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## ASME SECTION IX WELDING & BRAZING QUALIFICATIONS

**LECTURER:** Mr. Jeff Henry  
**DATE:** Sep 10-11, 2020  
**LOCATION:** ANRIC Enterprises Inc., 701 Evans Ave., Suite 202, Toronto  
**FEE:** Register four weeks before and pay at time of registration: **\$1,495.00** (pp/plus HST)  
**Registrations received within four weeks: \$1,645.00** (pp/plus HST)

### OBJECTIVE:

The objective of this course is to provide participants with an understanding of the rules of ASME Section IX in controlling the welding qualifications for pressure containing components and the bases for these rules. There will be references, as appropriate, to how these rules apply to the design and fabrication requirements of the construction codes. Emphasis will be given to the importance of using engineering judgment in the application of the welding procedures and welder performance qualifications during the construction of pressure containing components. The course will also cover the bases for the rules by discussing how materials may be affected by the welding processes. Welding processes and their implementation and control will be discussed. Slides and videos will be shown to emphasize the discussion points. The course will also provide ample opportunity to discuss issues raised by the participants. An overview of the Canadian requirements for welding qualifications will be presented and explaining how Section IX is a legal requirement in Canada.

**CONTENTS:** A two-day course consisting of the following:

| DAY 1:  | DAY 2:  |
|---|---|
| <ul style="list-style-type: none"> <li>• <b>Introduction to ASME Section IX</b> <ul style="list-style-type: none"> <li>- Organization</li> <li>- Special Processes</li> <li>- Purpose of Control of Welding</li> <li>- Qualification</li> <li>- Design Assumption</li> </ul> </li> <li>• Impact of Provincial Laws</li> <li>• <b>Metallurgy of Steels</b> <ul style="list-style-type: none"> <li>- Structure</li> <li>- Alloying</li> <li>- Hardenability</li> <li>- Effect of Welding</li> <li>- Residual Stresses</li> </ul> </li> <li>• <b>Welding Processes</b> <ul style="list-style-type: none"> <li>- Discussion of Process Characteristics</li> </ul> </li> <li>• <b>Section IX Variables</b> <ul style="list-style-type: none"> <li>- Essential Variables</li> <li>- Nonessential Variables</li> <li>- Supplementary Essential Variables</li> </ul> </li> <li>• <b>Material Groups</b> <ul style="list-style-type: none"> <li>- P Numbers</li> <li>- F Numbers</li> <li>- A Numbers</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• <b>Section IX Welding Documents</b> <ul style="list-style-type: none"> <li>- Welding Procedure Specification (WPS)</li> <li>- Procedure Qualification Record (PQR)</li> <li>- Welder Performance Qualification Record (WPQ)</li> <li>- Welding Operator Performance Qualification Record (WOPQ)</li> </ul> </li> <li>• <b>Welding Procedure Qualification</b> <ul style="list-style-type: none"> <li>- Making a Plan</li> <li>- Selecting a Base Material</li> <li>- Select Filler Metal</li> <li>- Making the Weld and Recording Variables</li> <li>- Testing</li> </ul> </li> <li>• <b>Writing the WPS</b> <ul style="list-style-type: none"> <li>- Standard Forms</li> <li>- Variations in Style</li> </ul> </li> <li>• <b>Performance Qualification Testing</b> <ul style="list-style-type: none"> <li>- Making a Plan</li> <li>- Selecting Base Metals</li> <li>- Selecting the Filler Metal</li> <li>- Making the Weld and Recording Variables</li> <li>- Testing</li> </ul> </li> <li>• <b>Maintaining Qualification</b> <ul style="list-style-type: none"> <li>- Periodic Usage (Continuity)</li> <li>- Revoking Qualification for Reason</li> </ul> </li> </ul> |

### WHO SHOULD ATTEND?

This course is excellent training for persons whose work activity requires them to interact with the ASME Section IX Welding & Brazing Qualification Code. It is targeted at the personnel that have responsibilities for meeting the fabrication requirements of the Code and of meeting the design specifications while actually building the piping systems. Inspection personnel and designers and engineers responsible for the design of the piping systems would also find this course to be very useful. This is true for any people involved in the above work in the fossil or the nuclear power industry as well as those that are working on industrial or institutional systems involving pressure retaining components. It will enhance their understanding of what is behind the various requirements and enable them to conform more readily to these requirements. The course will be useful to the many disciplines that are required to understand and implement Code requirements. These disciplines include construction managers, designers, engineers, fabrication supervisors, inspectors, and maintenance personnel.

## EXPECTATIONS:

Course participants with adequate experience will have attained the following information at the end of the course:

1. An understanding of the ASME Section IX rules concerning welding procedure and performance qualification.
2. An understanding of the bases for these rules.
3. A basic knowledge of how the properties of steels are affected as a result of welding.
4. A basic knowledge of how the special process of welding is qualified and controlled.
5. An understanding of an approach to welding procedure qualification.
6. An understanding of an approach to welder performance qualification.

## LECTURERS:

**Mr. Jeff Henry** technical activities have been centered on materials evaluation, high temperature materials behavior, failure analysis, and support of critical manufacturing activities involved in the production of steam generating equipment for the nuclear and fossil power industries. The scope of his technical activities has included: the resolution of heavy-vessel manufacturing problems, process management, laboratory research and development projects, and problems related to the operation of critical boiler and turbine components. His experience has been particularly concentrated in the areas of welding, high temperature behavior, diffusion processes, heat treatment, fatigue, and the metallurgy of the Creep Strength-Enhanced Ferritic Steels, such as Grade 91.

## IMPORTANT INFORMATION:

**PAYMENT:** Full payment is due at time of registration. Payment can be made via credit card (VISA, MasterCard or American Express), cheque or purchase order. **PLEASE NOTE:** Payment is non-refundable.

**CANCELLATION POLICY:** Cancellation must be received in writing 7 days prior to course start date. If cancellations are made after that date, the cancellation fee will be 50% of the course cost. You may send a substitute. Notification of a substitute must be received at least 48 hours prior to the commencement of the course or a cancellation fee will be charged. **PLEASE NOTE:** The cancellation fee can be discounted towards any future course taken at the ANRIC Learning Centre.

**FOOD AND BEVERAGE:** At the start of the day juice, fruit, pastries, coffee and tea will be provided before the course. Coffee and Tea will be provided at mid-morning break, including pop in the afternoon and lunch will be provided. Please indicate when you are enrolling for the course if you have any specific food requirements. Every effort will be made to accommodate your needs in this area.

**COURSE TIMES:** Registration begins at 8:00 a.m. The course will begin at 8:30 a.m. and conclude at 4:30 p.m.

**DRESS:** Please dress so that you will be comfortable. It is prudent to dress light and bring a light jacket in case you need it during the course. The tolerance to temperature varies for people and sometimes room temperature acceptable to the majority may not be right for an individual.

**PARKING:** There is parking available for a fee of \$5.00 per day. There is parking at 701 and 703 Evans Ave.

**ANRIC Enterprises Inc. specializes in courses of calibre to industry by providing lecturers who have recognized expertise and who are involved with the development and application of Codes and Standards.**

ANRIC Enterprises Inc. reserves the right to cancel any course and/or change lecturers.