform a conformity assessment review in accordance with SANS 347 and issue a conformity assessment review certificate with a verification signature by the Importer appointed Approved Inspection Authority (AIA) as applicable.

(ii) The Importer shall ensure that the equipment has been categorized and submitted to the applicable conformance assessments of SANS 347 or Pressure Equipment Directive as applicable (see sub-regulation 3.(3)).

(iii) The Manufacturer is obliged to ensure that the pressure equipment has been constructed in full accordance with a relevant health and safety standard (see sub-regulation (4.(1)) with the Importer only required to verify that the health and safety standard used by the Manufacturer for construction is listed in SANS 347.

(iv) The pressure equipment is provided with a certificate of manufacture which reflect the

verification of an approved inspection authority (AIA), Authorized Inspector (AI) or Notified Body (NB) when so required (see sub-regulation 4.(3)).

(v) Ensuring that the approved inspection authority (AIA), Authorized Inspector (AI) or Notified Body (NB) meets the requirements stipulated in sub-regulation 7 and guide note (c).

(vi) The pressure equipment marking satisfies the requirements of sub-regulation 9 through the addition of an additional data plate by the Importer if required. The additional data plate does not need to reference the importer.

(vii) Pressure equipment and/or assemblies are fitted with the required safety accessories as required by sub-regulation 10.

(viii) The Importer shall ensure that the provided documentation accompanying the imported equipment satisfies the requirements of sub-regulation 14. In the case of assemblies the Importer shall ensure that a global conformity assessment review certificate accompanies the assembly

(ix) Confirming that the pressure equipment is in full compliance, but not limited to, the applicable PER requirements.

REGULATION 6 - DUTIES OF USERS

(1) The user shall ensure that the pressure equipment is operated and maintained within its design and operating parameters.

(2) The user shall, subject to the relevant health and safety standard incorporated into these Regulations under section 44 of the Act –

(a) provide the manufacturer, repairer or modifier with comprehensive information of the operating or intended operating conditions of the pressure equipment, including the characteristics of the fluid and operating parameters of other connected pressure equipment, where reasonably practicable;

(b) ensure pressure equipment has a certificate, issued by the manufacturer, including a verification signature by an approved inspection authority when required, which certifies that the pressure equipment has been designed and manufactured in accordance with the relevant health and safety standard incorporated into these Regulations under section 44 of the Act;

(c) ensure pressure equipment has a certificate issued by the repairer or modifier, including a verification signature by an approved inspection authority when required, which certifies that the pressure equipment has been modified or repaired in accordance with the relevant health and safety standard incorporated into these Regulations under section 44 of the Act;

(d) ensure that pressure equipment has a certificate issued by an approved inspection authority before commissioning, where applicable; and

(e) ensure that a gas system has a valid certificate issued by an authorised person.

Notes:

(a) The user shall ensure that the prescribed information is provided to the manufacturer.

(b) The certificate required in PER 6(2)(d) above is the pre-commissioning inspection certificate as required in PER 11(1)(a)

(c) The certificate required in PER 6(2)(e) is the certificate in Annexure 1 and shall be issued by an authorised person and not by an AIA.

(d) For pressure equipment which are rented out by the owner, the duties of the user remain with the owner (i.e. certificate of manufacture remains with the owner).

(e) In respect to PER 6(2)(b), filled transportable gas containers imported from an overseas supplier, for a dedicated user with the intent to return the transportable gas container when empty to the overseas supplier, these shall be deemed compliant based on the transportable gas container having been manufactured to a listed "Health and Safety Standard" incorporated into the PER (See PER 3 Note (b)) and which meet all of the relevant transportation requirements prior to shipping. Equipment does not need to meet any of the additional PER requirements if the equipment is returned within 60 days of import.

(f) In respect to the duties of the user in relation to privately owned transportable gas containers up to and including 150 litres water capacity, the certificate of manufacture referred to in PER 6(2)(b) may be retained by the Importer or the Supplier

(g) For transportable gas containers which are privately owned the certificate of manufacture remains with the manufacturer. The owner may request the certificate of manufacture from the manufacturer / importer.

(h) Equipment manufactured prior to 23 October 1992 and which was designed, constructed and manufactured in accordance with regulations in force at that time do not require a certificate of manufacture (see regulation 2 of VUP). Re-certification to the PER is not a requirement.

(i) Where the user requires identical total replacement of pressure vessels, steam generators or piping due to dimensional constraints or weight limitations, in accordance with the original design calculations and drawings, the user shall ensure that the design is approved and verified as applicable in accordance with these Regulations. The user shall declare that the existing design is satisfactory for the intended service conditions based on historical service records. Intellectual property rights should be considered.

REGULATION 7 – APPROVAL AND DUTIES OF APPROVED INSPECTION AUTHORITY

(1) Only an organisation holding an approval certificate from the chief inspector shall perform the duties of an approved inspection authority within the scope of accreditation.

(2) An application for approval in terms of sub regulations (1) shall include the applicant's proof of accreditation prescribed by paragraph (a) or (b) of sub regulations (3), including full contact details and address.

(3) The chief inspector's approval –

(a) of inspection bodies operating in the Republic shall be subject to the submission of an accreditation certificate issued by the accreditation authority in accordance with the requirements of SANS/ISO 17020 and SANS 10227: Provided that the chief inspector may set additional requirements before granting approval; or

(b) of foreign inspection bodies shall be subject to the submission of an accreditation certificate issued by an International Laboratory Accreditation Cooperation (ILAC) or an International Accreditation Forum (IAF), Mutual Recognition Arrangement signatory in accordance with the requirements of ISO/IEC 17020: Provided that –

(i) the foreign inspection body shall ensure compliance with all the duties assigned to an approved domestic inspection authority in terms of these Regulations and within their scope of accreditation together with the applicable health and safety standards; and

(ii) the chief inspector may set additional requirements before granting approval.

(4) Imported pressure equipment stamped by an ASME authorised manufacturer in compliance with the full ASME Code of Construction shall be deemed to meet the requirements of these Regulation.

(5) In the event of a dispute of a technical or safety issue, which could not be reasonably resolved between an approved inspection authority and any interested party, including the user, modifier, repairer or manufacturer, an interested party may refer the case to the chief inspector in writing for arbitration, setting out the full details of the dispute.

(6) Upon receiving such a dispute in terms of sub regulation (5), the chief inspector may appoint an arbitrator mutually agreed upon between the parties.

(7) A case referred to the chief inspector in terms of sub-regulation (5) shall be investigated and arbitrated within a maximum of 90 days.

(8) An approved inspection authority shall ensure compliance with all the duties assigned to an approved inspection authority in this Regulation within its scope of accreditation and the relevant health and safety standard.

Notes:

(a) PER 7(4) states that imported pressure equipment stamped by an ASME authorized manufacturer in compliance with the full ASME code of construction shall be deemed to meet the requirements of these regulations. The intent was that such certification is deemed to be meeting the requirements of the Health and Safety Standard, however any additional requirements of the PER, e.g. Marking, shall also be complied with. This may require the application of an additional data plate meeting the PER requirements e.g. units of measure and categorisation. Equipment is to be categorised by the Importer for future repair, modification and in-service inspection requirements. Equipment that is ASME or CE marked in accordance with a Health and Safety Standard do not need to comply to the requirement in SANS 347 for approval by a Professional Engineer.

(b) Pressure equipment that is ASME marked by a local manufacturer meets the requirements of PER 7(4). The manufacturer shall comply with the additional requirements of PER as in Note (a) above and issue conformity assessment review certificate countersigned by an AIA for category II and higher.

(c) From 1 January 2012 all foreign inspection bodies shall be accredited to ISO 17020, ISO 17021 or higher, in accordance with the conformity assessment modules of SANS 347, as applicable. If these requirements are met no submission to DoL for approval is required. NBIC authorised agencies are approved unconditionally. The Importer shall ensure compliance to PER 5 Note (f) when conducting the conformity assessment review on imported pressure equipment. For pressure equipment where an AIA is required, the AIA shall verify compliance to the accreditation requirements of the foreign inspection bodies.

(d) In-service inspection authority scope is limited to the duties as listed in PER 11(1)(c) and (d) only. The scope of inspection determined by the RBI study conducted under PER 12 shall be conducted by the in-service inspection authority. All other duties as required by an Approved Inspection Authority shall be performed by a manufacturing AIA as stipulated in SANS 10227 5.1(c).

(e) ASME "UM" certification marked vessels Category II and higher shall not be accepted if not conformity assessed to an equivalent SANS 347 module G.

REGULATIONS 8 – REGISTRATION OF A STEAM GENERATOR

(1) No user may use a steam generator unless such user is in possession of a certificate of registration issued in terms of sub regulations (3) for that steam generator.

(2) Application for registration to use a steam generator shall be made prior to use to the provincial director in the form of Annexure 2, including copies of a certificate from the manufacturer and from the approved inspection authority after installation prior to commissioning: Provided that this sub regulations shall not apply in respect of the re-erection of a steam generator on the same premises.

(3) On receipt of an application for registration in terms of sub regulations (1), the provincial director shall forward that application to an inspector who may issue a certificate of registration in the form of Part C of Annexure 2 in respect of that steam generator, subject to the conditions that may be specified on the certificate.

(4) Any user of a steam generator for which a certificate of registration has been issued shall cause the certificate of registration to be made available on request to an inspector or an approved inspection authority.

(5) A user shall, within seven days after discovering that the certificate of registration has been lost, defaced or destroyed, apply to the provincial director in the form of Part A of Annexure 2 for the issue of a duplicate certificate, and affix the fee of R100,00 in the form of uncancelled revenue stamps to such an application.

(6) On receipt of an application in terms of sub regulations (5), the provincial director shall issue the duplicate certificate if he or she is satisfied that the original certificate has been lost, defaced or destroyed.

(7) A user of a steam generator shall immediately notify the provincial director in writing when –

(a) such steam generator is no longer in use;

(b) the right of control over the use of the steam generator is transferred by the user to any other user; or

(c) the user moves the steam generator to premises other than the premises reflected on its certificate of registration.

(8) A certificate of registration issued in terms of sub regulations (3) shall lapse –

(a) upon the transfer of the right of control over the use of the steam generator to another user; or

(b) when a steam generator is removed from the premises reflected on its certificate of registration.

Notes:

(a) All existing registered steam generators do not need to be re–registered under the new regulations. If there are any changes to the design criteria of the steam generator, the user is responsible to get the revised certificate of registration issued by the provincial director.

(b) The revenue stamps are not applicable. All required payments shall be made at a relevant Provincial Labour Office.

(c) For the re-issuing of steam generator registration certificates, application shall be made to the relevant Provincial Labour Office.

(d) Autoclaves classified as steam generators shall be categorised but shall not be registered with the Provincial Labour Office.

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REGULATIONS 9 – PRESSURE EQUIPMENT MARKING

(1) Every manufacturer of pressure equipment shall cause the pressure equipment to be marked in accordance with the relevant health and safety standard incorporated into these Regulations under section 44 of the Act.

(2) Every manufacturer shall cause a data plate to be permanently fixed in a conspicuous place to any steam generator or pressure vessel with the following minimum particulars:

(a) Name of manufacturer;

(b) country of origin;

(c) year of manufacture;

(d) manufacturer's serial number;

(e) reference number, date and edition of the health and safety standard;

(f) design pressure in units of Pascal;

(g) design temperature for both minimum and maximum in degrees Celsius;

(h) capacity in cubic metres;

(i) unique mark of an approved inspection authority as applicable; and

(j) the hazard category in accordance with the requirements of SANS 347.

(3) In the case of composite pressure equipment the following information shall be included in addition to that referred to in sub regulations (2):

(a) The resin system of the corrosion barrier/lining;

(b) the resin system of the structural wall; and

(c) the name and specific gravity of the medium for which the vessel was designed.

(4) No person may remove a marking or data plate referred to in these Regulations or wilfully damage or alter the particulars marked thereon, except as provided in these Regulations.

(5) A user shall ensure that any modification that changes the original design conditions is identified by affixing an additional data plate.

(6) A user shall ensure that a data plate is affixed to any steam generator or pressure vessel that has been re-certified: Provided that where the manufacturer is unknown, the user responsible for the re-certification shall be deemed to be the manufacturer.

Notes:

(a) For imported pressure equipment not meeting the Pressure Equipment Regulations marking requirements, the importer shall affix an additional data plate containing the missing or correct information. The additional data plate does not need to reference the importer.

(b) The AIA shall verify compliance to the PER for Category II and higher imported pressure vessels, steam generators and assemblies. The AIA shall stamp the additional data plate required by PER to indicate that the AIA was involved with the conformity assessment review and shall countersign the conformity assessment review certificate.

(c) Re-certification of a steam generator and pressure vessels may only be undertaken as per the proposed Annexure A of SANS 347. Re-certification of transportable gas containers is as per SANS 10019.

(d) Equipment that has been re-rated to operate at different design conditions shall be verified by an AIA.

(e) Pressure equipment other than steam generators and pressure vessels may be marked in Bar, only where regulated by the Health and Safety Standard.

(f) For very small pressure vessels where a normal sized data plate cannot be permanently fixed in a conspicuous place as stated in PER 9(2), a data plate may be affixed with a corrosion resistant metal wire to this pressure vessel or alternatively a durable sticker.

(g) Local manufactured equipment not fully compliant with ASME certification requirements must be in accordance with SANS 347 Annex C requirements.

(h) No changes or corrections shall be made on any nameplate, but through the addition of a new nameplate with only the corrected information.

(i) For RSA/CI/OHSA certified equipment the markings in 9.(2).(e) above shall typically be:

RSA/CI/OHSA – AA – BB – CC

RSA/CI/OHSA = ASME

AA = Section (VIII Division1 = 8.1)

BB = Edition (2015 = 15)

CC = Any additional markings required by ASME

(j) For imported pressure vessels and steam generators that are CE marked which reference ASME as the design standard but are not in full compliance of ASME certification mark requirements, the additional data plate shall be stamped PED/RSA/CI/OHSA-AA-BB-CC.

(k) For repairs a repair nameplate is not required even if specified by and in-service health and safety standard.

REGULATIONS 10 – PRESSURE AND SAFETY ACCESSORIES

(1) No user may require or permit pressure equipment to be used unless it is provided with all the pressure and safety accessories required by the relevant health and safety standard which is incorporated into these Regulations under section 44 of the Act and used in the design, construction and manufacture of such pressure equipment: Provided that alternative safety accessories other than those required by the standard may be fitted with the written approval of an approved inspection authority.

(2) In the absence of a requirement referred to in sub regulations (1) in the relevant health and safety standard which is incorporated into these Regulations under section 44 of the Act and used in the design, construction and manufacture of such pressure equipment, safety accessories shall be provided by the user as required by the approved inspection authority and those safety accessories shall be so selected, arranged and installed as to be safe for the particular purpose for which the pressure equipment is to be used.

(3) Every user of a steam generator or pressure vessel shall ensure that the steam generator or pressure vessel in use is fitted with at least one pressure measuring device.

(4) Every user of a steam generator or pressure vessel shall ensure that the steam generator or pressure vessel in use is fitted with at least one safety valve and that safety valve is kept locked, sealed or otherwise rendered inaccessible to any unauthorized person.

(5) The number and capacity of the safety valve referred to in sub regulations (4) shall comply with the requirements of the design standard for the steam generator or pressure vessel or as required in terms of sub regulations (2).

(6) Every user shall ensure that the automatic controls and indicators of a steam generator, pressure vessel or piping are arranged, installed, maintained and operated in accordance with the relevant health and safety standard which is incorporated into these Regulations under section 44 of the Act and used in the design and manufacture of the steam generator, pressure vessel or pressurized system: Provided that in the absence of such provisions, where automatic controls and indicators are installed, they shall be selected, arranged and installed subject to the written approval of an approved inspection authority.

Notes:

(a) PER 10(1) allows the user to use system protection where the health and safety standard allows it and regulation 10(4) is superfluous.

(b) Pressure indicating device does not need to be located directly on the equipment but may be remotely displayed for example on distributed control systems.

(c) The pressure measuring device shall be located such that it is representative of the highest pressure in the system. It shall not be possible to isolate any of the equipment with the pressure measuring device from other equipment relying on that pressure measuring device in the system while in operation. The intent is to have control over the pressure in the pressure equipment.

(d) Pressure and safety accessories on steam generators or pressure vessels may be installed according to the PER at the time of commissioning of the equipment. For example pressure equipment regulated under the previous regulations can have system protection as allowed by the PER.

(e) Safety accessories for ASME pressure equipment will be certified by either ASME or a European Category IV Conformity Assessment

(f) Safety accessories protecting non pressure equipment as excluded in PER 2.(3) shall be conformity assessed in accordance with SANS 347

(g) The user is responsible to ensure that safety and pressure accessories are installed, maintained and set as per the requirements of the applicable health and safety standard. [See also PER 11

Note (j)]

(h) Pressure accessories shall be classified independently of the pressure equipment to which it is attached

(i) Over pressure protection by means of system design including instrumented safety systems such as high-integrity pressure protection system (HIPPS) may be used instead of pressure relief devices provided that the system is recognised by the relevant health and safety standard which is incorporated into these Regulations under Section 44 of the Act

REGULATIONS 11 – INSPECTION AND TEST

(1) Subject to the requirements of the relevant health and safety standard incorporated into these Regulations under section 44 of the Act, the user shall cause –

(a) steam generators or pressure vessels, including pressure and safety accessories, after they are installed or re-installed and before they are commissioned, to be subjected to a witnessed internal and external inspection of a hydraulic pressure test to 1,25 times the design pressure by an approved inspection authority: Provided that Category I equipment as categorized in terms of SANS 347 may be inspected, tested and witnessed by the user: Provided further that the user may, subject to the written approval of an approved inspection authority, dispense with the internal inspection and hydraulic pressure test where it could have an adverse effect on the operation or integrity of the pressure equipment;

(b) piping to be inspected and tested by the manufacturer after manufacture, installation, modification or repair and before commissioning in accordance with the relevant health and safety standard incorporated into these Regulations under section 44 of the Act, and, where applicable, to be witnessed by an approved inspection authority: Provided that Category I equipment as categorized in terms of SANS 347 may be inspected, tested and witnessed by the user;

(c) every fire-tube steam generator to be subjected to an external inspection every 12 months and a witnessed hydraulic test and crack detection of critical welds every 36 months, by an approved inspection authority for in-service inspection appointed by the user in writing;

(d) every pressure vessel and steam generator, excluding those referred to in sub regulations (3), to be subjected to an internal and external inspection and a hydraulic test to a pressure of 1,25 times the design pressure by an approved inspection authority for in-service inspection appointed by the user in writing, at intervals not exceeding 36 months: Provided that Category I equipment as categorized in terms of SANS 347 may be inspected and tested by the user: Provided further that where the pressure equipment is not subject to deterioration processes, the user may dispense with the internal inspection and hydraulic pressure test, subject to a maximum period of nine years for that pressure vessel or steam generator and written approval by an approved inspection authority: Provided further that the chief inspector may require a specific steam generator or pressure vessel to be inspected or tested more frequently; and

(e) all piping and pipelines to be inspected and tested in accordance with the relevant in-service health and safety standard: Provided that where the health and safety standard does not prescribe in-service inspections and test intervals, such intervals shall be determined by a risk-based inspection applying sound engineering practice: Provided further that such inspection and test for Category II equipment and higher as categorized in terms of SANS 347 shall be performed by a competent person referred to in regulations 1 of the General Machinery Regulations, 1988.

(2) Where it is impracticable to use a liquid for the hydraulic pressure test referred to in sub regulations (1)(d) or (e), the test may, subject to the prior written approval of an approved inspection authority, be carried out with an inert gas to a pressure of 1,1 times the design pressure: Provided that, where reasonably practicable, the test shall be preceded by an internal inspection and any conditions and precautionary measures determined by the user and approved by the approved inspection authority.

(3) Where an inspection or test carried out in terms of sub regulations (1)(c), (d) and (e) reveals any weakness or defect whereby the safety of persons may be endangered, the weakness or defect shall be reported forthwith to the user by the person carrying out the inspection or test and the user shall forthwith cease the use of the pressure equipment until such weakness or defect has

been rectified to the satisfaction of the person who carried out the inspection and the approved inspection authority concerned in cases of modifications or repairs, as the case may be, or the steam generator, pressure vessel or storage vessel has been re-rated to the satisfaction of the approved inspection authority.

Notes:

(a) No qualifications for the user is defined in order to inspect Category I and lower equipment, but the person should have knowledge of and experience in the requirements of the Pressure Equipment Regulations and the applicable health and safety standard.

(b) Witnessed inspections and tests, means that the person performing the inspection is present during the pressure test required by the PER and performs the internal and external inspections.

(c) PER 11(1)(b) requires the manufacture who does the final assembly to inspect and issue a Certificate of Manufacture, co-signed by AIA where applicable and verify that the installation meets the PER requirements. This does not require a manufacturer who manufactures and certifies a pipe section which will be installed by the user to inspect and test the pipe before commissioning. The user shall take accountability for the installation (bolt-on) and certifies that the installation meets the requirements of the PER.

(d) "Critical Weld – are deemed to be all tube sheets to shell welds that were not made as full penetration welds or other welds whose failure can result in a catastrophic incident and shall be surface crack and ultrasonically tested. The critical welds in fire- tube boilers are Shell – to Endplates, Furnace to Endplates, Access tube to Endplates and Ash Drop out chutes to Furnace and Shell. These welds are specified in Guidelines for the examination of Boiler Shell to End plate and Furnace to Endplate and Welded joints published by Safety Assessment Federation Limited, London, UK"

(e) Waste heat steam generators are not deemed to be fire tube steam generators.

(f) The intent of PER 11(1)(d) is to provide two routes for extension of in-service inspection intervals for Category I – IV equipment not subject to deterioration processes: For deterioration mechanisms resulting in predictable material loss only, the extension may be granted based on proven history to a maximum of 9 years (the corrosion allowance may not be consumed within 20 years); and for all other deterioration mechanisms PER 12 applies. This extension may not be granted by the in-service inspection authority.

(g) Approval for permanent dispensation from the in-service hydraulic pressure test when requested by the user, may be granted by an approved inspection authority (AIA Manufacturing), Provided that the equipment is subjected to appropriate inspections and tests based on Health and Safety Standards as listed in SANS 347 which includes as a minimum, a visual inspection, and appropriate non-destructive testing to detect the expected deterioration associated with the service condition or appropriate non-intrusive inspection of internal surfaces and representative visual external inspection.

(h) In PER 11(1)(e) the competent person, as defined in GMR 1, shall be a person competent in his field of activity. The GMR 2.1 shall appoint a person to perform these inspections and test after confirming that they have appropriate knowledge and experience.

(i) As per PER 11(1)(e) all existing piping and pipelines need to be inspected in accordance with relevant in-service health and safety standards inspection requirements. Risk assessment approach is required and not a full RBI as per PER 12.

(j) Pressure and safety accessories do not need to be attached during in-service inspection and tests but are required during pre-commissioning inspections. Safety accessories shall be maintained in accordance with the requirements of an appropriate Health and Safety Standard or to a maximum inspection interval equivalent to the pressure equipment it protects. The AIA is not required to witness the resetting of the pressure safety accessory.

(k) Non flammable gas such as air may be used in lieu of inert gas for pneumatic testing. ASME

PCC-2 may be used as guidance for safety precautions during pneumatic testing.

(l) SAQCC CP steam generator and SAQCC CP Vessel inspectors have to do inspection under control of the quality control system of an AIA for in-service inspection. Free-lance inspectors are not allowed to inspect equipment as from the 1 April 2011.

(m) Equipment that was previously exempted from inspection and testing under VUP rules such as in refrigeration plants and gas installations inspections may only be dispensed with up to 9 years. Implementation of an RBI management system as stipulated in PER 12 is required to extend intervals beyond 9 years. For refrigeration systems compliance to SANS 10147 in service inspection requirements in lieu of the RBI management system is acceptable. Dispensation as stated above must be approved by an Approved Inspection Authority.

Alternatively exemptions need to be applied for by the relevant users or industry bodies from the DoL. Exemptions issued to industry bodies will only be valid for the members of the relevant body.

(n) The intent of the pre-commissioning inspection by the AIA is to verify that the user is in full compliance with the PER If the user or his representative deems the equipment to be adversely affected by the internal inspection and pressure test such as in complex equipment, assemblies, heat exchangers etc. the user may apply for approval of dispensation to the AIA. The AIA as a minimum shall verify that pressure equipment, while being transported, erected or worked on was not damaged, that no unauthorized hot work was performed without AIA verification.

(o) Existing equipment regulated prior to the PER may retain the existing inspection intervals until the first inspection after the PER came into effect. There after full compliance to the inspection interval requirements of the PER shall be adhered to including the implementation of RBI.

(p) PER 11(2) also applies to PER 11(1)(a)

(q) Where reference is made in the PER to AIA, it refers to manufacturing AIA. Reference to the In-service AIA is for the in-service inspection function only. See guide note under PER 7.

(r) Refrigeration and air conditioning systems shall be inspected and tested in accordance with PER 11.1.(a) and (d).

(s) Transportable gas containers shall be inspected by a SANAS accredited and DoL approved gas test station.

(t) Bladder/piston type accumulators are also classified as pressure accessories

(u) The intent of the 12 monthly external online visual inspection of fire tube steam generators is only to detect any visible steam leaks associated with the critical welds as mentioned in note (d) above.

(v) The user is not responsible for the inspection activities for rented pressure equipment, this responsibility remains with the owner, unless otherwise agreed by the contracting parties.

(w) Deferment requested by the user, of inspection and tests as per 11.1(d) may only be approved by an AIA in writing to a maximum period of 6 months and subjected to the provisos of the AIA.

(x) The Pre-commissioning dates allocated to pressure vessels and steam generators that form part of an integrated process unit, is the date of commissioning as per design intent of the process unit and not the individual equipment. The equipment in-service inspection and test interval commences on this date.

REGULATIONS 12 – RISK BASED INSPECTION

(1) The user may, as an alternative to the in-service inspection and testing interval requirements referred to in regulations 11(1)(d), implement a risk-based inspection management system in accordance with the relevant health and safety standard incorporated into these Regulations under section 44 of the Act.

(2) A risk-based inspection process and implementation shall be verified by a certification body accredited by the accreditation authority in terms of ISO 17021 specifically for risk-based inspections and approved by the chief inspector.

Notes:

(a) ISO 17021 applies to certification bodies and ISO 17020 applies to inspection bodies. The functions required for Risk Base Inspection process and implementation requires the use of ISO 17021 and not ISO 17020 since criteria are different.

(b) The new inspection interval for Cat 1 and higher shall also be approved by an approved inspection authority as in PER 11(1)(d) and frequencies in excess of 9 years can be approved provided it meets the RBI management system criteria.

(c) Users who wish to implement a risk-based inspection management system need to apply to the DoL prior to implementation of such a system. Such application shall include proof that the user has applied to a Certification Body for accreditation.

(d) The following documentation shall be prepared as a minimum by the user for the application to implement RBI to the DoL:

- *(i) File of the RBI management programme*
- *(ii) The (Chief) RBI specialist and his/her qualifications*
- *(iii) List of all your RBI Team personnel and list of their competencies and qualifications*
- *(iv) Health and Safety standards to be used*
- *(v) Certification Body involved*
- *(vi) AIA Manufacturing involved in the approval as stated in PER Note (b)*
- *(vii) Letter of Recommendation from the AIA Manufacturing to implement RBI*
- *(viii) Target date of certification of RBI management system*

(e) The scope of application of the RBI quality system is determined by the user on an individual equipment basis.

(f) The requirement of a typical quality management system shall at least comply to the elements as defined in Annexure SL of ISO Directive Part 1.

REGULATIONS 13 - REPAIRS AND MODIFICATIONS

(1) Subject to the requirement of the relevant health and safety standard incorporated into these Regulations under section 44 of the Act -

(a) any person who intends to modify or repair any pressure equipment shall cause such modification or repair to be carried out in accordance with the relevant health and safety standard, and in accordance with the assessment procedure, as specified by the relevant hazard category as determined by SANS 347;

(b) any modifier or repairer carrying out any modification or repair, referred to in paragraph (a), shall issue a certificate in which the extent of the modification or repair is described and certify that such work is in accordance with the relevant health and safety standard incorporated into these Regulations under section 44 of the Act: Provided that such certificate shall be countersigned by the approved inspection authority, where applicable, as evidence that the design of such modification has been verified and that it has been modified or repaired and tested under its supervision in accordance with the original health and safety standard where reasonably practicable;

(c) any user requiring re-certification of any pressure equipment shall ensure that the re-certification is performed under the supervision of an approved inspection authority, as applicable; and

(d) whenever it appears from any inspection or test that pressure equipment cannot be used safely in accordance with its design criteria and the user chooses not to have the necessary repairs effected immediately, the user shall, subject to approval by an approved inspection authority, ensure that the pressure equipment is re-rated, the amended data plate added and the pressure equipment operated within the re-rated criteria: Provided that, in the case of a steam generator, the registration certificate, together with a copy of the approved inspection authority's design verification report, shall be forwarded to the provincial director for updating of the steam generator registration.

Notes:

(a) Any person who intends to modify or repair any pressure equipment must comply with the relevant hazard category as determined by SANS 347. (See PER 3 Note (a))

(b) Where a pressure test is mandated by the health and safety standard for repairs and modifications on pressure vessels, piping and steam generators the applied hydrostatic test pressure shall be a minimum of 1.25 the design pressure as an alternative to the requirement of the H&SS. The user may opt for a higher test pressure when deemed necessary. See regulation 11(2) for pneumatic pressure testing requirements.

(c) Where a dispensation of a pressure test is required after repairs in accordance with approved repair and in-service Health & Safety Standard, approval must be obtained from the AIA for category II and higher equipment.

(d) AIA to supervise, if applicable any pressure equipment requiring re- certification. See PER 9 for re-certification criteria.

(e) Pressure Equipment excluded under previous regulations is excluded from these requirements. See PER 2 Note (g) for further clarification.

(f) Pressure equipment compliant to the standards enforced at the time of manufacture, i.e data plate stamped by AIA but without documentation of construction details, may be modified after calculations and necessary verifications and tests have been performed in accordance with an appropriate health and safety standard.

(g) Pressure equipment compliant to the standards enforced at the time of manufacture, i.e data plate stamped by AIA but without documentation of construction details, may be repaired after necessary verifications and tests have been performed in accordance with an appropriate health

and safety standard.

(h) Any online leak sealing device installed on Category II and higher pressure equipment shall be designed, verified, and manufactured to an appropriate and approved health and safety standard, under the supervision of the AIA. Installation remains the responsibility of the user taking into account the structural integrity of the item to be sealed and shall be considered as temporary.

(i) Sectional or component replacements can be done either in accordance with the original health and safety standard or applicable in-service health and safety standard which includes sectional or component replacements in its scope.

(j) Where a user chooses not to have the necessary repairs affected immediately the user may as an alternative to re-rating, perform Fitness for Service calculations in accordance with a relevant health and safety standard. For Category II and above pressure equipment all Fitness for Service calculations shall be approved by an appropriately registered professional person competent in this field and verified by an AIA as applicable.

REGULATIONS 14 - RECORDS

(1) Every user of pressure equipment shall keep a record, which shall be open for inspection by an inspector, in which the certificate of manufacture, and the results, after manufacturing, of all inspections, tests, modifications and repairs shall be recorded.

(2) When pressure equipment is sold, the manufacturer shall ensure that it is accompanied, where relevant, with instructions for the user, containing all the necessary safety information relating to -

(a) mounting, including the assembling of different pieces of pressure equipment;

(b) putting into service; and

(c) maintenance, including checks by the user:

Provided that those instructions shall cover information affixed to the pressure equipment in accordance with these Regulations and the relevant health and safety standard incorporated into these Regulations by section 44 of the Act, with the exception of serial identification, and be accompanied, where appropriate, by technical documents, drawings and diagrams that are necessary for a full understanding of the instructions: Provided further that, if appropriate, the instructions shall also refer to hazards arising from misuse of the pressure equipment.

The manufacturer shall keep the original manufacturing records of the pressure equipment for a minimum period of 12 years.

Notes:

(a) The user shall keep all records for the operating life of the equipment. Such records shall typically cover repairs, modifications and In-service inspection test records as well as all related documents such as deferments, pressure test dispensation, NDT reports and not just manufacturing related records. Further clarification is that the user is not necessarily the owner.

(b) The records of the original manufacturing of the pressure equipment shall be kept by the manufacturer for a minimum of 12 years; enabling a technical review of the construction of the equipment should a failure or a dispute arise. Typical documentation should include, but not limited to, design calculations, approved manufacturing drawings, approved fabrication records, pressure test certificate, Certificate of manufacture as well as a copy of the marking (if applicable).

(c) The importer will provide certificate of manufacturer, global conformity assessment certificate for assemblies, any other documentation required by the applicable health and safety standard as well as other documentation contractually required by the user

(d) Equipment manufactured prior to 23 October 1992 and which was designed, constructed and manufactured in accordance with regulations in force at that time do not require a certificate of manufacture (See regulation 2 of VUP)

(e) In respect to regulation 14(1) the user is not required to keep the records for transportable gas containers when such containers are rented by the owner. The records shall be held by the owner.

(f) For all pressure equipment, excluding transportable gas containers that are not owned by the user, the user is responsible to ensure that all records are available according to the PER.

(g) Users shall ensure where used pressure equipment is sold, that all user held records are transferred to the new owner as applicable.

(h) For existing equipment post 23 October 1992 where the certificate of manufacturer has been misplaced or lost, a duplicate certificate shall be obtained from the original manufacturer or alternatively recreated from the data plate details under supervision of an AIA and recertification is not required.

REGULATIONS 15 - ACCESS

The user shall cause pressure equipment to be erected and maintained in such a manner that access to and exit from any chamber, flue, manhole, inspection opening, control or accessory is safe and unobstructed.

Notes:

(a) "access". - the word "access" can also mean:

(i) for internal inspection: remote access e.g. small vessels

(ii) for external inspection: accessibility for inspection activities e.g. pressure accessories

(b) The Approved Inspection Authority shall verify compliance of above requirement during the pre-commissioning inspection activity.

REGULATIONS 16 – DOOR INTERLOCKS

(1) Any user of pressure equipment shall cause such pressure equipment which for operational purposes is equipped with a quick-actuating opening, to be provided with an interlock or other effective means for preventing –

(a) a rise of pressure inside the pressure equipment before the quick-actuating openings are in the fully closed and locked position; and

(b) the release of the quick-actuating opening from the locked and closed position before the pressure inside the pressure equipment has been reduced to atmospheric pressure or the pressure across the openings has been equalised.

Notes:

(a) None

REGULATIONS 17 – GAS RETICULATION EQUIPMENT AND SYSTEMS

(1) No person shall –

(a) handle, store or distribute any gas in any manner, which includes the filling of a container, other than in accordance with the relevant health and safety standard incorporated into these Regulations under section 44 of the Act;

(b) install or remove an appliance, pressure equipment or system for gas in any manner other than in accordance with the relevant safety standard incorporated into these Regulations under section 44 of the Act;

(c) install or remove a gas appliance, or a gas system or a gas reticulation system, unless such person is an authorised person; or

(d) use pressure equipment or systems for gas in any manner other than in accordance with the relevant safety standard incorporated into these Regulations under section 44 of the Act.

(2) After installation or re-installation, and before commissioning a gas system, the user shall ensure that an external inspection and a leak test are performed by an authorised person or an approved inspection authority as applicable in terms of sub regulations (1)(c).

(3) An authorised person or an approved inspection authority shall issue a certificate of conformity after completion of a gas installation, modification, alteration or change of user or ownership in the form of Annexure 1.

Notes:

(a) The intent of PER 17 is to ensure safety in the domestic, commercial and industrial gas market applications where the competence is needed for correct material and component selection, installation and commissioning as currently fulfilled by the SAQCC-Gas Practitioners Registration Scheme. This scheme assures quality and safety of installations. For process plants, pipeline systems and gas storage facilities installation, compliance is verified by Approved Inspection Authorities to typical process piping Health and Safety standards.

(b) The definition of the gas system in the PER also treats Utility air as a non-dangerous gas installation and needs to be categorised in accordance to SANS 347 and need not to be inspected or certified by an Authorised Person for gas reticulation systems as defined in the PER. Air and Nitrogen used for process equipment and/or blanketing purposes do not have to be inspected and certified by an Authorised Person for gas reticulation systems as defined in the PER but shall comply to the requirements of SANS 347.

(c) Refrigeration systems of Category II and higher shall comply with the requirements of SANS 347. For Category I and below, certification to SANS 10147 is also required. Sound engineering practice (SEP) applies to equipment that is not subjected to conformity assessment but that shall be designed and manufactured and installed in accordance with sound engineering practice (best practice)to ensure safe operation and use. Such equipment shall be designed, manufactured and installed to take into account all the relevant factors that influence safety during its intended lifetime. The equipment shall have operating instructions for the safe use of the installation and shall bear the identification of the manufacturer. SEP equipment is not required to meet any other of the essential statutory requirements listed in the relevant national legislation (See SANS 347).

(d) As from October 2009, all new industrial thermal processing combustion and fuel-handling system installations require a COC to the requirements of SANS 329 as per Annexure 1 of the PER.

(e) When maintenance, modification or repair work is performed on gas systems it is acceptable for the gas practitioner to issue a certificate of conformity that is specific to the scope of work performed.

(f) Gas reticulation systems require a COC from a gas practitioner. When the pipe diameter of the reticulation system causes it to be in category II or higher, as defined by SANS 347, an AIA involvement is required as per SANS 347 and to countersign the Certificate of Manufacture issued by the manufacturer or gas practitioner, as applicable.

(g) A COC shall be issued by the SAQCC Gas registered gas practitioner for the installation, repair or modification and/or maintenance of a refrigeration system in terms of the PER, SANS 347 and SANS 10147. When the refrigeration system size causes it to be in category II or higher, as defined by SANS 347, an AIA involvement is required as per SANS 347 and to countersign the certificate of manufacture issued by the manufacturer or gas practitioner, as applicable.

(h) The intent of PER 17 (3) is that only the gas practitioner and not an AIA issues a COC for activities as listed.

(i) On change of ownership of a gas system the certificate of conformity shall be transferred to the new owner except for domestic or commercial entities servicing the public where a certificate of conformity, as provided by the SAQCC Gas, shall be issued on the change of user or ownership. The seller is responsible for obtaining a Certificate of Conformity where relevant.

(j) If an existing installation commissioned before July 2009, is not designed and constructed to the requirements of SANS 329 as published at that time, the user shall determine that the equipment is designed, maintained, inspected, tested, and operating in a safe manner. Safe operation and maintenance shall be ensured by procedures, documented and enforced, to address all deviations to the requirements of SANS 329.

(k) Any modifications done on such a system as above in note (j) shall comply with the requirements of SANS 329 as published at the time of the modifications and where equipment is replaced on a system constructed before July 2009, such equipment shall be issued with a permit by an organisation approved by the chief inspector as referenced in Regulation 5.(3) and a COC issued within the scope of work performed.

(l) All pressure equipment imported or locally manufactured for natural gas or LPG installations must be verified and accepted in accordance with Safe Gas Equipment Scheme and Safe Appliance Scheme as mandated by the DoL.

REGULATIONS 18 – TRANSPORTABLE GAS CONTAINERS

(1) No user shall use, require or permit a transportable gas container to be used, and no user shall fill, place in service, handle, modify, repair, inspect or test any transportable gas container, other than in compliance with the relevant standards incorporated into these Regulations under section 44 of the Act.

(2) The inspection and test referred to in sub regulations (1) shall be carried out by an approved testing station.

(3) Applications for approval of a testing station shall include proof of accreditation as prescribed in sub regulation (4), and shall include full contact details and address information.

(4) The chief inspector's approval is subject to a valid accreditation certificate issued by the accreditation authority: Provided that the chief inspector may set additional requirements before granting approval.

Notes:

(a) Transportable gas containers smaller than 0,5 litres are not regulated but shall be manufactured to a relevant health and safety standard.

REGULATIONS 19 - FIRE EXTINGUISHER

(1) No user shall use, require or permit the use of a fire extinguisher unless designed, constructed, filled, recharged, reconditioned, modified, repaired, inspected or tested in accordance with the relevant safety standard incorporated into these Regulations under section 44 of the Act.

(2) No person shall fill, recharge, recondition, modify, repair, inspect or test any fire extinguisher unless such person is an authorised person employed by a permit holder: Provided that a permit is issued by an organisation approved by the chief inspector.

(3) Applications for approval shall include proof of accreditation as prescribed in sub regulations and shall include full contact details and address information.

(4) The chief inspector's approval shall be subject to a valid accreditation certificate issued by the accreditation authority: Provided that the chief inspector may set additional requirements before granting approval.

Notes:

(a) Only an authorized person shall fill, recharge, recondition, modify, repair, inspect or test any fire extinguisher.

(b) The permit must be issued by an organisation approved by the chief inspector.

(c) High Pressure rechargeable containers which are used as CO_2 fire extinguishers, shall only be re-validated by an organisation which has been accredited to SANS 1825. Fire extinguisher test stations accredited to SANS1425 are not allowed to inspect or test high pressure re-chargeable CO_2 fire extinguishers.

REGULATIONS 20 – OFFENCES AND PENALTIES

(1) Any person who contravenes or fails to comply with any of the provisions of regulations 3, 4, 5, 6, 7(1), 7(2), 8(1), 8(2), 8(3), 8(4), 8(5), 8(7), 9, 10, 11(1), 11(3), 12(2), 13, 14, 15, 16, 17, 18(1), 18(2), 19(1) and 19(2) shall be guilty of an offence and liable upon conviction to a fine or to imprisonment for a period not exceeding 12 months and, in the case of a continuous offence, to an additional fine of R200,00 for each day on which the offence continues or additional imprisonment of one day for each day on which the offence continues: Provided that the period of such additional imprisonment shall not exceed 90 days.

Notes:

(a) None

REGULATIONS 21 – REPEAL OF REGULATIONS AND ANNEXURE

The Vessels under Pressure Regulations, 1996, published under Government Notice No. R. 1591, dated 4 October 1996, is hereby repealed.

Notes:

(a) Exemptions granted by the DOL under the VUP Regulations are also repealed.

REGULATIONS 22 – SHORT TITLE

These Regulations shall be called the Pressure Equipment Regulations, 2009, and shall come into effect on 1 October 2009: Provided that approved inspection authority for in-service inspections shall come into effect on 1 April 2011 on condition that the inspection shall be carried out by an authorised person.

Notes:

(a) Applications for accreditation as an In-service AIA shall be made to SANAS (South African National Accreditation System) where-after approval shall be obtained from the DoL.