

# Banff/2009 Pipeline Workshop



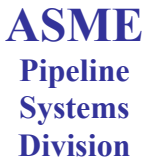
## Managing Pipeline Integrity **HM** The 10<sup>th</sup> Workshop *The Pipeline Professionals*



April 6 - 9, 2009  
Tutorials: April 6, 2009



Banff Centre for Conferences  
Banff, Alberta, Canada



## 2<sup>nd</sup> Announcement and Registration Information



**Second Announcement and Registration Information**

**BANFF/2009 PIPELINE WORKSHOP  
Managing Pipeline Integrity – The 10<sup>th</sup> Workshop**

**Max Bell Building, Banff Centre for Conferences, Banff, Alberta  
April 6 – 9, 2009**

**Dedication:** The Banff/2009 Pipeline Workshop is dedicated to the memory of Ian Scott (1950–2008), an active participant at previous Workshops, a long-term employee of the Canadian Association of Petroleum Producers (CAPP), and a leader on pipeline integrity issues.

**Workshop Co-Chairs:**

Brad Anderson	Alberta Chamber of Resources	Doug Macdonald	SNC Lavalin
Glenn Cameron	National Energy Board	Winston Revie	CANMET
Shu Lee	ERCB	Ziad Saad	CEPA

**Workshop Objectives**

- To provide an interactive forum for discussing critical issues on managing the integrity, safety, and risk of the pipeline infrastructure.
- To provide an opportunity to focus on state-of-the-art technologies and past experiences related to the design, construction, operation, testing, inspection, maintenance, performance, and abandonment of pipelines.
- To facilitate and promote the sharing and exchange of information and the development of pipeline industry communication networks.
- To encourage the development and operation of working groups and task forces to address the future challenges associated with pipelines.
- To recognize areas where coordinated efforts can be implemented to enhance the pipeline integrity management process.
- To advance the standards used in the pipeline industry.
- To identify new areas and initiatives for pipeline research and development.
- To publish the Workshop proceedings.

**Workshop Patrons** (as of January 19, 2009)

ASME Pipeline Systems Division	Galaxy Brushes
Applus RTD	GE Oil & Gas, PII Pipeline Solutions
Baker Hughes Pipeline Management Group	Hunter McDonnell Pipeline Services Inc.
BJ Pipeline Inspection Services	Lloyd's Register North America, Inc.
Clarion/Scientific Surveys Limited	Midwest Surveys Inc.
Corrpro Canada, Inc.	Mobiltex Data Ltd./IRT Integrated Technologies Inc.
EMS Canada	Onstream Pipeline Inspection Ltd.
Enbridge Pipelines	Polyguard Products, Inc.
Evrax Inc. NA	Pure Technologies Group
FOX-TEK	Rosen Pipeline Inspection

**Workshop Sponsors** (as of January 19, 2009)

Alberta Energy Resources Conservation Board (ERCB)	Petro-Line Upgrading Services Ltd.
Alliance Pipeline Limited	TransCanada



**The Banff/2009 Pipeline Workshop will feature tutorials and working group sessions that are directly relevant to both upstream and downstream parts of the pipeline industry.**

### **Working Groups and Co-chairs**

- |                   |  |
|-------------------|--|
| Working Group 1:  | <b>Issues for Managers</b>   |
| Co-chairs:        | David Chittick, Dave McNeill   |
| Working Group 2:  | <b>Regulatory Developments</b>   |
| Co-chairs:        | Jim Fox, Shu Lee, Ziad Saad  |
| Working Group 3:  | <b>Upstream Pipelines: Inspection, Corrosion, and Integrity Management</b> |
| Co-chairs:        | Jorge Paez, Mark Stephenson  |
| Working Group 4:  | <b>Design, Materials, Construction, Repair and Maintenance</b>             |
| Co-chairs:        | Yvanna Ireland, Robert Smyth, Joe Zhou                                     |
| Working Group 5:  | <b>Management of Stress Corrosion Cracking</b>                             |
| Co-chairs:        | Jenny Been, Sean Keane, Jennifer Purcell                                   |
| Working Group 6:  | <b>Coatings</b>  |
| Co-chairs:        | Russell Draper, Neil Hay, Aissa Van Der Veen                               |
| Working Group 7:  | <b>Pipeline Risk Assessment/Risk Management</b>                            |
| Co-chairs:        | Shahani Kariyawasam, David Weir  |
| Working Group 8:  | <b>Inspection Tools</b>  |
| Co-chairs:        | Richard Kania, Gabriela Rosca  |
| Working Group 9:  | <b>External Corrosion</b>  |
| Co-chairs:        | Bob Worthingham, Dennis Zadery   |
| Working Group 10: | <b>Internal Corrosion</b>  |
| Co-chairs:        | Budd Melvin, Nikki Nguyen, Trevor Place                                    |
| Working Group 11: | <b>Facilities Integrity Management</b>                                     |
| Co-chairs:        | Bruce Dupuis, Colin Gagne  |
| Working Group 12: | <b>Managing Geotechnical Hazards</b>                                       |
| Co-chairs:        | Deb Billey, Moness Rizkalla  |

**PRELIMINARY PROGRAM FOR WORKING GROUPS**

Working Group	Tuesday, April 7, 2009			Wednesday, April 8, 2009			
	Session A	Session B	Session C	Session D	Session E	Session F	Session G
	10:30	1:30	3:30	8:30	10:30	1:30	3:30
1: Issues for Managers	Executive Panel Discussion						
2: Regulatory Developments		New Regulatory Tools for Preventing Third Party Damage	CO <sub>2</sub> Pipelines – Challenges and Key Issues for Regulation				
3: Upstream Pipelines: Inspection, Corrosion, and Integrity Management	Updates since 2007 – Input from CAPP, UPIMA, Regulators			Integrity of Non-Metallic Pipelines	Upstream Pipeline Integrity Issues	Hot Topics	
4: Design, Materials, Construction, Repair, and Maintenance					Grinding SCC	Maintenance Welding to Hot Lines	Procedures for Excavation of Existing Lines
5: Management of Stress Corrosion Cracking						SCC Guidelines and Reporting Requirements	Implementing Best Practices; Panel Discussion
6: Protective Coatings	Advances in Pipeline Coatings	Improving the Quality of Field Applied Coatings	Best Practices				
7: Pipeline Risk Management	Current Practice, Strengths, and Limitations of Qualitative Risk Assessments for Pipeline and Facility Assets	Accounting for Uncertainties to Assure Safety – Reliability Based Assessment				Excavation/Repair Criteria	
8: Inspection Tools		Case Study: CD Crack Tool	ILI Contracting				
9: External Corrosion				Update from 2007; AC Corrosion; AC Voltage Mitigation	Modern Pipeline Construction and CP Performance		
10: Internal Corrosion	Reprise 2007 Workshop Issues; Gas Transmission Systems	Oil Sands Product Pipelines – Owner/Operator Issues	Oil Sands Product Pipelines – Chemical Treatment Primer				
11: Facilities Integrity Management				Monitoring Programs	Inspection Techniques		
12: Managing Geotechnical Hazards				Assessment and Management Processes		Monitoring and Mitigation Methods	

## Summaries of Tutorials

### **Tutorial #1 The Application of Management Systems for Pipeline Integrity**

Monday, April 6, 2009

9:00 – 12:00

Presenter

Gary White, PI Confluence, Inc.

#### **Purpose**

A discussion on the use and implementation of management systems in support of pipeline integrity.

#### **Who Should Attend?**

- Stakeholders with interest in ensuring sustainability and continuity of the business model.
- Management who will benefit from the visibility and efficiencies afforded by the use of management systems.
- Engineers with responsibility for implementation / use of management systems.
- Regulators who need to better understand how management systems can support business models and compliance.
- Anyone requiring insight into the potential issues associated with implementation and use of management systems.

#### **Expected Results**

Improved understanding of the benefits of management systems in support of business and compliance and an overview of the potential issues associated with their implementation and use.

#### **Agenda**

- Management System Application
  - Workflow Management
  - Process Management
  - Project Management
- Integrity / Safety
  - Record Keeping
  - Quality Control
  - MOC
  - Communications
- Drivers
  - Regulation Compliance
    - Performance
    - Prescriptive
  - Business
    - Program Sustainability
    - Knowledge Continuity
- Issues
  - Configuration
  - Implementation
  - Management
  - Culture
  - Personnel

### **Linkage with Working Groups**

Working Group 1: Issues for Managers

## **Tutorial #2 Field Welding/Inspection/Engineering Critical Assessment**

This tutorial is being presented as an all-day tutorial in three parts, as described below.

### **Tutorial #2 Part 1 Mechanized GMAW for Mainline Construction**

**Monday, April 6, 2009**

**8:30 – 10:30**

**Presenter**

Robert Lazor, TransCanada PipeLines Limited

#### **Purpose**

This tutorial will provide a review of the requirements for qualification of mechanized welding procedures for mainline construction, and will describe how defects might be introduced during welding. This is a lead-in to the inspection and ECA parts of this tutorial.

#### **Who Should Attend?**

Engineers, technologists, technicians and inspectors who are involved with pipeline construction, and specifically development of mechanized welding procedures.

#### **Expected Results**

The attendees will gain an understanding of the requirements for qualification of mechanized GMAW welding procedures for construction of large diameter pipelines, and an appreciation of typical weld defects that might be introduced during welding. The discussion of pipe handling considerations will demonstrate how construction practices can affect the weld quality.

#### **Agenda**

- Description of GMAW process, with specific reference to mainline girth welds
  - internal/external welding equipment
  - consumables, wire and shielding
  - typical joint preparations
  - welding procedure qualification (WT, CE requirements)
  - possible weld defects, i.e. description of defect types
  
- Discussion on pipe handling and stresses across the weld
  - stresses on partially completed welds due to pipe handling
  - lowering-in stresses
  - operating stresses

### **Linkage with Working Groups**

Working Group 4: Design, Materials, Construction, Repair, and Maintenance

### **Tutorial #2 Part 2 Automated Ultrasonic Testing AUT of Field Girth Welds during Construction**

**Monday, April 6, 2009**

**10:45–12:45**

**Presenter**

David Hodgkinson, TransCanada PipeLines Limited

**Purpose**

To provide an overview to automated ultrasonic testing AUT of girth welds during pipeline construction. Key topics discussed include inspection design, performance assessment and field application.

**Who Should Attend?**

Engineers, technologists, technicians and inspectors who are involved with pipeline construction.

**Expected Results**

A basic understanding of what needs to be addressed for successful AUT and where AUT fits together with the welding technology and ECA to consistently produce high quality welds.

**Agenda**

- Brief overview of the AUT process and past development
- AUT inspection design
  - GMAW and SMAW
  - Importance of the inspection design process and critical considerations applied
  - Advantages and limitations of multi-probe and phased array systems
  - Links and consideration to ECA flaw acceptance criteria
- System performance tests
  - System assessment prior to mobilization to project
- System operator qualifications
  - Training and experience, what's important
- Control of Field Application
  - Ongoing performance tests, calibration, signal to noise, array sensitivity and continuity assessments
  - AUT process audit

**Linkage with Working Groups**

Working Group 4: Design, Materials, Construction, Repair, and Maintenance

**Tutorial #2 Part 3 Engineering Critical Assessment (ECA) including  
Recent Developments in Strain-Based Design**

**Monday, April 6, 2009**

**2:00 – 4:00**

**Presenter**

Bill Tyson, CANMET Materials Technology Laboratory

**Purpose**

An introduction to the methods used to determine the size of pipe imperfections that may be large enough to lead to fracture. Key concepts discussed: fracture toughness (CTOD and J), elastic/plastic fracture mechanics, failure assessment diagram, strain-based design.

**Who Should Attend?**

Engineers responsible for ensuring pipeline integrity.

**Expected Results**

Improved understanding of the technology available to determine allowable imperfection size.



### Agenda

- **Background:** Pipelines may contain flaws in the form of crack-like defects, either present after manufacture or developed during service. ECA is the methodology used to estimate the critical loads at which such flaws propagate.
- **Basic Concepts:** The basic concepts used to define and measure material toughness and crack driving force will be reviewed. Current methods for stress-based design to establish critical conditions, including the CTOD (crack-tip opening displacement) design curve, FAD (Failure Assessment Diagram), and tearing instability will be discussed.
- **Recent Developments:** Recent developments in strain-based design, introduced primarily for pipelines crossing unstable terrain, will be discussed

### Linkage with Working Groups

Working Group 4: Design, Materials, Construction, Repair and Maintenance

### Tutorial #3 Coatings Used in Conjunction with Cathodic Protection

Monday, April 6, 2009

9:00 – 12:00

Presenter

Richard Norsworthy, Polyguard Products, Inc.

#### Purpose

A discussion of the various plant and field applied pipeline coatings typically used for pipelines and their compatibility with cathodic protection. The tutorial will provide a better understanding of how to improve field application quality and coating performance.

#### Who Should Attend?

Engineers and technicians who need a better understanding of coatings and shielding of cathodic protection current. EPC Project Engineers, Pipeline Construction Companies, and Coatings Inspectors should attend.

#### Expected Results

Provide an information source to help engineers make a better decision when selecting pipeline coatings for use with cathodic protection. The importance of improving the application quality of field applied coatings will be understood.

#### Agenda

Coating Selection Criteria

Types of Coatings: Plant Applied Pros and Cons

Field Applied Pros and Cons

Field Applied Coating Standards

Importance of Inspection

Evaluation of In-Service Coatings

Questions and Discussion

### Linkage with Working Groups

Working Group 6: Protective Coatings

### **Tutorial #4 Failure Analysis for Pipelines**

**Monday, April 6, 2009**

**9:00 – 12:00**

**Presenter**

Pat Vieth, CC Technologies Inc.

#### **Purpose**

Provide an overview of pipeline failure modes, case studies of failure analyses that have been performed, and overview of protocols (field and laboratory) that should be followed for a failure analysis

#### **Who Should Attend?**

This will be a technical tutorial and will be directed toward engineers and managers involved in pipeline integrity management and failure analyses.

#### **Expected Results**

This tutorial will provide background on defects that been identified through integrity programs or have produced failures and will provide guidance for acquiring field and laboratory information to establish a mode of failure.

#### **Agenda**

1. Introduction
2. Review of Common Types of Failures
3. Action Plan: Be Ready When a Failure Occurs
4. General Steps of Failure Analysis
5. Root-Cause Analysis
6. Metallurgical Examination
7. Laboratory Analyses of Field Samples (Other Than the Failed Component)

### **Tutorial #5 TSB Accident/Incident Investigation Methodology for Federal Pipelines**

**Monday, April 6, 2009**

**1:30 – 4:30**

**Presenter**

Larry Gales, Transportation Safety Board

#### **Purpose**

Provide an overview of the TSB Mandate and the Integrated Safety and Investigation Methodology that is utilized for performing investigative work. This will also include an overview of TSB's Safety protocols that are followed during an investigation.

#### **Who Should Attend?**

This will be a technical tutorial and workshop for management at all levels including front line supervisors and senior engineers that are involved in pipeline accident and incident investigations.

#### **Expected Results**

This tutorial will provide background information on methodologies and techniques developed by the TSB through extensive and on-going investigation of accidents and incidents in the four

principle modes of transportation (air, marine, pipelines and railways) and will give the participants information and some tools when acquiring field, laboratory and corporate evidence to establish cause, contributing factors and safety deficiencies so effective preventive measures can be identified and implemented.

### **Agenda**

1. Introduction to the TSB
2. Overview of the TSB's Mandate and the TSB's Approach to Investigation
3. Integrated Safety and Investigation Methodology
4. Developing Effective Safety Communication and Follow-up
5. General Steps for Establishing a Corporate Action Plan: Be Ready When an Accident or Incident Occurs

### **Tutorial #6 AC Corrosion of Pipelines**

**Monday, April 6, 2009**

**1:30 – 4:30**

**Presenter**

R.A.Gummow, Corrosion Service Co. Ltd.

#### **Purpose:**

The purpose of the tutorial is to familiarize the participants with the fundamental aspects of AC corrosion on pipelines that are located parallel to or near AC powerlines. Various measures to identify, control, and monitor AC corrosion are presented in detail along with case histories. The fact that AC corrosion cannot be prevented with cathodic protection and, that under some situations may exacerbate AC corrosion, will be discussed.

#### **Who Should Attend?**

All those interested in preventing the premature corrosion failure of a pipeline from the effects of induced AC including project engineers, route planners, integrity engineers, and personnel involved with corrosion control and cathodic protection system design and operation.

#### **Expected Results**

The participants will understand the circumstances which give rise to AC corrosion, the important parameters governing AC corrosion, the key field tests and equipment required to identify AC corrosion, the practical techniques and methods to mitigate AC corrosion, and maintenance procedures to monitor the effectiveness of the mitigation measures.

### **Agenda**

- 1) Background of AC Corrosion on Pipelines
- 2) Electromagnetic Induction due to Co-location of Pipelines and AC Power Lines.
- 3) AC Corrosion Mechanism and Controlling Factors
- 4) Case Histories of AC Corrosion
- 5) Investigation and Identification of AC Corrosion
- 6) Corrosion Control Methods and Equipment
- 7) Role of Cathodic Protection in Controlling AC Corrosion
- 8) Monitoring Procedures for Assessing AC Corrosion Activity

### **Linkage with Working Groups**

Working Group 9: External Corrosion

## **Preliminary Program for Working Groups**

### **Working Group 1: Issues for Managers**

#### **Purpose**

To provide a forum for Pipeline Integrity Managers to discuss issues of relevance to upstream and downstream pipeline Operators. To assess the current state of the pipeline Industry and to assess the needs of the industry looking forward. The session will be comprised of a panel session of Executive Management from the Upstream, Downstream, Industry Organizations, Regulators and Pipeline Customers.

#### **Who Should Attend?**

Directors, Managers, and People leaders who have responsibility for the integrity of pipelines systems and for shaping the needs of their company and their customers' needs in a changing Regulatory and economic environment.

#### **Expected Results**

Share knowledge of the needs and challenges of the industry and the needs of pipeline customers and stakeholders. Allow Managers and People Leaders to ask questions of Executive Management through a panel forum, to gain an understanding of the views of Industry Leaders, and to share a vision of the future of the industry.

#### **Agenda**

**Tuesday, 10:30      Executive Panel Discussion**

### **Working Group 2: Regulatory Developments**

**Tuesday, 1:30      Damage Prevention - What New Regulatory Tools Will Drive Lower Levels of Third Party Damage?**

#### **Purpose**

To discuss new regulatory tools that will drive lower levels of third party damage.

#### **Who Should Attend?**

Those who are interested in proposing and implementing new tools leading to improve the damage prevention performance of pipelines and regulatory systems.

#### **Expected Results**

New methods for regulators and pipelines to implement for improved damage prevention.

**Tuesday, 3:30      CO<sub>2</sub> Pipelines - Challenges and Key Issues for the Regulation of CO<sub>2</sub> Pipelines.**

#### **Purpose**

With all the focus on carbon capture and storage today, we will certainly see more projects to move CO<sub>2</sub> around via pipeline. The purpose of this session will be to explore what that means for regulators and pipeline companies.

**Who Should Attend?**

Project managers, engineers and other staff of pipeline and engineering companies, regulatory staff charged with considering CO<sub>2</sub> pipelines.

**Expected Results**

Sharing experiences and highlighting issues for further development.

### **Working Group 3: Upstream Pipelines: Inspection, Corrosion, and Integrity Management**

**Purpose**

To engage upstream pipeline operators in focused discussions of industry “hot topics” with the goal of highlighting any areas that need further investigation, discussion or industry collaboration

**Who Should Attend?**

Engineers, technologists and integrity managers involved in the design, operation and maintenance of upstream pipelines.

**Expected Results**

Understanding and consensus on the latest challenges to upstream pipeline operators. Recognition of areas for improvement within the upstream pipeline integrity industry. Awareness of how other peer companies are handling challenges similar to the ones faced by your company.

**Agenda**

**Tuesday, 10:30** Updates since 2007 – Input from CAPP, UPIMA, Regulators  
**Wednesday, 8:30** Integrity of Non-Metallic Pipelines  
**Wednesday, 10:30** Upstream Pipeline Integrity Issues  
**Wednesday, 1:30** Hot Topics

### **Working Group 4: Design, Materials, Construction, Repair, and Maintenance**

**Purpose**

To engage interested parties for discussion on and sharing of the technique and safety concerns when grinding SCC on an operating pipeline;  
 To discuss the procedures, CE, and safety aspects when performing welding to operating pipeline;  
 To discuss the various procedures currently being used for excavating existing lines; and  
 To stimulate interest and debate on all concerns encountered during the performance of this work.

**Who Should Attend?**

Engineers, technologists, and managers active in the areas of pipeline integrity and repair.

**Expected Results**

Increased awareness and understanding of the concerns that should be addressed prior to and during grinding SCC;

Discussion on the procedures currently being used for maintenance welding to hot lines plus input learned from experience; and

Understanding of the challenges being faced to protect lives, property, and existing facilities when excavating an operating pipeline.

**Agenda**

**Wednesday, 10:30 Grinding SCC**

**Wednesday, 1:30 Maintenance Welding to Hot Lines**

**Wednesday, 3:30 Procedures for Excavation of Existing Lines**

**Working Group 5: Management of Stress Corrosion Cracking****Purpose**

To encourage sharing of experiences of SCC between operators and to foster continuous improvement in the management of SCC.

**Who Should Attend?**

Pipeline operators with experience of SCC and those wishing to learn more about the management of SCC.

**Agenda**

**Wednesday, 1:30 SCC Guidelines and Reporting Requirements**

**Wednesday, 3:30 Implementing Best Practices**

**Panel Discussion**

Standards

Improving SCC management

Data management to advance SCC management

Need for research, technology, guidelines, experience

**Working Group 6: Protective Coatings****Purpose**

This working group will provide participants with an opportunity to share and learn the best practices that exist for improving the performance of pipeline coatings.

**Who Should Attend?**

Anyone interested in pipeline coatings. The discussions will be applicable to both upstream and downstream pipeline operators. Pipeline integrity engineers, pipeline project engineers, pipeline owners, regulators, consultants, pipeline construction companies, inspectors, and coating suppliers should attend.

**Expected Results**

The participants will share experiences and learnings related to pipeline coatings. The latest advances in coating technology will be discussed. Methods to improve quality and best practices in use in industry will be revealed.

### **Agenda**

<b>Tuesday, 10:30</b>	<b>Advances in Pipeline Coatings</b>
<b>Tuesday, 1:30</b>	<b>Improving the Quality of Field Applied Coatings</b>
<b>Tuesday, 3:30</b>	<b>Best Practices – Thermal Insulation / Rocky Terrain / Repairs / Irregular Shapes</b>

### **Working Group 7: Pipeline Risk Management**

Risk Management is the integrated process of risk assessment and risk control with a continuous feedback loop. Risk assessment includes risk analysis and risk evaluation and is generally a system-wide activity. Risk control includes site specific risk and reliability based decision making, implementing, and monitoring to control risk such that it is below a tolerable value.

#### **Purpose**

This Working group aims to provide participants with:

1. An understanding of Risk Management process in the pipeline industry, including system wide risk assessment, risk and reliability based integrity management or risk control.
2. A forum to discuss programs, processes, procedures including reliability based decision support and performance measures that support a companies risk management policy
3. Information on recent developments, emerging focus areas, and issues in risk management

#### **Who Should Attend?**

Engineers and risk management experts who are involved in or are responsible for the development, implementation, and ongoing refinement of risk management programs should attend this workshop.

#### **Expected Results**

An understanding of industry practices, latest developments, challenges and issues in risk management. Areas for improvement within the pipeline industry and awareness of how peer companies are handling these or similar challenges.

### **Agenda**

<b>Tuesday, 10:30</b>	<b>Current Practice, Strengths, and Limitations of Qualitative Risk Assessments for Pipeline and Facility Assets</b> Most operators use system-wide risk assessments to identify and / or prioritize risk prevention and mitigation activities for pipeline and facility assets. Best practice of accounting for all threats, avoiding subjectivity, double counting causal effects, and common pitfalls will be discussed. Practical steps for improvement including data quality improvement, understanding sensitivities, and validation of methods will be examined.
<b>Tuesday, 1:30</b>	<b>Accounting for Uncertainties to Assure Safety – Reliability Based Assessment</b>

Recent workshops and related concern over anomaly assessment has put much emphasis on how to account for uncertainties and so called “un-conservative” possibilities. Reliability methods acknowledge and explicitly account for uncertainties and extreme behaviour and assure adequate safety. Three significant areas of uncertainty are defect sizing error, growth error, and assessment model error. We will discuss how operators account for these variables and by doing so assure adequate safety.

**Wednesday, 10:30 Excavation/Repair Criteria**

Recently many operators have worked on developing reliability based excavation/repair criteria so that we can be adequately confident that we have not missed a potential unsafe defect. Three operators who have worked in this area will share and discuss the strengths and weaknesses of their methods.

**Working Group 8: Inspection Tools**

**Purpose**

To discuss inspection tools and techniques used by pipeline industries to evaluate pipeline integrity;

To discuss recent challenges and /or successes related to ILI Technology and how to better handle them (single contract vs. multiple contracts).

**Who Should Attend?**

Individuals familiar with in-line inspections tools and techniques, as well the individuals responsible for company's ILI programs.

**Expected Results**

Share experience and learnings from using the crack tool technology;

How operators can assess and use multiple overlaid runs and numerous correlation features and excavation;

Initiate dialogue/discussions on the tool improvement.

**Agenda**

**Tuesday, 1:30 Recent crack tool (CD) case study regarding the benefits, limitation and application of the technology.**

Discussion Leader: Bruce Dupuis, Imperial Oil.

The presentation and discussion will be about case in point overview of what defects the crack tool sees, how they are characterized and how quantitative risk analysis can be applied more effectively to leverage the data and ensure pipe integrity is maintained long term. The assessment is in consideration of multiple overlaid runs and hundreds of correlation features and excavations. The discussion will include how operators can leverage multiple ILI runs to improve integrity programs. We will discuss issues that arise, successes and failures and lessons learned.



- Tuesday 3:30      Development and application of ILI contracting.**  
 Challenges, lessons learnt and benefits of developing a Global Contract for ILI.  
 Single vs. multi source contracts.  
 Contingency planning for when things don't go to plan.  
 How to best develop a contract specification to stimulate continuous improvement in technology and application of new technology.

### **Working Group 9: External Corrosion**

#### **Purpose**

To provide the industry with a brief update regarding outstanding industry items from Banff 2007.

To provide a forum to discuss the issue of AC corrosion and determine if the industry is adequately handling this issue, or if more industry attention and effort is required to mitigate this corrosion mechanism. Discuss recent challenges and/or successes related to induced AC voltage modeling and mitigation.

To discuss CP performance on modern coatings and discuss how pipeline facility design practices impact CP design and performance.

#### **Who Should Attend?**

Corrosion control coordinators of energy and operating companies, and cathodic protection consultants, service providers and suppliers.

#### **Expected Results**

Determine the significance and risks associated with AC corrosion, and review recent advancements/challenges in AC mitigation technologies.

Determine if the industry can improve its management of CP on pipelines with high performance coatings.

Determine if pipeline facility designers/construction managers require more education on corrosion control system design and performance.

#### **Agenda**

##### **Wednesday, 8:30**

1. Update from 2007 Banff proceedings.
2. Discussion on AC corrosion.
3. Discussion on AC voltage mitigation.

##### **Wednesday, 10:30 Effect of High-Performance Coatings on CP Performance**

1. Case study and discussion of CP on high performance coatings.
2. Discussion of pipeline facility design practices and their affect on CP.

### **Working Group 10 Internal Corrosion**

#### **Purpose**

Integrity professionals must continually adapt management processes to accommodate changes in the governing regulations and new knowledge about the corrosion threat to which their facilities are exposed. This workshop provides a forum for discussion about this dynamic management environments, with specific sessions on gas transmission and liquid pipelines carrying oil sands products. The purpose of these session is to share information that may support attendees organizations to be ‘ahead of the curve’.

### **Who Should Attend?**

Anyone with internal corrosion management responsibilities; midstream and transmission gas and liquid pipeline operators; chemical treatment users or suppliers; those who supply, support or use internal corrosion monitoring equipment; compliance professionals.

### **Expected Results**

Experience sharing: Through open dialogue, we hope to identify best practices and areas of improvement around internal corrosion management of midstream and transmission gas and liquid pipelines.

### **Agenda**

**Tuesday, 10:30**      **Reprise 2007 workshop issues. Gas Transmission Systems**  
Managing gas pipe in a ‘post Carlsbad’ era.

**Tuesday, 1:30**      **Oil Sands Product Pipelines – Owner/Operator Issues.**

**Tuesday, 3:30**      **Oil Sands Product Pipelines – Chemical Treatment Primer.**  
Research and development on chemical treatment issues and options for oil sand product pipelines.

## **Working Group 11 Facilities Integrity Management**

### **Purpose**

To develop an understanding of the current state of Facilities Integrity programs for the upstream and downstream industry. This year’s workshop will focus on gaining an understanding of the guidelines and regulations currently in place or under development related to Facilities Integrity Management, and also developing an understanding of the inspection techniques currently being deployed to monitor facilities integrity.

### **Who Should Attend?**

All those who have responsibility for developing or implementing facility integrity programs.

### **Expected Results**

Overview of the regulations and guidelines available for developing facilities integrity programs and identify any gaps that may be present.

Develop an understanding of how various companies are implementing facilities integrity programs.

Gain knowledge on the current technologies and inspection techniques used for managing facilities integrity.

**Agenda****Wednesday, 8:30 Monitoring Programs****Wednesday, 10:30 Inspection Techniques****Working Group 12 Managing Geotechnical Hazards****Purpose**

To provide a forum for sharing experiences and discussing the practical challenges encountered by pipeline integrity managers and technical staff in the management of geotechnical hazards impacting operating pipelines.

**Who Should Attend?**

Pipeline company staff and engineering specialists who are interested in system-wide geotechnical hazard management processes as well as site-specific engineering assessments, monitoring and mitigation methods.

**Expected Results**

Focusing on the more pervasive geohazards, such as those encountered at slopes and water crossings, the working group will gain an understanding of the range of practices and technologies available to the industry and how they are deployed.

**Agenda****Wednesday, 8:30**

- A discussion of published system-wide geotechnical hazard management processes
- An overview of established and emerging site-specific engineering assessments

**Wednesday, 1:30**

- An overview of established and emerging site-specific and distributed monitoring methods
- An overview of established and emerging site-specific mitigation methods

## Registration Information

**Advance registration is required. Because previous Workshops have been filled to capacity, please register for the Workshop early and be sure to reserve your room at the Banff Centre as soon as possible.**

**Please note: There are two (2) steps to the Registration process:**

- 1. To register as a delegate for this Workshop, you must submit the 2-page Workshop Application Form to the Alberta Chamber of Resources.**

You can register online at [www.acr-alberta.com](http://www.acr-alberta.com)

**Contact information for the Alberta Chamber of Resources is:**

Alberta Chamber of Resources	Telephone:	(780) 420-1030
#1940 Manulife Place	FAX:	(780) 425-4623
10180 - 101 Street		
Edmonton, Alberta, Canada T5J 3S4		
For Workshop information:		<a href="mailto:admin@acr-alberta.com">admin@acr-alberta.com</a>

- 2. In addition, you must reserve your room at The Banff Centre.** You may reserve your room at The Banff Centre online by using the following link:

Group Name: [Banff 2009 Pipeline Workshop: Managing Pipeline Integrity](#)

Alternatively, you can complete The Banff Centre Conference Accommodation Reservation Form and submit it to The Banff Centre Reservations Office. For any questions about accommodations at The Banff Centre, please contact the Banff Centre Reservations Office at 403-762-6308 or, toll free, at 1-800-884-7574.

### **Public Transportation:**

Brewster bus transportation is available between the Calgary Airport, Calgary downtown hotels, and The Banff Centre. The schedule is as follows:

Depart Calgary	Arrive Banff	Depart Banff	Arrive Calgary
Airport			Airport
12:30	14:30	08:30	10:30
18:30	20:30	12:30	14:30

This schedule is subject to change, so please confirm with Brewster at telephone number 403-762-6767 or, toll-free, 1-800-760-6934. You can also see the website,

<http://www.sightseeingtoursCanada.ca/aircalgaryS.aspx>

The schedule of Greyhound buses between the Greyhound terminals in Calgary and Banff can be obtained at 1-800-661-8747 and at the website, <http://greyhound.ca/>

### **Other Information**

In the spirit of free and open information exchange at the Workshop, the atmosphere and dress are both informal. No neckties.

**Workshop Application Form – Page 1**

**Banff/2009 Pipeline Workshop: Managing Pipeline Integrity**

April 6 - 9, 2009

The Banff Centre, Banff, Alberta

**My Name** \_\_\_\_\_

**My Phone Number** \_\_\_\_\_

Please print clearly.

Please complete both pages.

If you are planning to attend any of the **Tutorials** on **Monday, April 6**, please indicate which one(s) with a  :

Tutorial #	Time	<input type="checkbox"/>	Title	Tutorial #	Time	<input type="checkbox"/>	Title
1	Monday 9:00–12:00		The Application of Management Systems for Pipeline Integrity	3	Monday 9:00–12:00		Coatings Used in Conjunction with Cathodic Protection
2	Monday 8:30–4:00		Field Welding/Inspection/Engineering Critical Assessment, in 3 parts – 1, 2, and 3 below	4	Monday 9:00–12:00		Failure Analysis for Pipelines
2 Part 1	Monday 8:30–10:30		Mechanized GMAW for Mainline Construction	5	Monday 1:30–4:30		TSB Accident/Incident Investigation Methodology for Federal Pipelines
2 Part 2	Monday 10:45–12:45		Automated Ultrasonic Testing AUT of Field Girth Welds during Construction	6	Monday 1:30–4:30		AC Corrosion of Pipelines
2 Part 3	Monday 2:00–4:00		Engineering Critical Assessment (ECA) including Recent Developments in Strain-Based Design				

Please indicate with a  the Working Groups that you would like to attend on Tuesday and Wednesday.

Working Group	Tuesday			Wednesday			
	10:30	1:30	3:30	8:30	10:30	1:30	3:30
1 Issues for Managers							
2 Regulatory Developments							
3 Upstream Pipelines: Inspection, Corrosion, and Integrity Management							
4 Design, Materials, Construction, Repair and Maintenance							
5 Management of Stress Corrosion Cracking							
6 Protective Coatings							
7 Pipeline Risk Management							
8 Inspection Tools							
9 External Corrosion							
10 Internal Corrosion							
11 Facilities Integrity Management							
12 Managing Geotechnical Hazards							

