7.0 RISK EVALUATION AND RANKING

Risk analysis is an ongoing process of understanding what factors affect the risk posed by threats to the gas distribution system and where they are relatively more important than others. The primary objectives of the evaluation and ranking of gas distribution system risk include the following:

(a) Consider existing and potential threats,
(b) Consider the likelihood of failure associated with each known threat,
(c) Consider the consequences of such a failure,
(d) Estimate and rank the risks (i.e., determine the relative importance) posed to the pipeline, and
(e) Consider the relevance of threats in one location to other areas.

The Company uses two risk evaluation processes, a system-level one and a segment-level one. The system-level process (refer to Section 7.1) consists of a risk model primarily, but not entirely, based on the Company leakage program. The segment-level process largely, but not solely, consists of an Optimain-based risk model primarily used to prioritize pipe replacement projects (refer to Section 7.2 for descriptions of all included sub-processes). These two processes are assessed in parallel, and the results of each are used to add value to the other.

7.1 System Level Risk Evaluation

The system-level process provides a high level assessment of the risk profile associated with each threat category and asset group. This evaluation can gauge the effectiveness and the need for various Company programs to ensure appropriate allocation of resources. This evaluation considers all threat categories and all distribution facilities, the results of the evaluation will enable the Company to focus efforts on those asset groups and threats posing the greatest risk.

Statewide system level risks are analyzed on Tables C-1 Probability of Failure Factors, C-2 Consequence of Failure Factors, and C-3 Total Risk Scores. Situational risks are analyzed on Table B-2 SituationalThreats (see Section 7.1.3). Statewide system level risk and situationalrisk are consolidated for evaluation on Table C-4 Evaluation of Risks.

The system-level risk evaluation is the primary DIMP risk evaluation. Sections 7.1.1 thru 7.1.5 below describe the System Level Risk Evaluation process.

7.1.1 Risk Score Categories

This risk evaluation uses the same threat categories as listed within Section 6.1 and the same asset groups as listed within Section 6.2.

See Section 7.1.3 describing a process for identifying and evaluating situationalthreat / asset group combinations.

7.1.2 DIMP Steering Team Analysis

The language described within this Section applies to the process below and is to be reviewed as needed not to exceed five years in accordance with the requirements within Section 10 concerning the complete program re-evaluation.

Threats per asset class are identified on Table B-1. The threats per asset class are assigned to the following categories:

A = Threat is not applicable

B = Potential threat, but threat is perceived to be negligible or insignificant (no known occurrences within the past 5 years)

C = Threat is applicable and general in nature

D = Threat is applicable and there is a situational condition which is to be evaluated separately

After identifying threats as described in Section 6.3, the DIMP Steering Team will review the calculated risk factors for each of the threat / asset group combinations. However, if an asset is eliminated or the threat per asset class is not applicable the threat shall be identified by code "A" on Table B-1. No risk factors will be determined for that threat / asset group combination coded "A".

For this risk evaluation, the Company calculates risk as follows:

Risk = POF x COF

Where: *POF = Probability of Failure*
COF = Consequence of Failure

The team will consider reasonably available information relating to the system's design, operation, maintenance, and environmental factors. References to these records can be found within Table A-1: IM Program Records Summary located in Appendix A.

7.1.2.1 Actual Probability of Failure (POF)

The actual Probability of Failure (POF) will be calculated as the average of the following two factors: (1) the result of a Poisson formula calculation using the leak rate as the input variable and (2) the leak ratio.

Factor 1 for POF

The annual leak rates will be calculated using annual leakage information from the Work Management System (WMS) and the main and service line information from the DOT Gas Distribution System Annual Report (PHMSA F 7100.1-1).

For main lines, the leakage rate for each identified threat per asset class will be calculated by dividing the number of leaks related to the identified threat per asset class by the miles of main line in the asset class.

Main Line Leakage Rate = Number of main leaks / Miles of main

For service lines, the leakage rate for each identified threat per asset class will be calculated by dividing the number of leaks related to the identified threat per asset class by the number of service lines in the asset class.

Where the leak location cannot be clearly identified to mains or service lines the DIMP Steering Team will determine which denominator to use. Figure 7-1 displays the information utilized to calculate the denominator for each asset group. The risk scores based on locality utilize the same