

# TSG

TSG R0004—2009

## Supervision Regulation on Safety Technology for Stationary Pressure Vessel

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General Administration of Quality Supervision, Inspection and Quarantine  
of the People's Republic of China

## Acknowledgements and additional note

On August 31<sup>st</sup> 2009, the General Administration of Quality Supervision, Inspection and Quarantine issued bulletin (No. 83) and promulgated “*Supervision Regulations on Safety Technology for Stationary Pressure Vessel*” and is enforced on December 1<sup>st</sup> 2009. In order to meet the demands of international trade for pressure vessels to facilitate the evaluation of pressure vessel manufacture license and thereby enabling the international pressure vessel enterprise to familiarize and implement the essential safety requirements of pressure vessels in China, the Bureau of Safety Supervision of Special Equipment of the General Administration of Quality Supervision, Inspection and Quarantine entrusted China Special Equipment Inspection & Research Institute to organize the translation of English version of “*Supervision Regulations on Safety Technology for Stationary Pressure Vessel*”.

The English version of “*Supervision Regulations on Safety Technology for Stationary Pressure Vessels*” is translated by Beijing Sanba Technology & Trade Ltd. and reviewed & revised by Mr. Shou Binan, Mr. Xu Hongyi, Ms Qi Yuedi, Ms Xu Tong, and Miss Li Chenyu from China Special Equipment Inspection & Research Institute.

Formal statement: the General Administration of Quality Supervision, Inspection and Quarantine is responsible for the interpretation of the “*Supervision Regulations on Safety Technology for Stationary Pressure Vessel*”. The Chinese Version is the legal version. There is no legal implication for the documents provided here in foreign languages. It is only for the purpose of reference.

The Japanese version of “*Supervision Regulations on Safety Technology for Stationary Pressure Vessel*” is a volunteer translation by Beijing Sanba Technology & Trade Ltd. And reviewed & revised by Mr. Xu Hongyi from China Special Equipment Inspection & Research Institute. We are grateful to all the individuals who have contributed to the aforementioned translations.

For any question in translation, please contact China Special Equipment Inspection & Research Institute (<http://www.csei.org.cn>, email: [jsfqb@csei.org.cn](mailto:jsfqb@csei.org.cn)) or Beijing Sanba Technology & Trade Ltd. (<http://www.bjsanba.cn>, email: [sanba008@126.com](mailto:sanba008@126.com))

## Preface

In May 2007, the Special Equipment Safety Supervision Administration (abbreviated as SESA hereinafter) of the General Administration of Quality Supervision, Inspection and Quarantine (abbreviated as AQSIQ, hereinafter) established the project plan to revise “Supervision Regulation on Safety Technology for Stationary Pressure Vessel” (abbreviated as SRSTSPV, hereinafter). In September 2007, the Technical Regulation Division of China Special Equipment Inspection and Research Institute (abbreviated as CSEI, hereinafter) established a Working Group of the formulation (revision) and held the first meeting in Beijing. On the meeting the Working Group discussed principles, important contents, key issues and outlines for formulating (revising) the SRSTSPV, concretely assigned responsibilities of the drafting work, and set down a time table for the outline. In November 2007, the Working Group held the second meeting in Beijing and announced the exposure draft of the SRSTSPV as results of discussion. SESA issued Announcement [2008] No.10 to request comments from primary sectors, relevant departments and organizations, experts and citizens. In May 2008, the Working Group held the third meeting in Suzhou, Jiangsu Province and delivered the regulation draft incorporating the collected opinions. During the formulation (revision), SESA also held several seminars to discuss major issues of the formulation (revision) for the SRSTSPV, and commissioned CSEI and China Association of Special Equipment Inspection to organize two symposiums in January 2008 and July 2008 respectively to discuss the revision of the non-destructive examination in the SRSTSPV. In August 2008, SESA submitted the revised draft to the Special Equipment Safety Technology Committee of AQSIQ for deliberation. By integrating the valuable suggestions and comments, the Working Group further modified the draft and came up with the new revision for approval. In October 2008, the draft for approval of the SRSTSPV was submitted to WTO/TBT for notification by AQSIQ. In April 2009, the Working Group responded to the advisory opinions from the WTO/TBT, held a meeting to finalize the SRSTSPV in Beijing in May 2009, and determined the final version for approval of the SRSTSPV. On August 31, 2009, the SRSTSPV was approved and published by AQSIQ.

The fundamental principles of the revision of the SRSTSPV include the following:

- (1) Transform the SRSTSPV into a safety technical regulation of special equipments

(TSG);

(2) Establish the position of the SRSTSPV in the system of special equipment regulations and standards;

(3) Learn the lessons from accidents;

(4) Emphasize the concept that rules of laws prescribe the essential safety requirements of special equipments;

(5) Solve the major problems in the SRSTSPV that may have greater impacts on the industry by the detailed research findings, data and research results;

(6) Reinforce the service management and emergency rescue preplans;

(7) Reflect the energy-save principle;

(8) Promote fabrications and facilitate enterprises;

(9) Take advantage of the advanced scientific and technological achievements those are favorable for scientific and technological developments;

(10) Incorporate the international development and Chinese special features;

(11) Coordinate with safety technical regulations for special equipments and technical standards.

To be consistent with various systems, related requirements and scientific terms prescribed in “*Regulations on safety supervision for special equipment*”, the major body of Safety Supervision was converted to AQSIQ including different local departments of quality and technical supervision. In general, it retained the original outlines and the main contents of the original SRSTSPV, which demonstrating that rules of laws are the essential safety requirements in design, fabrication, installation, alternation, maintenance, service, inspection, and test of special equipment. These essential safety requirements are not involved technical details related to the product. In consistent with the current basic national policy of energy-saving, reducing pollutants discharging and energy consumption, the revised SRSTSPV has come up with some related basic requirements, such as, adjustments of safety factor, heat exchanger’s thermal efficiency, thermal/cold insulation requirements, the proof pressure test for periodic inspections, and so on. In order to solve the classification for categories of pressure vessels, to introduce concepts of risks and failure modes, the classified supervision for pressure vessels based on the single vision are implemented, and the essential safety ideas are highlighted. The applicable scope of the revised SRSTSPV is adjusted and covered all pressure vessels in the scope of “*Regulations on safety supervision for special*

equipment” that were not subjected to the safety supervision in the original SRSTSPV. Meanwhile, the original version (1999) of “*Supervision Regulation on Safety Technology for Pressure Vessel*” is converted to “*Supervision Regulation on Safety Technology for Stationary Pressure Vessel*”. In addition, “*Supervision Regulation on Safety Technology for Transportable Pressure Vessel*” is formulated otherwise, and some recently issued supervision regulations regarding safety technology are temporarily retained that including pressure vessels such as super-high pressure vessels, simple pressure vessels, non-metallic pressure vessels, and so on. Some provisions with limitation are adjusted with some flexibility so as to facilitate the application of new materials, new processes and new technologies. A few unnecessary or outdated provisions, such as issues of the design pressure for liquefied gases, nonferrous metals, the expanding ratio of tubes, the re-examination requirements of materials, product welded test coupons, and so on, are accordingly adjusted. The risk-based inspection (RBI) technology, the Time of Flight Diffraction Technique (TOFD), and the evaluation methods for defects are introduced based on scientific and technological researches, and scientific and technological achievements. Unnecessary superfine data sheets are adjusted (deleted) and the product data sheet of pressure vessels is increased. The raised requirement of informational process laid down the foundations for the future information-based management.

The participants for formulating (revising) this Regulation listed as follows:

China Special Equipment Inspection and Research Institute: Shou Binan, Xie Tiejun, Jia Guodong, Zheng Hui, Qi Yuedi

Bureau of Safety Supervision of Special Equipment, AQSIQ : Wang Xiaolei, Li Jun, Chang Yanyan, Zhang Jianrong

Hefei General Machinery Research Institute: Chen Xuedong, Li Jingchen, Yuan Rong

China Standardization Committee on Boilers and Pressure Vessels: Qin Xiaozhong, Yang Guoyi

Shanghai Bureau of Quality and Technical Supervision: Tang Xiaoying

Zhejiang University: Zheng Jinyang

Special Equipment Safety Supervision Inspection Institute of Jiangsu Province: Miao Chunsheng, Yuan Biao

Sinopec Engineering Incorporation: Li Shiyu, Zhang Yingkai

Jinzhou Heavy Machinery Co., Ltd.: Liu Jing

Sinopec Beijing Yanshan Petrochemical Co., Ltd.: Wang Guang

PetroChina Company Limited: Liu Nongji

Lanzhou Petroleum Machinery Research Institute: Zhang Yanfeng

China Association of Special Equipment Inspection : Wu Shengwu

China HuanQiu Contracting & Engineering Corporation: Ye Rixin

China Tianchen Engineering Corporation : Qu Jianping

Former Boiler & Pressure Vessel Safety Supervision Bureau, the Ministry of Labour:  
Song Hongming

China Special Equipment Inspection and Research Institute, China Standardization Committee on Boilers and Pressure Vessels, Special Equipment Safety Supervision Inspection Institute of Jiangsu Province and its branch in Suzhou, Hefei General Machinery Research Institute, China Association of Special Equipment Inspection, Zhejiang University and other units have performed significant amount of research and conference organizational work for the formulation (revision) of the SRSTSPV.

The SRSTSPV is translated by Beijing Sanba Technology & Trade Ltd (<http://www.bjsanba.cn> email:sanba008@126.com) Please contact us for any questions about this translation.

## CONTENT

|   |  |      |
|---|--|------|
| 1   | GENERAL REQUIRMENT                                 | (9)  |
| 2   | MATERIAL   | (13) |
| 3   | DESIGN   | (22) |
| 4   | FABRICATION  | (32) |
| 5   | INSTALLATION, ALTERATION AND MAINTENANCE           | (51) |
| 6   | SERVICE MANAGEMENT                                 | (53) |
| 7   | PERIODIC INSPECTION                                | (57) |
| 8   | SAFETY ACCESSORY                                   | (62) |
| 9   | SUPPLEMENT   | (66) |
| ANNEX A CLASSIFICATIONS FOR CATEGORIES, CLASSES AND SORTS |  |      |
|   | OF PRESSURE VESSELS                                | (67) |
| ANNEX B   | PRODUCT COMFORMITY CERTIFICATE OF PRESSURE VESSELS | (71) |
|   | ANNEX b PRODUCT DATA SHEET OF PRESSURE VESSELS     | (72) |
| ANNEX C   | PRODUCT NAMEPLATE OF PRESSURE VESSELS              | (73) |
| ANNEX D   | CODE NUMBERING METHODS OF SPECIAL EQUIPMENTS       | (75) |

## Supervision Regulations on Safety Technology for Stationary Pressure Vessels

### 1 General Requirement

#### 1.1 Purpose

In order to ensure the safe operation of stationary pressure vessels, protect the safety of human life and property, and promote the development of national economy, this Supervision Regulations on Safety Technology for Stationary Pressure Vessels (abbreviated Regulation, hereinafter) is established in accordance with “*Regulations on Safety Supervision of Special Equipment*”.

#### 1.2 Stationary pressure vessels

Stationary pressure vessels refer to pressure vessels installed and operated at fixed locations (hereinafter referred to as pressure vessels, see Note 1-1).

Note 1-1: Pressure vessels to be moved and/or used within the certain scope of the facility or plant field for a particular purpose, as well as air tanks in transportable air compressor units are jurisdicted by this regulation.

#### 1.3 Applicable scope

This Regulation is applicable to stationary pressure vessels in conformity with all of the following conditions as a whole:

(1) The working pressure is equal to or greater than 0.1 MPa (Note 1-2);

(2) The product of working pressure and volume is equal to or greater than 2.5 MPa\*L (Note 1-3);

(3) The medium is gas, liquefied gas or liquid which maximum working temperature is equal to or greater than its standard boiling point (Note 1-4).

In which, ultra-high pressure vessels shall be in accordance with “*Super-high Pressure Vessel Safety and Technical Supervision Regulation*”; Nonmetal pressure vessels shall be in accordance with “*Nonmetal Pressure Vessels Safety and Technical Supervision Regulation*”; simple pressure vessels shall be in accordance with “*Simple Pressure Vessels Safety and Technical Regulation*”.



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