



System and Risk Assessment

Introduction

With an aging infrastructure and changing regulatory environment, many U.S. pipeline operators are seeking a comprehensive approach to infrastructure management. Whether developing long-term system improvement plans, or assessing the current state of the system, applying a risk assessment approach helps enable efficient and effective use of resources.

Overview

System and risk assessment projects range from simple analysis of a single pipeline segment to detailed review of an entire pipeline system with multiple variables. EN Engineering employs a cross-functional team appropriate to the scope of each project.

A holistic, comprehensive review of infrastructure requirements encompasses not only current and future pipeline delivery capabilities, but also incorporates the pipeline integrity concepts of threat identification and risk assessment into the decision-making process to prioritize planned projects. Knowledge of regulatory compliance requirements and industry best practices enables EN Engineering to incorporate both initial capital investment and ongoing O&M costs into budgetary projections.

EN Engineering works closely with our clients to support proposed capital improvement programs through the jurisdictional approval process. Services rendered for cost recovery filings have ranged from development of exhibit packages and budgetary estimates, to independent review of operators' cost estimation methodologies and project selection criteria.

Key Project Tasks

Depending on the nature of the system or issue under analysis, key project tasks may include, but are not limited to:

Risk Assessment

- Determine key risk factors
- Quantify risk attributes and develop weighted algorithm to address

System Modeling

- Model current and proposed pipeline in SynerGEE™ or other flow modeling software
- Perform what-if analysis for various operating conditions and contract scenarios
- Evaluate repair versus replace options for individual components or segments
- Evaluate capacity constraints against projected demand on either system or segment basis
- Analyze alternative operating scenarios such as uprate, derate, or retirement
- Conduct CP system commissioning as soon as practical during the construction of the pipeline

System Mapping and Data Overlay

- Develop or convert system maps in ArcGIS
- Identify publicly-available data sets pertinent to the risk factors
- Overlay data sets and export for analysis

Cost Estimation

- Develop budgetary cost estimates for proposed replacement, modification, or assessment projects
- Prepare parametric cost estimates
- Provide written cost estimate basis documents outlining factors considered, as well as assumptions made
- Develop time-value-of-money calculations
- Consider impact on operating and maintenance costs as well as capital costs

Program Development

- Develop strategic assessment plans and capital improvement programs
- Prioritize pipelines, segments, or facilities for further assessment, remediation, or replacement based on risk results
- Consider project dependencies and efficiencies

Engineering Studies

- Compose written reports documenting current regulatory standards, proposed future regulations, and industry best practices
- Conduct benchmarking surveys
- Develop comparative analysis of pipeline systems
- Provide supporting documentation for jurisdictional hearings and rate recovery justifications