

## CSA N285 (SERIES) GENERAL REQUIREMENTS FOR PRESSURE RETAINING SYSTEMS & COMPONENTS IN CANDU NUCLEAR POWER PLANTS

**LECTURER:** Mr. Richard W. Barnes, P. Eng.  
**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:

This course will introduce participants to the concepts and practices that form the basis of the N285 approach to maintaining the integrity of the Pressure Boundary. Participants will have the opportunity to discuss the basic elements in order to assist them in their understanding of the concepts. The course will review the detailed requirements for Code Class, Registration of Design, and the Documentation Requirements, in particular, the documents associated with the design and manufacture of Pressure Boundary products.

The course will explore the importance of the N285 Series to the Regulator and the close relationship between CSA Standards and the ASME Boiler and Pressure Vessel Code. It will present an overview of concepts associated with the requirements for spares, replacements, modifications and periodic inspection. However, in-depth coverage of the requirements for these areas is covered in a subsequent course due to the detailed and complex nature of these subjects which require considerably more time to discuss.

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

DAY 1:	DAY 2:
<ul style="list-style-type: none"> <li>• Safety &amp; Pressure Boundary Integrity</li> <li>• Regulatory Requirements</li> <li>• Scope of CSA Pressure Boundary Standard N285.0</li> <li>• Other N285 Standards</li> <li>• Fundamental Concepts: Control of Activities, Third Party Inspection and Compliance</li> <li>• ASME SEC III &amp; the N285 Series</li> <li>• Classification</li> <li>• Design Registration</li> </ul>	<ul style="list-style-type: none"> <li>• Plant Requirements</li> <li>• System Requirements</li> <li>• Component Requirements</li> <li>• Code Responsibilities</li> <li>• Documentation Requirements</li> <li>• Specific CANDU Components</li> <li>• Specific CANDU Containment Requirements</li> <li>• Periodic Inspection (overview)</li> <li>• Spare, Replacements &amp; Modifications (overview)</li> <li>• Checkout</li> </ul>

### WHO SHOULD ATTEND?

The N285 Series, in particular the upper tier standard CSA N285.0, impacts on the many disciplines in the field of Pressure Boundary. This course will be a valuable tool for the individuals in these disciplines by aiding in their understanding of the requirements that must be met. Personnel working in the disciplines of design, inspection, fabrication, procurement, quality assurance, operation and maintenance will find this course beneficial in that it will help them to better understand their roles and responsibilities. Attendance at this course is considered as meeting part of the requirement for updating their qualifications in accordance with Appendix XXIII.

### EXPECTATIONS:

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

1. An understanding of the importance of the CSA N285 Series of Standards to the Regulator.
2. An understanding of the fundamental concepts underlying the Codes and Standards for Pressure Boundary in a Nuclear Power Plant and how they are embodied in the N285 Series.
3. A basic knowledge of the documentation packages required for the approval of Component Classification, Registration of Design and Fabrication compliance for the CANDU Nuclear Power Plant
4. An understanding of the relationship between N285 and the ASME Code, Section III, Div.1, and how the Canadian requirements are integrated into the system.

## LECTURERS:

Mr. Richard W. Barnes is the Principle Engineer at ANRIC Enterprises Inc. and has been actively involved for over 30 years in the development of the ASME and CSA Codes and Standards associated with Pressure Boundary for both nuclear and non-nuclear power plants. Mr. Barnes leads the team at ANRIC Enterprises Inc that offers technical assistance for companies registering Pressure Boundary products, and provides expert consultation on the application of the various pressure boundary codes. The ANRIC team also develops and delivers training on both the CSA and ASME Codes and Standards for delivery on-site at the ANRIC Learning Centre and off-site at the clients' premises. Mr. Barnes sits on various code committees responsible for the development of Codes and Standards. He is the past-chair and member of the ASME Standard Committee of the BPV III, which is responsible for the development of Section III of the ASME BPV Code; past Vice-Chair and member of N285A Technical Committee on CANDU Nuclear Power Plant Systems and Components, member of the B51 Technical Committee on Boilers and Pressure Vessels, and member of N286 Technical Committee on Overall Quality Assurance for Nuclear Power Plants of the CSA Standards Committee; and member of ASME B16 Standards Committee of Standardization of Valves, Flanges, Fittings and Gaskets and member of the Subcommittee responsible for development of the B16:34 Standard. Mr. Barnes has received the ASME Dedicated Service Award and the highest ASME Nuclear award, the Bernard F. Langer Nuclear Codes and Standards Award in recognition for his contributions to the nuclear industry. In 2007, was elected to the ASME Grade of Fellow. In 2009, Mr. Barnes received the CNA Outstanding Contribution Award and in 2011 the CSA Award of Merit.

Dr. Amarjit Banwatt has been actively involved for over 35 years in the stress analysis field and the use of ASME Codes and CSA Standards. He has been involved for the past 10 years in the development of the CSA N285.0 Standard as member of the Technical Committee. He has worked at AECL to prepare registration documents for Pressure Boundary components. Dr. Banwatt is a recognized stress analyst and Codes expert; he is consulted by many groups for Code clarifications. Dr. Banwatt is the past president of the Canadian Society for Mechanical Engineering and past member of NSERC Grants Selection Committee, Ottawa. He is a fellow of the Canadian Society for Mechanical Engineering and the Engineering Institute of Canada.

## 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.

**ACCOMMODATION:** The Stay Inn, 560 Evans Ave (2 minute drive to 701 Evans Ave), has provided a quote of \$99.00 per night for 1 bed and \$109.00 for 2 beds, including a continental breakfast. The Stay Inn can be contacted at [info@stayinn.ca](mailto:info@stayinn.ca) or 416-259-7899/1-888-445-4473 for more information. Please refer to ANRIC Enterprises Inc. when speaking with reservations. This is a small hotel, so it is advisable to book early.

**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.