TSG

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SAFETY OF SPECIAL EQUIPMENT

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Pressure pipe supervision inspection regulation

压力管道监督检验规则

State Administration for Market Regulation

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Pressure pipe supervision inspection regulation

1 General

1.1 Purpose

In order to standardize the supervision inspection of pressure piping components manufacturing (supervision and inspection is hereinafter referred to as supervision inspection) and the supervision inspection of pressure pipeline installation, modification and major repairs (installation, modification and major repairs are hereinafter collectively referred to as construction), in accordance with the "Special Equipment Safety Law of the People's Republic of China" "Special Equipment Safety Supervision Regulations", this regulation is hereby formulated.

1.2 Scope of application

1.2.1 Manufacturing supervision inspection

This regulation is applicable to the supervision inspection of the manufacturing process of the following pressure piping components within the scope as specified in the "Special Equipment Catalog":

(1) Submerged arc welded steel pipe, polyethylene pipe (Note 1-1);

(2) Gas pressure regulating device, temperature and pressure reducing device, factory prefabricated pipe segment (Note 1-2), flow meter (shell) (Note 1-3) in the component assembly device.

Note 1-1: It excludes polyethylene pipes with metal skeletons and fiber-reinforced polyethylene pipes.

Note 1-2: Factory prefabricated pipe segment refers to the piping component products manufactured by the manufacturer after welding and assembling pressure piping components in the factory according to the construction design drawings. It does not include the piping prefabrication performed by the installation organization at the construction site.

Note 1-3: The temperature and pressure reducing devices, factory prefabricated pipe segments, flow meters (shells) used in the pipelines within the boiler range can be manufactured, supervisory inspected in accordance with the relevant regulations of the boiler.

construction organization, non-destructive testing organization, etc.

The inspected organization shall do the following work:

(1) Pressure piping component manufacturers, design organizations, construction organizations, non-destructive testing organizations shall establish a quality assurance system and maintain its effective implementation;

(2) Provide necessary working conditions; determine the responsible person for supervision inspection work; do a good job in cooperation of supervision inspection;

(3) The pressure piping component manufacturer shall submit a supervision inspection application to the supervision inspection agency before the product is manufactured; submit a production plan; provide real and effective inspection materials in a timely manner (Note 1-5);

(4) The construction organization is responsible for coordinating the implementation of supervision inspection matters, submitting a supervision inspection application to the supervision inspection agency or requesting the construction organization to submit a supervision inspection application, timely coordinating and solving construction and supervision inspection related issues;

(5) The construction organization assists the construction organization or submits a supervision inspection application to the supervision inspection agency according to its requirements; submits the construction schedule plan;

(6) The construction organization and the non-destructive testing organization shall inform the supervision inspection agency of the construction and testing progress in time; provide true and effective inspection materials (Note 1-5).

Note 1-5: The inspection documents refer to the technical documents, inspection records, inspection and testing records, test and testing reports, qualification lists of welding operators and non-destructive testing personnel related to the inspected products and construction projects.

1.5 Supervision inspection agencies and supervisory inspectors

(1) The supervision inspection agency undertaking the supervision inspection of manufacturing (construction) shall obtain the corresponding qualifications approved by the department responsible for the safety supervision and management of special equipment (hereinafter referred to as the special equipment safety supervision department); the inspectors

The supervision inspection procedures generally include acceptance of applications, preparations for supervision inspections, implementation of supervision inspections, issuance of supervision inspection certificates.

2.1.1 Acceptance of applications

The pressure piping component manufacturer and building organization (or construction organization) shall submit the application for the pressure piping supervision inspection to the supervision inspection agency before manufacturing or construction.

After the supervision inspection agency accepts the supervision inspection application, it shall provide the applicant organization with a sample supervision inspection contract; inform the applicant organization of the list of relevant materials that need to be provided.

2.1.2 Preparation for supervision inspection

The supervision inspection agency compiles the supervision inspection outline (plan) according to this Regulation and quality plan (construction program), combined with the actual situation of manufacturing (construction); forms a supervision inspection project team; appoints the person responsible for the supervision inspection project team; allocates necessary supervision inspections personnel; configures testing equipment, etc.

2.1.3 Implementation of supervision inspection

The supervision inspection agency shall, in accordance with Article 2.2 of this Regulation as well as the requirements of the "Special requirements for supervision inspection of pressure piping components manufacturing" (see Appendix A), "Special requirements for supervision inspection of long-distance piping construction" (see Appendix B), "Special requirements for supervision inspection of public pipeline construction" (see Appendix C), "Special requirements for supervision inspection of industrial pipeline construction" (see Appendix D), combined with the technical characteristics and actual conditions of the pressure pipeline, notify the items, contents and requirements of the supervision inspection to the inspected organization in writing form. For long-distance pipelines, the supervision inspection agency shall make disclosure of the supervision inspection plan to the inspected organization in the form of a meeting.

During supervision inspection, supervisory inspector shall carry out supervision inspection work in accordance with the supervision inspection outline (plan). Supervisory inspector can conduct supervision inspections on supervision inspection items in accordance with safety technical specifications, relevant standards, design documents through data review, physical inspection, on-site

(2) For physical inspection, supervisory inspector shall re-examine the self-inspection qualified items of the inspected organization in accordance with the items and requirements specified in this Regulation; verify whether the results are true and correct, and whether they meet the requirements of safety technical specifications and relevant standards;

(3) For on-site supervision, the supervisory inspector shall supervise the manufacturing (construction) activities on-site in accordance with the items and requirements specified in this Regulation; supervise whether the manufacturing (construction) activities meet the requirements of safety technical specifications, relevant standards, quality assurance system documents.

If there are clear requirements on the number of sampling-checks in this Regulation, follow this Regulation; if there is no clear requirement, the number and methods of sampling-checks shall be specified in the supervision inspection outline (plan) according to the implementation status of the quality assurance system of the inspected organization and the types of items to be inspected.

Supervision inspection work shall be recorded (including relevant meeting minutes, etc.); the records shall be true, accurate, traceable.

2.2.3 Classification of supervision inspection items

Supervision inspection items are divided into Category A, Category B, Category C; their requirements are as follows:

(1) Category A item is the key item that has a significant impact on the safety performance of pressure pipelines. When the manufacturing (construction) process reaches this type of item, the inspected organization shall notify the supervisory inspector to arrive at the site in advance; the supervisory inspector will supervise the implementation of this item on site. After the result is confirmed by the supervisory inspector and signed on site, the manufacturing (construction) can be continued;

(2) Category B is a key item that has a great impact on the safety performance of pressure pipelines. Supervisory inspectors generally conduct on-site supervision or physical inspection. If they cannot arrive at the site in time, the inspected organization can continue to carry out the manufacturing (construction) of the item after passing the self-inspection, then the supervisory inspector will conduct an on-site inspection on the result of the manufacturing (construction) item, to confirm whether the item meets the requirements;

(3) Category C is an inspection item that has an impact on the safety

(3) For component combination devices, products with the same design documents, the same process documents and the same quality plan can form a batch.

A2 Supervision inspection items and requirements

A2.1 Production license qualification and type test documents (Category C)

(1) Check whether the manufacturer has the corresponding license qualification, whether its product has obtained the type test certificate, and it is within the validity period;

(2) Check whether the type test report (certificate) of the submerged arc welded steel pipe and polyethylene pipe covers the supervision inspection products;

(3) Check whether the pressure piping components in the component assembly device have obtained the pressure piping component manufacturing license and type test certificate in accordance with the requirements of the safety technical specifications;

(4) If the design of the component assembly device is outsourced, check whether it is designed by an organization with the corresponding pressure piping design qualification, whether the approval procedure of the design general drawing meets the requirements; if it is designed according to the pressure vessel or boiler, it shall follow its requirements.

A2.2 Design documents (Category C)

Check the design documents, including the following:

(1) Whether the design document approval procedure complies with the requirements of the safety technical specifications and quality assurance system documents;

(2) Whether the external design documents are confirmed in accordance with the requirements of the quality assurance system;

(3) Whether the safety technical specifications adopted in the design and related standards, and the pressure piping component material standards in the component assembly device are current and effective;

(4) Whether the non-destructive testing requirements, heat treatment requirements, pressure test requirements and leak test requirements specified in the design documents meet the requirements of safety technical specifications, relevant standards and contracts, whether the design drawing approval procedures meet the requirements;

Check whether the original or copy of the material quality certificate is complete and whether it meets the relevant standards and technical requirements of the contract; the copy shall be affixed with the official seal of the business organization and the seal of the person in charge.

A2.5.2 Material marking and traceability (Category B)

Check whether the physical mark of the material meets the material standard and whether it is consistent with the material quality certificate. Check on-site whether the material marking method and marking transplantation of the production site of the manufacturer meets the requirements of the quality assurance system documents.

A2.5.3 Material acceptance (Category C)

Check whether the material acceptance documents meet the requirements of the quality assurance system documents.

For the polyethylene pipe, it shall check each batch of mixed ingredients; check whether the selected mixed ingredients (grades) of the product meet the requirements of the product design documents and product standards; check whether the designations of the mixed ingredients meet the requirements of the process documents.

A2.5.4 Material reinspection

Where product standards and design documents have material re-inspection requirements, the supervision inspection items include the following:

(1) Check whether the items and results of the re-inspection of materials by the manufacturer meet the technical requirements of relevant standards and design documents (Category C);

(2) On-site sampling-check whether the product analysis of the steel plate (steel strip) of the submerged arc welded steel pipe product, the performance re-inspection of the mixed material of polyethylene pipe product and other processes meet the requirements of the safety technical specifications and related standards (Category B).

A2.6 Manufacturing process (Category C/B)

Check whether the product manufacturing process's operation records and inspection records meet the requirements of safety technical specifications and related standards and process documents; if necessary, sampling-check whether the implementation of the product manufacturing process meets the requirements.

Appendix B

Special requirements for supervision inspection of long-distance pipeline construction

B1 Scope of application

It is applicable to the supervision inspection of the construction of the pressure pipeline between the production area, warehouse, use organization for the transmission of petroleum gas product medium within the scope of "Special Equipment Catalog", designed in accordance with GB 50251 "Design code for gas transmission pipeline engineering", GB 50253 "Code for design of oil transportation pipeline engineering", GB/T 34275 "Pressure piping code - Long-distance pipeline", including crude oil, refined oil, natural gas, coal-bed methane, coal-to-gas, shale gas, liquefied petroleum gas and other long-distance oil and gas pipeline (Note B-1).

Note B-1: For the pressure pipeline in the long-distance pipeline station yard, the construction supervision inspection shall be carried out in accordance with Appendix D of this Regulation; the supervision inspection agency shall have the qualification for the supervision inspection of industrial pipeline installation.

B2 Supervision inspection items and requirements

B2.1 Qualification of inspected organization (Category C)

Review whether the design organization, construction organization and non-destructive testing organization have the corresponding license (approval) qualifications.

B2.2 Design documents (Category C)

Sampling-check the design documents; the review includes the following:

(1) Whether the approval procedure of design documents meets the requirements of safety technical specifications and quality assurance system documents;

(2) Whether the construction drawings are reviewed in accordance with the provisions of the quality assurance system documents;

(3) Whether the approval procedures for the strength calculation sheet and the pipeline stress analysis calculation sheet are complete;

(5) Sampling-check the original or photocopy of the quality certification documents of the pressure piping components and safety accessories, whether the content meets the material acceptance standards specified in the design documents and the special requirements; the photocopy shall be affixed with the official seal of the business organization and the person in charge of the handling (Category C);

(6) Sampling-check whether the witness data of pressure piping components and safety accessories product acceptance meets the requirements of the quality assurance system documents (Category C);

(7) If material re-inspection and non-destructive testing are required, check whether the approval procedures of the material re-inspection report and non-destructive testing report meet the requirements of the quality assurance system documents; whether the test items, acceptance requirements and results meet the requirements of safety technical specifications and related standards, design document (Category C);

(8) If the inspected organization uses materials of foreign designations to manufacture pressure piping components and safety accessories, it shall be examined whether the materials of foreign designations used meet the requirements of safety technical specifications and related standards (Category C);

(9) When using materials that require technical review to manufacture pressure piping components and safety accessories, review whether the materials have passed the technical review and have fulfilled the corresponding approval procedures (Category C).

Note B-2: Other piping components, including non-ferrous metal and non-ferrous metal alloy pipe fittings, cast pipe fittings, pipe joints, pressure hoses, fasteners, insulating joints, low-temperature insulation pipes, directly buried jacket pipes, throttling devices in piping (such as orifice plates), etc., but do not include products that have been included in the management scope of pressure vessels, pressure piping components and safety accessories.

B2.4.2 Material mark transplantation (Category B)

For the on-site sampling-check of pressure piping and fittings mark transplantation, when the pressure piping component materials contain special materials (Note B-3, the same below), all types of special materials shall be spot-checked.

Note B-3: Special materials refer to low-alloy steels with a standard tensile strength lower limit greater than 540 MPa, austenitic-ferritic stainless steels, low-temperature steels, non-ferrous metals, materials that are welded for the

Appendix C

Special requirements for construction supervision inspection of public pipelines

C1 Scope of application

It is applicable to the construction supervision inspection of public pipelines within the scope of "Special Equipment Catalog" (Note C-1).

Note C-1: For gas pipeline gate stations, various gas plants, storage and distribution stations, pressure pipelines in pressure regulating stations, the construction supervision inspection shall be carried out in accordance with Appendix D of this Regulation; the supervision inspection agency shall have the qualification for supervision inspection of industrial pipeline installation.

C2 Supervision inspection items and requirements

C2.1 Qualification of inspected organization (Category C)

Review whether the design organization, construction organization and non-destructive testing organization have the corresponding license (approval) qualifications.

C2.2 Design documents (Category C)

Sampling-check the design documents; the review includes the following:

(1) Whether the approval procedure of design documents meets the requirements of safety technical specifications and quality assurance system documents;

(2) Whether the construction drawings are reviewed in accordance with the provisions of the quality assurance system documents;

(3) Whether the approval procedures for the strength calculation sheet and the pipeline stress analysis calculation sheet are complete;

(4) Whether there is a written approval document from the design organization for design changes (including material substitution);

(5) Whether the safety technical specifications adopted in the design, relevant standards, material standards for pressure piping components are valid versions;

(6) Sampling-check whether the witness data of pressure piping components and safety accessories product acceptance meets the requirements of the quality assurance system documents (category C);

(7) If material re-inspection and non-destructive testing are required, sampling-check whether the approval procedures of the material re-inspection report and non-destructive testing report meet the requirements of the quality assurance system documents; whether the test items, acceptance requirements and results meet the requirements of safety technical specifications and related standards, design document (Category C);

(8) If the inspected organization uses materials of foreign designations to manufacture pressure piping components and safety accessories, it shall be examined whether the materials of foreign designations used meet the requirements of safety technical specifications and related standards (Category C);

(9) When using materials that require technical review to manufacture pressure piping components and safety accessories, review whether the materials have passed the technical review and have fulfilled the corresponding approval procedures (Category C);

(10) For the acceptance of polyethylene pipes and pipe fittings, if the pipes are stored for more than 4 years and the pipe fittings are stored for more than 6 years, it shall be reviewed whether the re-sampling has been performed for performance inspection; whether the content of the inspection meets the requirements of safety technical specifications and relevant standards (Category C).

C2.4.2 Material mark transplantation (Category B)

Sampling-check the mark transplantation of pressure piping and pipe fittings on-site. When the pressure piping components contain special materials, all kinds of special materials shall be spot-checked.

C2.4.3 Substitution of materials (Category C)

When there is material substitution during the construction process, review whether there is a written approval document from the design organization.

C2.5 Valve (Category C)

Check whether the construction data and pressure test record (report) of the valve meet the requirements of relevant standards and design documents.

C2.6 Nozzle processing, bending, pairing (Category C)

inspection records (reports) meet the requirements of safety technical specifications, relevant standards and design documents.

C2.10 Crossing project (Category C)

(1) Sampling-check whether the construction inspection records of the pipeline structure and weld layout of the crossing project meet the requirements of relevant standards and design documents;

(2) Sampling-check whether the construction and inspection records (reports) of the crossing project meet the requirements of relevant standards and design documents;

(3) Sampling-check whether the casing's anti-corrosion insulation inspection record (report) meets the requirements of relevant standards and design documents;

(4) Sampling-check whether the insulation support inspection records (reports) meet the requirements of relevant standards and design documents.

C2.11 Safety accessories

(1) Sampling-check whether the installation positions, specifications and models of safety valves and emergency shut-off valves meet the requirements of the design documents (Category B);

(2) Sampling-check the safety valve's calibration report, to check whether the set pressure, re-seat pressure and sealing test pressure meet the requirements of safety technical specifications and related standards and design documents (Category C);

(3) Sampling-check the emergency shut-off valve's performance test report, to check whether its performance meets the requirements of safety technical specifications and design documents (Category C).

C2.12 Pressure resistance test (Category A)

(1) Review whether the pressure resistance test plan meets the requirements of safety technical specifications and related standards, design documents, quality assurance system documents;

(2) Check whether the diameter, range, accuracy, verification validity period, test medium, medium temperature, test environment temperature of the pressure gauge meet the requirements of safety technical specifications and relevant standards, design documents, test plans;

Appendix D

Special requirements for supervision inspection of industrial pipeline construction

D1 Scope of application

It is applicable to the construction supervision inspection of industrial pipelines (Note D-1) within the scope of "Special Equipment Catalog".

The scope of industrial pipeline construction's supervision inspection also includes the welding, heat treatment, installation, anti-corrosion, inspection, testing, test of prefabricated pipelines performed by the installation organization at the construction site.

Note D-1: Excluding the pipelines within the boiler scope in the "Boiler safety technical supervision administration regulation" (TSG G0001).

D2 Supervision inspection items and requirements

D2.1 Qualification of inspected organization (Category C)

Review whether the design organization, construction organization and non-destructive testing organization have the corresponding license (approval) qualifications.

D2.2 Design documents (Category C)

Sampling-check the design documents; the review includes the following:

(1) Whether the approval procedure of design documents meets the requirements of safety technical specifications and quality assurance system documents;

(2) Whether the construction drawings are reviewed in accordance with the provisions of the quality assurance system documents;

(3) Whether the approval procedures for the strength calculation sheet and the pipeline stress analysis calculation sheet are complete;

(4) Whether there is a written approval document from the design organization for design changes (including material substitution);

(5) Whether the safety technical specifications adopted in the design, relevant standards, material standards for pressure piping components are valid

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