

HP REPLACEMENT PROGRAM EVALUATION CRITERIA

Questar Gas Company uses many available tools on an ongoing basis to continue to refine its replacement schedule. Questar Gas identifies applicable threats to the pipeline integrity and evaluates risk by determining the likelihood of failure (LOF) and the consequence of failure (COF).

$$RISK = LOF * COF$$

Dynamic Risk, an industry expert in risk management, developed algorithms specifically for Questar Gas Company's replacement program by applying pipeline industry research. These algorithms are calculated using Spatial Risk Analysis (SRA) software from New Century Software, Inc. and utilize Questar Gas Company's Geographical Information System (GIS). The following factors are considered by Questar Gas Company to evaluate and refine its replacement schedule:

I. Likelihood of Failure

The Company's engineers and other subject matter experts (SMEs) have evaluated (and continue to evaluate) threat criteria. The current threat criteria include, but are not limited to:

- a. *Manufacturing Threats*
 - i. *Longitudinal Seam Weld Type*
 - ii. *Operating Stress Level*
 - iii. *Post-Construction Pressure Test*
 - iv. *Leak History due to Manufacturing Defects*
 - v. *Reconditioned Pipe Factor*
- b. *Construction Threats*
 - i. *Construction Year*
 - ii. *Leak History due to Construction Defects*
- c. *External Corrosion Threat*

II. Consequence of Failure

Factors considered in evaluating the consequence of failure include but are not limited to:

- a. *Safety*
- b. *Throughput Impact*

III. Scheduling Replacements. The Company uses the results of this analysis to create a plan to replace aging infrastructure. The priority of replacement is based, in large

part, upon the risk/consequence evaluation described above. However, other factors will be considered in combination with the risk model results to determine the order in which facilities are replaced. Those factors include:

- a. *Customer load growth/growth patterns.*
- b. *Operating History (i.e. history of leaks).*
- c. *Results of integrity assessments.*
- d. *Regulatory compliance.*
- e. *Permitting requirements.*
- f. *Environmental requirements.*
- g. *Local government requirements.*
- h. *Efficiency considerations (i.e. coordinating with road reconstruction projects).*
- i. *Real Property and Right-of-way acquisitions.*
- j. *Other project-specific considerations.*