

IHP REPLACEMENT PROGRAM EVALUATION CRITERIA

Questar Gas utilizes many different tools, including Distribution Integrity Management Plan (DIMP) criteria, which became effective in 2010. On an ongoing basis, Questar Gas uses all available tools to continue to refine its replacement schedule.

Questar Gas utilizes a GIS based risk model in conjunction with subject matter experts to prioritize replacements on the intermediate high pressure system. The Company evaluates risk by considering threats to the pipeline integrity and the consequence of failure (Risk = Threat x Consequence).

I. Evaluation of Threats.

Each year, the Region Engineer, the integrity and corrosion engineer, and subject matter experts (SMEs) evaluate threat criteria. The threat criteria, many of which are included in the Distribution Integrity Management Plan model, include but are not limited to the following:

- a. *Age of pipe.* Risks associated with vintage pipe including concerns related to materials, construction methods, etc.
- b. *Corrosion.* The risk of system failure of metallic assets due to oxidation of the metal.
- c. *Equipment Failure.* The risk of system failure due to an improperly functioning, operable, gas system component.
- d. *Excavation Damage.* Any impact which results in the need to repair or replace an underground facility due to a weakening or partial or complete destruction of the facility.
- e. *Incorrect Operation.* The risk of system failure due to a human action resulting in a change in the standard state of operation.
- f. *Material.* The risk of system failure caused by deterioration of the gas system component due to factors such as age, material type and coating type.
- g. *Natural Forces.* The risk of system failure due to a natural external force, such as erosion, flooding, frost, earthquakes, or landslides.
- h. *Outside Forces.* The risk of system failure due to a man-made external action.
- i. *Weld & Joint Failure.* The risk of system failure due to a failure of a fitting responsible for connecting two or more gas system components.
- j. *Other.* The “Other” category includes all other threats not specifically identified above.

II. Evaluation of Consequence. Factors considered in evaluating the consequence of failure include:

- a. *Population density.* The population density surrounding a given facility.
 - b. *Business districts.* An area that has a high concentration of commercial customers.
 - c. *Critical facilities.* The structures that are critical to the community, serve as places of refuge, and/or pose challenges in the event of an evacuation (i.e. hospitals, schools, churches, nursing homes, retirement facilities etc.).
 - d. *Main diameters.* The size of the pipeline under consideration.
- III. Scheduling Replacements. The Company uses the results of this analysis to create a plan to mitigate the risk associated with its facilities. Pipeline replacement is one of the mitigative measures. The priority of replacement is based, in large part, upon the risk/consequence evaluation described above. However, other factors will influence the order in which facilities are replaced. Those factors include:
- a. *Remedial actions* (facilities about which there is heightened concern based on field conditions).
 - b. *Permitting requirements.*
 - c. *Environmental requirements.*
 - d. *Local government requirements.*
 - e. *Efficiency considerations* (i.e. coordinating with road reconstruction projects).
 - f. *Real Property and Right-of-way acquisitions.*
 - g. *Other project-specific considerations.*