Tutorial #7: Management of Interactive Threats

Threat Identification

- 8:00 – 8:10 am  Introduction
- 8:10 – 8:30 am  Identifying Hazards, Threats, and Threat Interactions
  - Jenny Been – NEB
  - Definitions, regulations, industry studies, examples of failures and the underlying threats
- 9:00 – 9:30 am  Consideration of Human Factors in the Management of Interactive Threats
  - Lorna Harron – Harron Risk Management
  - Common heuristics and biases that impact application of engineering judgment
  - Common human factors identified through incident investigation
- 8:30 – 9:00 am  Pipeline Failures Resulting from Interacting Integrity Threats
  - Gregory Thomas Quickel - Det Norske Veritas
  - Coupling of time-dependent integrity threats with stable manufacturing and construction anomalies
- 9:30 – 10:00 am  Break

Threat Assessment

- 10:00 – 10:15 am  Assessment of Anomaly Threat under High Strain Conditions
  - Jenny Been – NEB
  - Review of industry studies
- 10:15 – 11:00 am  R&D and Field Experience of a Major European Transmission System Operator in Identifying and Managing Interactive Threats
  - Philippe Notarianni and Charles Fernandez – GRTgaz
  - Methodologies used to assess and manage metal loss defects interacting with secondary loadings validated with R&D studies and experimental tests
  - Application of stress criteria to the lowering of an 8-inch vintage pipeline under operating pressure considering girth weld defects with additional bending stress
- 11:00 – 11:45 am  Dent Assessment and the Implications of Secondary Features
  - Aaron Dinovitzer – BMT
  - Assessment and prioritization of dents with secondary features
  - Managing dents with secondary features through inspections, preventive maintenance, and operations
- 11:45 – 12:00 pm  Questions and Discussions
  - Discuss presented material, present participants’ experiences
- 12:00 – 1:15 pm  Lunch

Threat Assessment
• **1:15 -2:00 pm**  **In-Line Inspection for Interactive Threats**
  o Taras Bolgachenko – ROSEN
  o Individual versus interactive threats and respective challenges
  o Solutions obtained through tool combinations and demonstrated in case studies

• **2:00 – 2:45 pm**  **Direct Assessment and Above-Ground Inspections, Data Alignment**
  o Shamus McDonnell – PureHM
  o Alignment of indirect inspections with ILI features using high precision GPS
  o Examples of industry threat management and examples of data integration.

• **2:45 – 3:15 am**  **Break**

**Reliability and Risk Management**

• **3:15 – 4:00 pm**  **Quantitative Reliability and Risk Management of Pipelines with Interactive Threats**
  o Sherif Hassanien – Enbridge
  o Discussion of a semi-quantitative reliability framework to manage the threat of simple and complex dents associated with stress risers
  o Calibration against detailed analyses and/or field findings and demonstrated with field experiences

• **4:00 – 4:30 pm**  **Human Factors as a Component of Risk and Safety Management**
  o Lorna Harron – Harron Risk Management
  o Contribution of human factors to the management of risks associated with interactive threats

• **4:30 – 5:00 pm**  **Questions and Discussions**
  o Discuss presented material, present participants’ experiences