



PIPELINE INTEGRITY  
INSTITUTE  
INSTITUT D'INTÉGRITÉ  
DE PIPELINE



The  
**Competence  
Club**  
*...connects*

UBC Pipeline Integrity Institute collaborates with ROSEN's Competence Club to deliver this short course on November 5-6, 2024, in Calgary, Alberta

## **Pipeline Defect Assessment & Threat Interaction in Pipeline Integrity Management**

### **Introduction**

This comprehensive two-day course is designed to equip participants with in-depth knowledge and practical skills in pipeline defect assessment and the interaction of defects in pipeline integrity management. The course covers the evaluation of pipeline imperfections, including corrosion, gouges, dents, cracks, and weld imperfections, as outlined in CSA Z662 Clause 10.10. Participants will also explore the complexities of defect interactions and the implications for pipeline integrity management, supported by real-world case studies.

**Tuesday - Wednesday, November 5 - 6, 2024** (8:30am – 4:30pm MDT)

Subject Matter Experts: Chris Holliday, ROSEN UK Ltd. and Christopher Curtis, ROSEN Canada.

### **Learning Outcomes:**

- Understand and apply CSA Z662 Clause 10.10 standards for evaluating pipeline imperfections.
- Identify, detect, and assess various types of pipeline defects, including corrosion, gouges, dents, and cracks.
- Analyze the capabilities and limitations of different In-Line Inspection (ILI) technologies for defect detection and sizing.
- Evaluate the interaction of multiple defects and their impact on pipeline integrity.
- Integrate data from different ILI technologies to assess defect growth and predict future risks.
- Apply knowledge of pipeline defect assessment to real-world scenarios through case studies.

## Day 1: Pipeline Defect Assessment (CSA Z662 Clause 10.10 – Evaluation of Imperfections)

- Corrosion (volumetric metal loss)
- Gouges
- Arc Burns
- Dents
- Pipe Body Cracks
- Girth Weld Imperfections
- Seam Weld Imperfections
- Ripples, Wrinkles & Buckles
- Other Imperfections (e.g., unacceptable bending strain)
- Capabilities of ILI Technologies
- Detection, Identification, and Sizing of Defects
- Degradation of Data
- Validation Results
- Growth of Imperfections
- Comparison of ILI Runs and Integration of Technologies
- Introduction to Interacting Features
- **Case Study:** Real-world defect assessment and implications for pipeline operations.

## Day 2: Pipeline Defect and Threat Interaction in Pipeline Integrity Management

- Interacting Imperfections of the Same Classification (e.g., dent with dent, corrosion with corrosion)
- Interacting Imperfections of Different Classifications (e.g., dent with metal loss, buckle in bending strain)
- Other Threats (e.g., External Loading)
- Combined ILI Technologies for Comprehensive Assessment

## Who Should Attend

- Pipeline Engineers
- Integrity Management Professionals
- Quality Assurance and Quality Control Personnel
- Operations and Maintenance Managers
- Technical Staff involved in pipeline safety and compliance
- Professionals seeking to enhance their understanding of pipeline defect assessment and integrity management

## Courses Format

The short course will be presented in-person in at the WESTIN Downtown Calgary: 320 4th Ave SW, Calgary, AB, Canada, T2P 2S6. Start time is 08:30am MDT. Finish time is 16:30pm MDT. Breakfast and lunch will be provided.

### **Pre-Course Training (Optional):**

Before your training begins, ROSEN's Competence Club, the premier learning and collaboration platform for the pipeline industry, is available for your use at no additional cost. This platform provides four complimentary e-learns that are designed to support you in acquiring the prerequisite knowledge for the course and enhancing your awareness level skillset. The e-learn training lasts a total of 8 hours and can be completed at your own pace and at a time that is convenient for you.

**NOTE: A certificate of completion of short course: Pipeline Defect Assessment & Threat Interaction in Pipeline Integrity Management will be provided on the last day of the course.**

## COURSE TRAINERS

### **UBC Pipeline Integrity Institute Presents ROSEN's Competence Club Lecturers:**



**Chris Holliday** is a Principal Engineer at ROSEN UK with extensive expertise in pipeline integrity. He is a registered Professional Engineer in British Columbia, Alberta, and Saskatchewan, and a Chartered Engineer with the Institute of Mechanical Engineers in the UK. Chris earned his degree in Mechanical Engineering with First-Class Honours from Northumbria University, followed by a Postgraduate Certificate in Pipeline Engineering from Newcastle University. His career at ROSEN has taken him from Newcastle to Kuala Lumpur, Calgary, and now back to the UK.

Throughout his career, Chris has specialized in pipeline integrity consultancy, conducting assessments of corrosion, dent strain, fatigue, bending strain, cracking and detailed engineering assessments. He has managed an engineering team, led initiatives for service improvements, and developed new services for the pipeline industry. Additionally, Chris has delivered lectures at universities and industry conferences on In-Line Inspection (ILI) technologies and pipeline defect assessment.

He has authored several technical papers on pipeline deformation assessments using analytical and Finite Element Analysis (FEA) methods, and structural analysis in landslide areas. Chris is an active contributor to pipeline

codes and standards development, serving on the Technical Subcommittee on Operations and Systems Integrity (O & SI) for the Canadian Standards Association (CSA) Z662 Oil and Gas Pipeline Systems standard. He is also involved in the CSA Z662 Dent Assessment and ILI Assessment Working Groups and contributes to the next edition of API RP 1183. In addition, Chris engages with the broader pipeline industry as a Session Chair at the International Pipeline Conference and was previously an executive committee member of the Young Pipeliners Association of Canada (now Young Energy Infrastructure Professionals).



**Christopher Curtis** is a Senior Integrity Engineer with more than 9 years with ROSEN.

He started with ROSEN as an ILI data analyst gaining valuable experience in interpreting data from the tools and learning how to utilize it to its full extent in fitness for service and dent assessments. He graduated from the University of Calgary with a B.Sc. in Civil Engineering and is a registered Professional Engineer in Alberta.



### Registration Information:

For more details or to register, please visit or contact Shannon Remillong (shannonr@civil.ubc.ca). Secure your spot today to enhance your pipeline integrity management skills!

## Correspondence and Information

The Integrity Pipeline Institute (PII)  
Department of Civil Engineering  
University of British Columbia  
Room 2002 – 6250 Applied Science Lane  
Vancouver, B.C. Canada V6T 1Z4

Contact: PII Coordinator, Shannon Remillong

Email: [pipeline.integrity@ubc.ca](mailto:pipeline.integrity@ubc.ca)

Website: [www.pii.engineering.ubc.ca](http://www.pii.engineering.ubc.ca)

## PII Co-Directors & UBC Professors

Dr. Dharma Wijewickreme, Dept. of Civil Engineering

Dr. Edouard Asselin, Dept. Of Materials Engineering

## General Information

The Short Course will be held at the WESTIN Calgary: 320 4th Ave SW, Calgary, AB, Canada, T2P 2S6. Hotels in the vicinity of the short course venue:

- [Westin Calgary](#) (special nightly rate available for short course attendees)
- [Hyatt Regency Calgary](#)
- [Delta Hotels by Marriott Calgary](#)
- [Sheraton Suites Calgary](#)
- [Ramada Plaza by Wyndham](#)

The most convenient means of transportation between the Calgary International Airport and downtown Calgary hotels is by taxi or Uber (about \$55-70 CAD) or the option of renting a car at the airport.

An informative guide to Calgary travel and other attractions is found at <https://www.visitcalgary.com/>. Many excellent restaurants are located within easy walking distance of all hotels.

Business casual is typical dress for the course. Breakfast and lunch are provided daily for the duration of the course.



## MAP OF DOWNTOWN CALGARY HOTELS....

