Welding Procedure Specification WPS and PQR Qualification Training Course

OGT-1091 · 5 days · 15 CPD hours · English

OVERVIEW

The Welding Procedure Specification WPS and PQR Qualification Training Course is a comprehensive professional training programme designed to develop participants' technical knowledge and practical skills in preparing, reviewing, qualifying and controlling welding procedures in accordance with recognised industry codes and standards. Welding procedure qualification is a critical part of quality assurance in the oil and gas industry, where the integrity, reliability and safety of welded components directly affect operational performance and asset life.

A properly developed **welding procedure specification (WPS)** provides documented instructions for carrying out welding operations consistently and safely. It defines the essential welding parameters, materials, processes, joint configurations, filler metals, preheating requirements, post-weld heat treatment and other conditions necessary to achieve the required weld quality. The Procedure Qualification Record (PQR) provides documented evidence of the actual welding variables used during procedure qualification and the results of the required mechanical tests.

This course explores the relationship between WPS, PQR and welder qualification, with particular emphasis on ASME Section IX requirements and their application in industrial welding operations. Participants will examine how welding procedures are developed, how qualification tests are conducted, and how essential variables influence the validity and applicability of qualified welding procedures. The programme also addresses supplementary essential variables, test coupon preparation, mechanical testing, documentation requirements and the management of qualification records.

As part of the **Welding Inspection and Metallurgy for Oil & Gas** category, the training connects welding procedure qualification with practical inspection, metallurgy and fabrication quality requirements. Participants will learn how to interpret applicable code provisions, evaluate welding documentation, identify qualification gaps and assess whether a proposed WPS is suitable for a particular fabrication application.

The course also examines the practical distinctions between procedure qualification and welder performance qualification (WPQ). Understanding these differences is essential for welding engineers, inspectors, quality professionals and fabrication personnel responsible for ensuring that both welding procedures and individual welders meet applicable requirements.

Delivered through technical presentations, practical workshops, engineering exercises and industry-based case studies, the programme enables participants to develop a structured approach to welding procedure qualification. The Oil & Gas Training Institute aims to connect technical understanding with workplace application, helping professionals improve welding documentation, maintain code compliance and strengthen fabrication quality management.

OBJECTIVES

By the end of this course, participants will be able to:

1. Explain the principles, purpose and importance of welding procedure qualification in oil and gas fabrication, construction and maintenance activities.
2. Interpret the relevant requirements of ASME Section IX for WPS development, PQR qualification and welder performance qualification.
3. Identify and distinguish essential, non-essential and supplementary essential variables applicable to different welding processes.
4. Develop and review preliminary Welding Procedure Specifications based on material properties, joint configurations, welding processes and applicable code requirements.
5. Prepare and evaluate Procedure Qualification Records by examining actual welding parameters, test conditions and supporting documentation.
6. Analyse the influence of base metals, filler metals, preheating, interpass temperatures and post-weld heat treatment on weld quality and procedure qualification.
7. Evaluate mechanical test results, including tensile, guided bend, impact and other applicable qualification tests, against relevant acceptance criteria.
8. Differentiate between WPS qualification, PQR documentation and Welder Performance Qualification (WPQ) requirements.
9. Identify common deficiencies in welding qualification documents and recommend appropriate corrective actions.
10. Apply effective documentation, traceability and qualification control practices to support welding quality assurance and regulatory compliance.

TRAINING METHODOLOGY

The Welding Procedure Specification WPS and PQR Qualification Training Course uses a practical, technically focused training methodology designed to help participants understand welding qualification requirements and apply them in professional fabrication and inspection environments.

The programme combines instructor-led technical learning with document evaluation, engineering exercises and realistic industry scenarios.

Interactive Technical Presentations

Participants explore the fundamental principles of welding procedure qualification, relevant ASME Section IX provisions, welding terminology and the technical requirements governing WPS, PQR and WPQ. Instructor-led discussions clarify complex code requirements and their practical implications.

WPS and PQR Documentation Workshops

Participants work with representative welding qualification documents to understand their structure, technical content and documentation requirements. They practise reviewing WPS and PQR forms, checking welding variables and identifying inconsistencies or missing information.

Code Interpretation Exercises

Practical exercises focus on interpreting applicable ASME Section IX requirements, including welding process qualifications, essential variables, material groupings and qualification ranges. Participants learn how to locate relevant provisions and apply them to specific fabrication situations.

Mechanical Testing and Metallurgical Case Studies

Industry-based examples demonstrate the relationship between welding parameters, metallurgical characteristics and mechanical test results. Participants examine tensile testing, bend testing, impact testing and other relevant qualification activities.

Scenario-Based Problem Solving

Participants evaluate practical situations involving changes in welding parameters, base materials, filler metals, preheat conditions and post-weld heat treatment. They determine when an existing qualification remains applicable and when requalification may be required.

Group Activities and Technical Discussions

Collaborative activities encourage participants to compare qualification approaches, discuss common welding documentation problems and share professional experiences from fabrication, inspection and quality control environments.

Practical Assessment and Knowledge Review

The programme concludes with structured exercises in which participants review a sample welding procedure, assess its supporting PQR and identify potential qualification or documentation deficiencies.

ORGANISATIONAL IMPACT

Effective welding procedure qualification is essential for organisations involved in oil and gas construction, fabrication, pipeline projects, pressure equipment manufacturing and industrial maintenance. Inadequately controlled welding procedures can result in inconsistent weld quality, fabrication defects, costly repairs and potential failures during service.

This course helps organisations strengthen their welding quality management systems by developing employees' ability to prepare, review and control welding qualification documentation.

Improved Welding Quality and Fabrication Consistency

A properly qualified WPS provides a controlled framework for welding activities. Employees who understand qualification requirements can help ensure that welding operations follow approved procedures, reducing unnecessary variations and supporting consistent fabrication quality.

Stronger Code Compliance and Quality Assurance

Understanding ASME Section IX helps organisations evaluate whether welding procedures and personnel qualifications satisfy applicable requirements. This supports more effective quality audits, technical reviews and project documentation.

Reduced Welding Defects and Rework

Knowledge of essential variables, material selection, preheating and heat treatment enables technical personnel to recognise conditions that may affect weld integrity. Better procedure control can help reduce avoidable welding defects, repair activities and associated project delays.

Improved Technical Decision-Making

Engineering and quality teams can make more informed decisions when reviewing changes to welding parameters, materials or fabrication conditions. Understanding qualification ranges helps prevent inappropriate use of existing WPS documents.

Better Traceability and Documentation Control

Accurate PQR and WPQ records support the traceability of welding procedures and personnel qualifications. The course encourages systematic documentation practices that improve the reliability of project quality records.

More Effective Coordination Between Departments

The programme develops a shared understanding of welding qualification requirements among welding engineers, inspectors, quality assurance personnel and fabrication supervisors. This improves communication during procedure reviews, fabrication planning and inspection activities.

Enhanced Operational Reliability

Consistent welding practices contribute to the integrity of pressure-containing equipment, pipelines, structural components and other critical assets. Better qualification management supports long-term asset reliability and organisational risk reduction.

PERSONAL IMPACT

The course provides participants with specialised technical knowledge that can strengthen their professional capabilities in welding engineering, inspection, fabrication and quality management.

Advanced Technical Understanding

Participants develop a clearer understanding of WPS preparation, PQR qualification, welder performance qualification and the technical requirements of ASME Section IX.

Improved Code Interpretation Skills

They gain practical experience interpreting welding qualification provisions, understanding essential variables and determining the applicability of qualified procedures to specific welding situations.

Greater Confidence in Document Review

Participants improve their ability to examine WPS and PQR documents, identify technical inconsistencies and assess whether qualification records contain the required information.

Enhanced Problem-Solving Capabilities

The training develops the ability to investigate welding qualification issues, evaluate changes in welding conditions and identify when additional testing or requalification may be necessary.

Better Understanding of Welding Metallurgy

Participants gain knowledge of how material properties, heat input, preheating, interpass temperatures and post-weld heat treatment influence weld characteristics and qualification results.

Improved Professional Performance

The practical knowledge gained can help participants perform more effectively in welding coordination, inspection, quality control, fabrication supervision and technical documentation responsibilities.

Career Development Opportunities

Specialised knowledge of WPS, PQR and WPQ requirements can strengthen professional profiles in oil and gas fabrication, pipeline construction, pressure equipment manufacturing and welding quality assurance.

WHO SHOULD ATTEND

The Welding Procedure Specification WPS and PQR Qualification Training Course is designed for professionals involved in welding engineering, fabrication, inspection, quality assurance and industrial project execution.

It is particularly beneficial for:

- **Welding Engineers:** Professionals responsible for developing, reviewing and approving welding procedures and ensuring their technical suitability.
- **Welding Inspectors:** Inspectors who evaluate welding documentation, monitor compliance with approved procedures and verify fabrication quality.
- **Quality Assurance and Quality Control Engineers:** QA/QC professionals responsible for welding quality systems, qualification records, inspection documentation and code compliance.

- **Welding Supervisors and Foremen:** Supervisory personnel who manage welding activities and ensure that production welding follows approved WPS requirements.
- **Fabrication and Construction Managers:** Managers overseeing fabrication operations, welding resources, project quality and technical compliance.
- **Metallurgical Engineers:** Specialists interested in understanding the relationship between welding parameters, material behaviour and mechanical qualification results.
- **Pipeline Engineers and Supervisors:** Professionals involved in pipeline welding, construction, repair and maintenance activities.
- **Mechanical Engineers:** Engineers working with pressure vessels, piping systems, industrial equipment and welded components.
- **Welding Coordinators:** Personnel responsible for coordinating welding procedures, welder qualifications and welding documentation.
- **Technical Consultants and Auditors:** Professionals who review welding procedures, qualification records and compliance with applicable industry standards.

The course is also suitable for experienced welding technicians and fabrication professionals seeking to strengthen their understanding of welding procedure qualification and documentation practices.

COURSE OUTLINE

Fundamentals of Welding Procedure Qualification and ASME Section IX

WPS Development, Welding Variables and Material Selection

PQR Qualification, Test Coupons and Mechanical Testing

Qualification Ranges, WPQ and Advanced Code Applications

Welding Documentation Control, Quality Assurance and Industrial Applications

SCHEDULED DATES

Dates	Venue	Format	Fee

04 - 08 Jan 2027	Abu Dhabi, United Arab Emirates	In person	On request
04 - 08 Jan 2027	Abuja, Nigeria	In person	On request
04 - 08 Jan 2027	Accra, Ghana	In person	On request
04 - 08 Jan 2027	Addis Ababa, Ethiopia	In person	On request
04 - 08 Jan 2027	Al Ain, United Arab Emirates	In person	On request
04 - 08 Jan 2027	Al Khobar, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Alberta, Canada	In person	On request
04 - 08 Jan 2027	AlUla, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Amman, Jordan	In person	On request
04 - 08 Jan 2027	Amsterdam, The Netherlands	In person	On request
04 - 08 Jan 2027	Athens, Greece	In person	On request
04 - 08 Jan 2027	Baku, Azerbaijan	In person	On request
04 - 08 Jan 2027	Barcelona, Spain	In person	On request
04 - 08 Jan 2027	Berlin, Germany	In person	On request
04 - 08 Jan 2027	Boston, USA	In person	On request
04 - 08 Jan 2027	Brussels, Belgium	In person	On request
04 - 08 Jan 2027	Budapest, Hungary	In person	On request
04 - 08 Jan 2027	Cairo, Egypt	In person	On request
04 - 08 Jan 2027	Cape Town, South Africa	In person	On request
04 - 08 Jan 2027	Casablanca, Morocco	In person	On request
04 - 08 Jan 2027	Dammam, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Dhahran, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Doha, Qatar	In person	On request
04 - 08 Jan 2027	Dubai, United Arab Emirates	In person	On request
04 - 08 Jan 2027	Edinburgh, United Kingdom	In person	On request
04 - 08 Jan 2027	Edmonton, Canada	In person	On request
04 - 08 Jan 2027	Frankfurt, Germany	In person	On request

04 - 08 Jan 2027	Geneva, Switzerland	In person	On request
04 - 08 Jan 2027	Houston, USA	In person	On request
04 - 08 Jan 2027	Istanbul, Turkey	In person	On request
04 - 08 Jan 2027	Jakarta, Indonesia	In person	On request
04 - 08 Jan 2027	Jeddah, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Jubail, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Khamis Mushait, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Kigali, Rwanda	In person	On request
04 - 08 Jan 2027	Kuala Lumpur, Malaysia	In person	On request
04 - 08 Jan 2027	Lisbon, Portugal	In person	On request
04 - 08 Jan 2027	Liverpool, United Kingdom	In person	On request
04 - 08 Jan 2027	London, United Kingdom	In person	On request
04 - 08 Jan 2027	Los Angeles, USA	In person	On request
04 - 08 Jan 2027	Luanda, Angola	In person	On request
04 - 08 Jan 2027	Madrid, Spain	In person	On request
04 - 08 Jan 2027	Manama, Bahrain	In person	On request
04 - 08 Jan 2027	Marbella, Spain	In person	On request
04 - 08 Jan 2027	Marrakech, Morocco	In person	On request
04 - 08 Jan 2027	Miami, USA	In person	On request
04 - 08 Jan 2027	Milan, Italy	In person	On request
04 - 08 Jan 2027	Munich, Germany	In person	On request
04 - 08 Jan 2027	Muscat, Oman	In person	On request
04 - 08 Jan 2027	Nairobi, Kenya	In person	On request
04 - 08 Jan 2027	New York, USA	In person	On request
04 - 08 Jan 2027	Nice, France	In person	On request
04 - 08 Jan 2027	Oslo, Norway	In person	On request
04 - 08 Jan 2027	Paris, France	In person	On request

04 - 08 Jan 2027	Port Louis, Mauritius	In person	On request
04 - 08 Jan 2027	Prague, Czech Republic	In person	On request
04 - 08 Jan 2027	Pretoria, South Africa	In person	On request
04 - 08 Jan 2027	Riyadh, Saudi Arabia	In person	On request
04 - 08 Jan 2027	Rome, Italy	In person	On request
04 - 08 Jan 2027	Sarajevo, Bosnia and Herzegovina	In person	On request
04 - 08 Jan 2027	Sharm El Sheikh, Egypt	In person	On request
04 - 08 Jan 2027	Singapore, Singapore	In person	On request
04 - 08 Jan 2027	Stockholm, Sweden	In person	On request
04 - 08 Jan 2027	Tokyo, Japan	In person	On request
04 - 08 Jan 2027	Toronto, Canada	In person	On request
04 - 08 Jan 2027	Tromso, Norway	In person	On request
04 - 08 Jan 2027	Vienna, Austria	In person	On request
04 - 08 Jan 2027	Zagreb, Croatia	In person	On request
04 - 08 Jan 2027	Zurich, Switzerland	In person	On request
04 - 08 Jan 2027	Online, Virtual	Online	On request

CERTIFICATE