PACIFIC GAS AND ELECTRIC COMPANY

GAS TRANSMISSION AND DISTRIBUTION
GAS ENGINEERING
GAS INTEGRITY MANAGEMENT AND TECHNICAL SUPPORT
Risk Management

Risk Management Procedure
Procedure No. RMP-03
Rev. 5
Third Party Threat Algorithm

Prepared By: _____ Date: 11/13/01

Approved By: [redacted] Date: 11/13/01

Approved By: [redacted] Date: 11/13/01

Revision	Date	Description	Prepared By	Approved By	Approved Manager System Integrity
0	6/13/02	Initial Issue			
1	8/14/03	Revised as shown			
2	8/15/04	Revised as shown			
3	10/28/05	Revised as shown			
4	10/27/06	Revised and added SME			
5	12/05/07	Revised as shown	[redacted]		

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1.0 PURPOSE

The purpose of this procedure is to provide a guideline for determining the Third Party (TP) Threat Algorithm(s) for determination of Likelihood of Failure and Risk for PG&E's Risk Management Program (RMP) and Integrity Management Program.

2.0 SCOPE

2.1 Transmission

This procedure is applicable to all of PG&E's gas transmission pipeline facilities and is to be used in conjunction with RMP Procedure 04. The algorithm provided in this procedure is for pipelines. It is not applicable to regulator, compressor, or storage station facilities.

The Integrity Management Group is responsible for managing risk within the scope of this procedure. The Integrity Management Group shall establish and manage the risk of each pipeline facility by utilizing industry and regulatory accepted methodologies appropriate for PG&E's facilities and shall be in conformance with this procedure. The Integrity Management Program Manager shall be responsible for compliance with this procedure.

3.0 INTRODUCTION

The risk management process is a process of calculating risk, developing risk mitigation plans to bring and maintain risk within an acceptable risk profile, and monitoring risk to accommodate changes in the factors which affect risk. The Transmission Integrity Management Program (TIMP) is a program established by PG&E to address the integrity management rules in 49 CFR Part 192 Subpart O. (Procedure RMP-01 provides a procedure for the Risk Management Process.) Procedure RMP-03 provides procedures for compliance with the Integrity Management Program. This procedure supports the calculation of risk, required by Procedure RMP-01 and RMP-06, due to one of the basic threats imposed on gas pipelines, Third Party (TP).

As described in RMP-01, Risk is defined as the product of the Likelihood of Failure (LOF) and the Consequence of Failure (COF). A relative risk calculation methodology is used to establish risk for all pipeline segments within the scope of RMP-01. The method used to calculate risk is based on an index model and qualitative scoring approach. Likelihood of Failure (LOF) is defined as the sum of the following threat categories: External Corrosion (EC), Third Party (TP), Ground Movement (GM) and Construction/Materials (CM).

Each threat category is weighted in proportion to PG&E and industry failure experience. TP is weighted at 40%. The weightings on the threat categories will be reviewed and approved annually by the Consequence Steering Committee. For each threat category, the appropriate steering committee will identify the significant factors that influence the threat's likelihood of failure. For each factor, a percentage weighting will be established to identify the factor's relative significance in determining the threat's likelihood of failure within the threat algorithm. Points will be established based on criteria that the committee feels is significant to determining the threat's likelihood of failure due to each factor and the relative severity of failure (leak before break vs. rupture). (Negative points may be assigned where current assessments have been made to confirm pipeline integrity and/or mitigation efforts have eliminated or lowered susceptible to a threat.) Generally, the summation of the percentage weightings for all of the factors within each threat will be 100%. (There may be exceptions to permit the consideration of very unusual conditions.)

For the threat of TP, the scoring is based on direction from the Third Party Damage Committee.
The Third Party Damage Committee shall meet once each calendar year and shall review this procedure per the requirements of RMP-01.

The Distribution Integrity Management Program (DIMP) is a program established by PG&E to address the integrity management rules in 49 CFR Part 192 Subpart P. Procedure RMP-16 provides details for compliance with the Integrity Management Program. This procedure supports the calculation of risk due to one of the basic threats imposed on gas pipelines, Third Party (TP).

The TP threat for distribution piping is addressed in section 7 of this document. Currently this algorithm determines the highest risk leaks so they can be prioritized as a group.

[redacted]

4.0 Roles and Responsibility

Specific responsibilities for ensuring compliance with this procedure are as follows:

Title	Reports to:	Responsibilities
Integrity Management Program Manager	Manager System Integrity	➢ Supervises completion of work (schedule/quality) ➢ Monitor compliance to procedure – take corrective actions as necessary ➢ Assign qualified individuals ➢ Ensure Training of assigned individuals ➢ Assign Steering Committee Chairman, and ensure that meetings are held once each calendar year.
Steering Committee Chairman (Risk Management Engineers)	Appointed by Integrity Management Program Manager. Who the chairman reports to will vary.	➢ Arrange meetings ➢ Review procedure with committee per RMP-03 ➢ Publishes meeting minutes ➢ Ensures action items are completed.
Steering Committee Members (Subject Matter Experts)	Various	1. Attend meetings as requested by Steering Committee Chairman. 2. Provide review and direction to procedure.
Risk Management Engineers	Integrity Management Program Manager	• Perform [illegible] per procedure

[redacted] GTR0003299

6.5 Training and Qualifications

See RMP-06 for qualification requirements. Specific training to ensure compliance with this procedure is as follows:

Position	Type of Training	How Often
Integrity Management Program Manager	Procedure review of RMP-01 and RMP-03	• Upon initial assignment • Once each calendar year.
Steering Committee Chairman	Procedure review of RMP-01 and RMP-03	• Upon initial assignment • Once each calendar year or as changes are made to the procedure.
Steering Committee Members (Subject Matter Experts)	RMP-03 and Steering Committee requirements of RMP-01	• Once each calendar year at the time of the steering committee meeting.
Risk Management Engineers	Integrity Management Program Manager	• Once each calendar year or as changes are made to the procedure.

6.6 Transmission TP Threat Algorithm

Transmission Third Party (TTP) threats shall be calculated per the direction of the Third Party Damage Committee. The committee determined that the factors in A through J of this section are significant for determining the Likelihood of Failure (LOF) of a transmission gas pipeline due to third party damage. The TTP contribution to LOF shall be the summation of assigned points times the assigned weighting of the following factors.

A) Potential Ground Breaking Frequency (13% Weighting). Points will be awarded as follows:

Criteria	Points	Comments
Dig-In Concern*	100	1
Class 3 and 4 Areas	100	2
Class 2 Area	50	2
Class 1 Area	10	2

*Dig-In concerns will be reported to the RMP by Gas Controllers personnel every two years. They shall also be within a ¼ mile of a leak that has occurred within the last 10 years, unless some mitigation efforts have been documented.

B) Third Party Damage Prevention (10% Weighting). Points will be awarded as follows:

Criteria	Points	Comments
None	0	2
Standby	100	10
Aerial Patrol	0	2

[redacted]

C) Ground Cover Protection ([illegible]% Weighting): Points awarded as follows:

Criteria	Points	Contrib.
More than [illegible]	[illegible]	[illegible]
≥ 2 [illegible] to 3 [illegible]	[illegible]	[illegible]
≥ 2 [illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible]

D) Pipe Diameter (7% Weighting): Points awarded as follows:

Criteria	Points	Contrib.
Pipe Diameter [illegible]	100	7
Pipe Diameter [illegible]	[illegible]	[illegible]

E) Wall Thickness ([illegible]% Weighting): Points awarded as follows:

Criteria	Points	Contrib.
Less than [illegible] inches	[illegible]	[illegible]
[illegible] to [illegible] inches	[illegible]	[illegible]
Greater than [illegible] inches	[illegible]	[illegible]

F) Line Marking (5% Weighting): Points awarded as follows:

Criteria	Points	Contrib.
Line of Sight	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]*	[illegible]	[illegible]

*[illegible]

G) MOP vs. Pipe Strength* (10% Weighting): Points awarded as follows:

Criteria	Points	Contrib.
>50% [illegible]	100	10
[illegible]% to [illegible]%	90	9
40% to <50%	50	5
30% to <40%	30	3
20% to <30%	10	1
Less than 20%	5	0.5

* Pipe strength shall be determined to be [illegible].

[redacted]

H. Third Party Leak Data ([illegible]% Weighting): Points awarded as follows

Criteria	Points	Weighted
Pipe Segments with more than one leak* within impact zone of that segment	[illegible]	[illegible]
Pipe Segments with one leak within its impact zone	100	[illegible]
Pipe Segments in proximity [illegible] the same impact zone and within one [illegible]	[illegible]	[illegible]
No Leaks	[illegible]	[illegible]

* [illegible] within the last [illegible] years

** [illegible] within the impact zone are awarded [illegible]. Intentionally exceeds 100% weighting.

I. Public Education Program ([illegible]% Weighting): Points awarded as follows

Criteria	Points	Weighted
Field Contacts*	[illegible]	[illegible]
[illegible]**	[illegible]	[illegible]
Trade Show***	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

* Field Contact is [illegible] within the last 12 months.

** [illegible] within the last 24 months.

*** Points are awarded to pipe segments [illegible] within the last [illegible] months. The Public Awareness Program Manager [illegible].