



Exploration & Production

GENERAL SPECIFICATION

PIPING VALVES VESSELS

GS PVV 924

**Agenda for technical audit of pressure vessels and
heat exchangers Manufacturers**

01	10/03	Change of Group name and logo
00	07/01	First issue
Rev.	Date	Notes



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1. Scope

This document is intended for use as a guideline to assist the COMPANY experts in conducting a Manufacturer audit visit for pressure vessels and/ or heat exchangers supply. This document is supposed to be used in conjunction with **GS PVV 922** and **GS PVV 923**.

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

Standards

Reference	Title
PD 5500	Unfired fusion welded pressure vessels

Professional Documents

Reference	Title
Not applicable	

Regulations

Reference	Title
Not applicable	

Codes

Reference	Title
ASME VIII Div-1	Boiler and Pressure Vessel Code
ASME VIII Div-2	Boiler and Pressure Vessel Code
ASME II Part D	Boiler and Pressure Vessel Code - Materials

Other documents

Reference	Title
Not applicable	



Total General Specifications

Reference	Title
GS PVV 922	Plant survey - Pressure Vessels and Heat Exchangers
GS PVV 923	Vendor Quality Assurance Questionnaire - Pressure Vessels and Heat Exchangers

3. Audit schedule and content

The audit visit shall be conducted by the COMPANY representative(s) in the following order, within the approximate timing indicated:

3.1 COMPANY presentation (15 minutes)

This includes: people introduction, opening speech, COMPANY brochures review, video tapes presentation, etc.

3.2 Review of the questionnaire GS PVV 922 (2 hours)

This implies: detailed review (comments/questions if necessary) of every information required to be shown on the questionnaire. Any missing information must be completed at that time. This normally requires all Manufacturer technical staff management to attend, at least on a "as requested" basis.

3.3 Shop tour (1 hour)

During shop tour, the main fabrication equipment shall be verified, as well as the overall quality of work under performance. Access to all facilities including N.D.T. facilities (dark room, films, etc.), testing laboratory (if in-house), and warehouses (in particular storage of welding products) must be given to the auditor for the visit.

The auditor shall check at least:

- Rolling machines
- Overhead cranes
- Automatic welding machines
- Heat treatment furnaces
- Storage area of raw materials (identification, cleanliness, etc.)
- Scrap area
- Quarantine area
- Warehouse and storage facilities for welding products (including ovens)
- Shop floor (cleanliness, general arrangement)
- Working places and practices (preheating, WPS available or not at working places, condition of welding equipment and cables)

- Inspection/NDT/Dark room: check some films (quality, densitometers, cleanliness, type of films, IQI used and whether shown on films or not, etc.). See some typical films before and after repairs, together with NDT reports and filing
- Destructive testing laboratory: calibration of equipment (including pressure gauges), identification and calibration certificates
- Personnel: certificates of welders and NDT operators and inspectors
- WPS: typical WPS review
- Marking and identification of materials: one or two spot checks shall be carried-out on materials actually in use for work being performed on the shop floor during the visit, heat number shall be cross-referenced with material certificates (which are to be produced).

3.4 Design office visit (1/2 hours)

The verification shall be based on the following:

- Codes available: ASME VIII Div. 1 & 2, ASME II part D, PD 5500
- Computers facilities (CAD stations, etc.)
- Demonstration of softwares used for pressure vessels calculation
- Check on one or two Vendor dossiers on past orders (complete dossiers are required: calculation notes, drawings, NDT reports, material certificates, etc.). These dossiers shall refer to each codes the Vendor claims to have reference with and shall be selected by the auditor amongst the equipment shown in the reference list of the questionnaire GS PVV 922, particularly in terms of most representative of maximum size, thickness, weight and materials, as well as pressure/temperature design conditions. The verification of design dossiers shall include: quality of overall presentation, compliance with codes and standards, and comments regarding good engineering practices.

3.5 Review of the questionnaire GS PVV 923 and Q.A. audit (2 hours)

During this exercise, the following documents must be presented (no copies shall be handed over):

- Q.A. manuals (ASME and ISO as applicable)
- Q.A. procedures
- Internal Q.A. audit planning for the current year
- Internal Q.A. audit reports for the last year
- External (Sub-Vendors) Q.A. audit planning for the current year
- External (Sub-Vendors) Q.A. audit reports for the last year
- List of approved Vendors
- Record file of all N.C.R.'s
- Last management review meeting report on the Q.A. system