

Pipeline Integrity and Safety – Leading Indicators

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TransCanada





TransCanada Corporation (TSX/NYSE: TRP)

One of North America's Largest Natural Gas Pipeline Networks

- Operating 68,000 km (42,100 mi) of pipeline
- Average volume of 14 Bcf/d or 20% of continental demand

North America's 3rd Largest Natural Gas Storage Operator

368 Bcf of capacity

Canada's Largest Private Sector Power Generator

- 19 power plants, 10,900 MW
- Diversified portfolio, including wind, hydro, nuclear, coal, solar and natural gas

Premier North American Oil Pipeline System

- Keystone Pipeline System (includes Gulf Coast Pipeline): 4,247-km (2,639-mi), 591,000 bbl/d capacity
- Safely delivered more than one billion barrels of Canadian oil to U.S. markets since 2010

TransCanada

Pipeline Integrity Management Program





 An example of a proactive program governed by our Operational Management System

- Full life cycle management of pipeline integrity and safety Act **OMS** Commitment Statement Continual Improvement Strategy and Objectives Management Review Structure and Responsibilities Integrity Asset Communication Management Management Management Check Plan **Program** System Asset Management Planning Performance and Condition Monitoring Information Management Control of Non-Conformances Risk Management Internal System Audit System Wide Risk Compliance Management **Assessment** Do Threat Management, Resource Management Management of Change Preventative Integrity Implement AMPs Incident & Emergency Investigation Maintenance

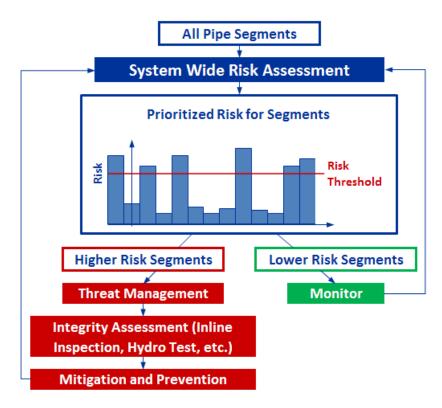


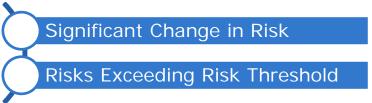
System Wide Risk Assessment (SWRA)





SWRA, a quantitative risk assessment process











Threat Management



Time Dependent Threat

- External Corrosion
- •Internal Corrosion
- •Stress Corrosion Cracking

Stable Threats

- Manufacturing Defects
- Construction Defects
- •Equipment Failures

Time Independent Threats

- •3rd Party Damage
- Weather and Outside Forces
- Incorrect Operations

% Mitigation Measures Implemented

Participation in Industry Foundations, Committees, and Organizations

Completion of Root Cause Analyses

Mitigation Measures

Severity of Features

2015 Statistics

436 Pipe integrity personnel to implement the program (not including 3rd party field contractors)

725 Excavations

21 Geotechnical remediations

229 Facility inspections and remediations

383 Cathodic Protection installations, 165 repairs, and 980 inspections

7 Class pipe replacements

109 Water crossings monitored

9 Hydro tests





In-Line Inspection (ILI)



- ILI uses pipeline inspection gauges (PIG) for condition monitoring and maintenance
- Enables identification, analysis, susceptibility assessment, risk management, and remediation

Features Identified

Accuracy of ILI Calls

of ILIs and Distance Run

2015 Statistics

172 In-line inspections performed in 2015

15,334 km of ILI run in 2015

5 Main Types of ILI (MFL, EMAT, Caliper, Smartball, Cleaning)





Damage Prevention





Damage prevention - the proactive strategy to minimizing the probability of an incident caused by third parties (government, public, contractors, land owners, etc.).

- Public Awareness
- Mechanical Damage
- Crossings

One Call Notifications per Unauthorized Activity / 1000km

Timely Completion of Crossing Requests

Contractor Education Engagements

Landowner, Government, Contractor and Public Engagements

Reduction in Unauthorized Activities

Aerial Patrol Coverage

2015 Statistics

3003 Aerial patrol and 485,065 km flown

118,318 One call requests processed

818,755 Baseline mailings (public outreach)

2295 Crossing agreements processed

163 Unauthorized activities with 63 investigated





Damage Prevention









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