

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 am **Lunch**

Threat Assessment

- 1:15 -2:00 pm **In-Line Inspection for Interactive Threats**
 - Taras Bolgachenko – ROSEN
 - Individual versus interactive threats and respective challenges
 - Solutions obtained through tool combinations and demonstrated in case studies
- 2:00 – 2:45 pm **Direct Assessment and Above-Ground Inspections, Data Alignment**
 - Shamus McDonnell – PureHM
 - Alignment of indirect inspections with ILI features using high precision GPS
 - 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**
 - Sherif Hassanien – Enbridge
 - Discussion of a semi-quantitative reliability framework to manage the threat of simple and complex dents associated with stress risers
 - 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**
 - Lorna Harron – Harron Risk Management
 - Contribution of human factors to the management of risks associated with interactive threats
- 4:30 – 5:00 pm **Questions and Discussions**
 - Discuss presented material, present participants' experiences