

**Implementation Requirement for TSG 21-2016 *Supervision Regulation on Safety Technology for Stationary Pressure Vessel***

**[SESA Notice No.46 (2016)]**

**Quality and Technical Supervision Bureaus of provinces, autonomous regions, and municipalities as well as other concerned companies:**

The TSG 21-2016 *Supervision Regulation on Safety Technology for Stationary Pressure Vessel* will come into force on Oct.1, 2016 (hereafter referred to as the “Regulation”). For the smooth transition with the previous regulations including the former *Supervision Regulation on Safety Technology for Stationary Pressure Vessel*, *Nonmetal Pressure Vessels Safety Technical Supervision Regulation*, *Simple Pressure Vessels Safety and Technical Supervision Regulations*, *Super-high Pressure Vessels Safety and Technical Supervision Regulation*, *Pressure Vessel Service Administration Regulation*, *Pressure Vessel Periodical Inspection Regulation*, and *Regulation on Supervision Inspection for Pressure Vessel* (hereafter collectively referred to as the “former regulations”) , and to implement the “Regulation” on time, the following requirements are brought forward for the implementation of the “Regulation”.

1. Requirements on the transitional period

1.1 Starting on Oct. 1, 2016, the design, fabrication, alteration and repair companies of stationary pressure vessels shall implement the “Regulation” when signing contract with client.

1.2 If the contract has been signed before Oct. 1, 2016 or the pressure vessels have started the blanking process for fabrication according to the “former regulations”, the fabrication and supervisory inspection of the pressure vessels still can be carried out according to the technical codes stipulated on the contract and the “former regulations”.

1.3 If the contract of alteration or important repair of pressure vessels has been signed before Oct. 1, 2016 according to the “former regulations”, the alteration and important repair can continue to be carried out according to the technical

codes stipulated on the contract.

1.4 If the design were completed before Oct. 1, 2016, and they are still required for fabrication (except the situation mentioned in Item b of this Article), the unconformity parts of the design documents with the “Regulation” shall be revised.

## 2. Explanation of some provisions in the “Regulation”

### 2.1 Conformity declaration of product standards

When product standards (including foreign standards, industry standards, social organization standards and enterprise standards) other than the harmonized standards referred in Article 1.10 of the “Regulation” are used for design and fabrication of pressure vessels, the manufacturer shall declare on the first page of the quality certificate that the products designed and fabricated by the manufacturer are in conformity with the basic safety requirements of the “Regulation” according to AQSIQ Notice No.151 (2012), and provide the “Conformity Declaration” and “Contrast Table” in the quality certification documents.

### 2.2 Material

#### 1) Traceable information identifications of materials

The traceable information identifications stipulated in Article 2.1.1 (4) of the “Regulation” include QR codes, bar codes, etc. The traceable information of materials shall include the name of steel mills, material designation, specification, batch no. , heat treatment state and manufacture date, etc. Starting on Oct 1, 2016, the pressure vessel manufacturer shall purchase the materials with traceable information identifications printed on the material quality certificate, and the pressure vessel fabrication supervisory inspectors shall check the information identifications.

#### 2) Re-inspection of foreign designate materials

The re-inspection for verification of the chemical composition and mechanical properties of main pressure component materials stipulated in Article 2.1.2.1 (4) of the “Regulation” is principally required to use the domestic inspection and

testing methods, and the measured value of re-inspection result shall meet the requirements.

### 2.3 Design

#### 1) The dedicated stamp for design

The requirement of dedicated stamp for design is stipulated in Article 3.1.2 of the “Regulation”. The current design licensing stamp is still valid during the valid period of the design certificate, but the stamp of the main responsible person of the design company shall be sealed below the design licensing stamp. After Oct. 1, 2016, the newly licensed (including license renewed) design companies shall use the new name “Design Stamp” for the dedicated stamp, and the contents of the stamp shall satisfy the requirements of Article 3.1.2(2) of the “Regulation”, the main responsible person refers to the legal representative of the design company.

#### 2) Nil-ductility transition temperature

The nil-ductility transition temperature of common pressure vessel walls mentioned in Article 3.2.12.2 of the “Regulation” can reference the attached table of Article 11.4.9 in GB150.4 (GB150-2011 *Pressure Vessel - Standard Explanation*), and for those not listed can consult the relevant metal materials handbook.

#### 3) Design requirements of quick opening pressure vessels

The designer shall stipulate the technical requirements for quick opening safety interlock devices such as the service environment, calibration periodicity, and calibration methods in the design documents. The quick opening interlock device shall also satisfy the requirements of corresponding safety technical codes and standards based on which the design is performed. If the structure of the quick opening pressure vessel has the function of safety interlock, the safety interlock device may not be provided additionally.

### 2.4 Fabrication

#### 1) Manufacture licensing level

The classification of manufacture licensing level of pressure vessels is still

according to the requirements of the *Supervision Administration Regulation for Manufacture of Boiler and Pressure Vessel* (AQSIQ Decree No. 22) (since the *Catalogue of Special Equipment* has been adjusted, the manufacture of spherical shell plate is cancelled from the manufacture licensing scope of level A3 pressure vessels)

2) Supervisory inspection on individually delivered pressure components and parts

After the “Regulation” came into force, the individually delivered pressure components and parts of pressure vessels which require the supervisory inspections are: drum shell rings with welds, heads, spherical shell plates of spherical tanks and welded heat exchanging tubes.

3) Pressure vessel fabricated by strain strengthening technology

Before the publishing of national standard GB/T 18442.7, the manufacturer can draw up enterprise standard by referencing the draft edition of the national standard *Stationary Insulated Cryogenic Pressure Vessels Part 7:Inner Vessel Strain Strengthening Technology Stipulations* (can be downloaded at <http://www.cscbpv.org.cn>) and apply for enterprise standard self-declaration or registration.

The manufacturer shall invite the type test agency of insulated cryogenic pressure vessels to perform type test in accordance with Article 4.1.2 of the “Regulation” if it is the first time for the manufacturer to apply strain strengthening technology for the fabrication of pressure vessel. Before the manufacturer fabricate inner pressure vessel with the strain strengthening technology, it shall verify the strain strengthening technology process and trial produce the sample pressure vessel in accordance with Article 4.2.7.3 (4) of the “Regulation”. The trial production shall be notified in advance to the type test agency and accept the supervisory inspection.

4) Type test agency

The type test of the bottle-type pressure vessel stipulated in Article 4.1.2 of the “Regulation” shall be carried out by AQSIQ approved gas cylinder type test agencies for the time being.

5) Field fabrication of large pressure vessels

The large pressure vessel mentioned in Note 4-1 of the “Regulation” refers to those which cannot be transported due to their weight or size. The field fabrication of large pressure vessels shall conform to the requirement of the *Notice on the Further Perfection of Safety Supervision to Boilers, Pressure Vessels and Pressure Pipelines* (AQSIQ Notice No.402 (2007)), whatever the level of the pressure vessel is, the licensed manufacturer shall apply for review or approval to the provincial level quality and technical supervision department or market supervision department where the field fabrication is conducted.

6) Static evaporation rate

The inspection results of static evaporation rate mentioned in Article 4.1.5.1(2) of the “Regulation” refers to the guarantee value of vacuum insulation pressure vessels’ static evaporation rate defined by the manufacturer according to the type test result or inspection result according to product standard.

## 2.5 Supervisory inspection and periodical inspection

1) Inspection signature (seal)

The “Regulation” stipulates the supervisory inspector shall sign (seal) on the general drawing and the witness records of supervisory inspection. The requirement for signing (seal) of material, welding and other processes shall be defined by the quality system of the supervisory inspection body.

2) Supervisory inspection and periodical inspection of super-high pressure vessels

According to the “Regulation”, super-high pressure vessels are classified as category III pressure vessel. The inspection institutes that carry out supervisory inspection and periodical inspection for super-high pressure vessels shall hold RJ1 and RD1 certificate respectively according to the requirements of *Special Equipment Inspection Institute Approval Rules*.

## 2.6 Service management

1) The in-service pressure vessel which doesn't need to register for service

The in-service pressure vessel, which was delivered and registered according to the "former regulations", doesn't need to register again if it is not in the supervision scope of the "Regulation" or the "Regulation" doesn't require its registration, the user shall manage its safety according to the service management requirement of the "Regulation".

2) Service registration of skid mounted pressure equipment system or mechanical equipment system (collectively referred to as "equipment system" hereafter)

(1) The pressure vessel and pressure pipeline installed on "equipment system" shall be designed and fabricated by qualified companies and shall pass the manufacture supervisory inspection according to safety technical codes.

(2) The manufacturer of "equipment system" with pressure vessel or pressure pipeline shall hold the license of corresponding level for the manufacture of pressure vessel and pressure pipeline component or hold pressure pipeline installation license, the system shall pass the manufacture supervisory inspection (the pressure pipeline component which is not required to perform the manufacture supervisory inspection by safety technical codes can be inspected according to installation supervisory inspection).

(3) The pressure pipeline of the "equipment system" can be regarded as pressure vessel auxiliaries and can be registered together with the pressure vessel for service; if there is only pressure pipeline, it shall be registered for service as pressure pipeline.

(4) The user shall directly apply for service registration for the "equipment system" (simple pressure vessel and pressure vessels stipulated in Article 1.4 of the "Regulation" are excluded), and doesn't need to handle pressure vessel or pressure pipeline installation notice nor apply for installation supervisory inspection.

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