

## Mandatory Metrics and Performance Measures

ICC Docket No. 16-0376  
AG Exhibit 1.3  
Part 10

### Miles of Main by Material

Year	Unprotected Bare Steel	Unprotected Coated Steel	Cathodically Protected Coated Steel	PE Plastic	Cast Iron	Ductile Iron	Miles of Main
2005	0	0	1212	777	1697	326	4012
2006	0	0	1208	839	1664	314	4025
2007	0	0	1202	898	1629	300	4029
2008	0	0	1198	982	1589	294	4063
2009	0	0	1193	1022	1576	293	4085
2010	0	0	1263	1051	1559	286	4159
2011	0	0	1171	1122	1544	282	4119
2012	0	0	1138	1291	1480	261	4169
2013	0	0	1140	1448	1406	242	4236
2014	0	0	1129	1603	1361	234	4327

Source: WAM R43 Report and PHMSA Annual Report 7100

### Number of Services by Material

Year	Unprotected Bare Steel	Unprotected Coated Steel	Cathodically Protected Bare Steel	Cathodically Protected Coated Steel	PE Plastic	Cast Iron	Ductile Iron	Copper	Other	Total No. of Services
2005	6957	181	0	44751	406857	72	392	20476	25332	505018
2006	6735	182	0	44031	411608	71	382	19852	24439	507300
2007	6497	185	0	42998	415762	71	373	19128	23461	508475
2008	6198	187	0	41889	419905	71	362	18097	22502	509211
2009	5922	186	0	40960	421004	67	348	17466	21553	507506
2010	6295	182	0	51683	439929	78	366	17444	265	516242
2011	6250	181	0	51341	448446	77	334	17100	0	523729
2012	6098	183	0	49411	454917	76	310	15457	0	526452
2013	5677	180	0	44797	445403	74	294	13824	0	510249
2014	5227	177	0	42591	454149	72	275	13228	0	515719

Source: WAM R43 Report and PHMSA Annual Report 7100

**Total and Hazardous Main Leaks Eliminated or Repaired by Cause**

Year	Corrosion		Natural Forces		Excavation Damage		Other Outside Force Damage		Material or Welds		Equipment		Incorrect Operations		Other	
	Total	Hazardous	Total	Hazardous	Total	Hazardous	Total	Hazardous	Total	Hazardous	Total	Hazardous	Total	Hazardous	Total	Hazardous
2005	62	8	61	20	120	109	57	14	1	1	6	3	0	0	1016	103
2006	63	7	90	21	140	134	6	2	0	0	9	9	1	1	754	47
2007	116	7	275	52	127	103	9	0	1	0	21	18	0	0	1038	88
2008	146	18	321	52	124	114	4	2	0	0	15	1	0	0	1031	83
2009	94	0	280	61	77	11	0	0	4	0	14	1	1	0	1179	39
2010	77	8	167	26	112	97	3	0	2	0	15	5	3	2	923	91
2011	45	18	206	105	150	132	0	0	2	2	29	8	2	2	687	176
2012	129	60	106	35	160	146	6	6	46	10	20	3	2	0	400	30
2013	104	54	362	158	311	302	10	5	67	29	11	4	8	2	517	222
2014	73	34	360	206	234	228	8	8	71	40	5	4	0	0	489	266

Source: LKMS and WAM R104/109 Leak Reports

**Total and Hazardous Service Leaks Eliminated or Repaired by Cause**

Year	Corrosion		Natural Forces		Excavation Damage		Other Outside Force Damage		Material or Welds		Equipment		Incorrect Operations		Other	
	Total	Hazardous	Total	Hazardous	Total	Hazardous	Total	Hazardous	Total	Hazardous	Total	Hazardous	Total	Hazardous	Total	Hazardous
2005	99	30	25	4	460	415	14	4	1	1	19	17	0	0	587	207
2006	131	58	35	9	467	431	8	6	0	0	28	24	1	1	490	182
2007	209	82	49	12	455	429	13	4	3	1	82	67	1	0	468	160
2008	187	76	104	35	535	521	14	9	3	1	34	4	2	0	461	168
2009	211	24	57	10	486	109	5	1	1	0	4	2	0	0	531	78
2010	222	144	64	23	442	376	19	17	3	1	22	9	2	2	349	149
2011	159	117	60	41	556	520	14	13	6	1	23	8	7	5	389	237
2012	205	146	28	8	795	739	85	81	77	41	8	4	8	6	186	92
2013	158	122	40	25	594	566	51	45	29	31	8	5	12	5	118	84
2014	109	92	58	45	512	494	32	28	48	28	9	8	8	4	151	111

Source: LKMS and WAM R104/109 Leak Reports

**Number of Hazardous Main Leaks Eliminated or Repaired by Material**

Year	Unprotected Bare Steel	Unprotected Coated Steel	Cathodically Protected Bare Steel	Cathodically Protected Coated Steel	PE Plastic	Cast Iron	Ductile Iron	Copper
2010	0	0	0	20	44	176	27	0
2011	0	1	0	30	45	259	22	0
2012	0	0	0	20	48	207	27	0
2013	0	0	0	49	80	503	66	0
2014	0	1	0	20	60	481	17	0

Source: LKMS and WAM R104/109 Leak Reports

**Number of Hazardous Service Leaks Eliminated or Repaired by Material**

Year	Unprotected Bare Steel	Unprotected Coated Steel	Cathodically Protected Bare Steel	Cath. Protected Coated Steel	PE Plastic	Cast Iron	Ductile Iron	Copper
2010	32	0	0	101	710	0	1	40
2011	8	0	0	82	680	0	2	27
2012	14	0	0	65	839	0	1	17
2013	13	2	0	111	1133	0	1	22
2014	14	1	0	66	854	0	0	23

Source: LKMS and WAM R104/109 Leak Reports

### Excavation Damages & Tickets

Year	Damages	Locate Tickets	Damages per 1000 Tickets
2006	813	n/a	n/a
2007	803	92459	8.7
2008	768	92765	8.3
2009	583	93046	6.3
2010	606	91201	6.6
2011	785	115626	6.8
2012	1156	161666	7.2
2013	1043	169355	6.2
2014	1099	176227	6.2

Source: PGL Hit Database

### Threat Specific Excavation Damages

Year	Number of Tickets	City of Chicago	Hits per 1000 tickets	Joel Kennedy Construction	Hits per 1000 tickets	Benchmark Construction	Hits per 1000 tickets	Peoples Gas Contractors	Hits per 1000 Tickets	Peoples Gas Crews	Hits per 1000 Locates
2006	n/a	234	n/a	0	0	9	n/a	5	n/a	6	n/a
2007	92,459	215	2.33	0	0	15	0.16	34	0.37	4	0.04
2008	92,765	229	2.47	0	0	58	0.63	25	0.27	6	0.06
2009	93,046	246	2.64	0	0	57	0.61	3	0.03	4	0.04
2010	91,201	227	2.49	0	0	0	0.00	3	0.03	6	0.07
2011	115,626	287	2.48	0	0	3	0.03	104	0.90	12	0.10
2012	161,666	420	2.60	36	0.22	103	0.64	112	0.69	12	0.07
2013	169,355	408	2.41	63	0.37	148	0.87	56	0.33	9	0.05
2014	176,227	392	2.22	94	0.53	112	0.64	96	0.54	8	0.05

Source: PGL Hit Database

### Natural Force Damage on 6" Cast Iron Main

Year	Miles of 6" Cast Iron	Failures	Failures per Mile
2010	1110	75	0.068
2011	1087	143	0.132
2012	1029	88	0.085
2013	984	208	0.211
2014	943	217	0.230

Source: WAM R104/109 Leak Reports

### Natural Force Damage on Remainder of System

Year	Miles of Main	Failures	Failures per Mile of Main	Number of Services	Failures	Failures per 1000 Services
2010	3050	92	0.030	516242	64	0.124
2011	3032	63	0.021	523729	60	0.115
2012	3140	106	0.034	526452	28	0.053
2013	3252	154	0.047	510249	40	0.078
2014	3384	143	0.042	515719	58	0.112

Source: WAM R104/109 Leak Reports

### Corrosion Leaks on Larger than 8" CI/DI Main

Year	Miles of Main	Failures	Failures per Mile of Main
2010	500	11	0.022
2011	498	10	0.020
2012	481	23	0.048
2013	458	19	0.041
2014	446	13	0.029

Source: WAM R104/109 Leak Reports

### Corrosion Leaks on 8" and Less CI/DI Main

Year	Miles of Main	Failures	Failures per Mile of Main
2010	1352	36	0.027
2011	1324	23	0.017
2012	1250	72	0.057
2013	1195	65	0.055
2014	1149	52	0.045

Source: WAM R104/109 Leak Reports

### Outside Meters

Year	Total Meters	Outside Meters	Percent
2012	1,150,584	268,961	23.38%
2013	1,173,939	290,422	24.74%
2014	1,192,524	311,851	26.15%

Source: WAM R417 Report

  Mann-Kendall Test Shows Positive Trend

  Mann-Kendall Test Shows Negative Trend

### Other Leaks on Steel and CI/DI Mains

Year	Miles of Main	Failures	Failures per Mile of Main
2010	3107	665	0.214
2011	3028	667	0.220
2012	2878	445	0.155
2013	2788	390	0.140
2014	2724	370	0.136

Source: WAM R104/109 Leak Reports

### Crossbore Inspections

Year	Inspections	Crossbores Found	Failures per Inspection
2012	1741	49	0.03
2013	6344	36	0.01
2014	7191	68	0.01

Source: Crossbore Project Engineer

### Inactive Services Retired

Year	Target	Completed	Percent Completed
2012	n/a	259	n/a
2013	n/a	865	n/a
2014	100	527	108%

Source: Crossbore Project Engineer

### Miles of Retired Main

Year	Ductile Iron	Cast Iron	Corrosion Protected Coated Steel
2010	4.153	12.761	2.969
2011	9.057	24.886	6.629
2012	22.592	76.196	21.126
2013	14.659	56.360	14.826
2014	6.979	49.058	12.763

Source: WAM R43 Report

### Number of Retired Services

Year	Ductile Iron	Cast Iron	Copper	Bare Steel	Coated Steel	Clear Plastic
2010	15	0	420	175	0	308
2011	38	4	858	146	1	520
2012	27	6	1889	223	7	1287
2013	6	3	825	342	0	1296
2014	14	0	695	426	1	1488

Source: WAM R43 Report

 Mann-Kendall Test Shows Positive Trend

 Mann-Kendall Test Shows Negative Trend

## **Appendix I**

# **Periodic Evaluation and Improvement Log**

## Periodic Evaluation and Improvement Log

Frequency	Program Evaluation and Improvement	Date Completed
Required Annually	Update Performance Measures	1/31/2016
Required Annually	Update Knowledge of System Characteristics, Environmental Factors and Threats	1/31/2016
As Needed	Update Threat Identification Process	1/31/2016
Annually	Update Threat Identification	1/31/2016
As Needed	Update Risk Evaluation and Ranking Process	1/31/2016
Annually	Update Risk Evaluation and Ranking Validation	1/31/2016
Annually	Update Additional Actions	1/31/2016
Annually	Update Implementation Plans	1/31/2016

Plan Revision Date	Revision Description
8/2/2011	Initial DIMP Plan
4/9/2012	Plan Revisions - See Appendix J - Revision Control Log
12/30/2013	Plan Revisions - See Appendix J - Revision Control Log
21/31/2014	Plan Revisions - See Appendix J - Revision Control Log
8/1/2015	Plan Revisions - See Appendix J - Revision Control Log
1/31/2016	Program Re-evaluation and Plan Revisions - See Appendix J - Revision Control Log

## **Appendix J**

### **Revision Control Log**

Section	SHRIMP Version	Date	Description of Change/Reason for Change
All	Legacy	8/2/2011	Initial Implementation
2.0, 3.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 15.0	Legacy	1/16/2012	Incorporated Integrys Base DIMP plan into PGL DIMP plan.
6	Legacy	1/16/2012	Added graphs to table data; added main & service pipe summary by shop data; remove tables in section 6.6 & replace with table in Appendix J. Organized sections to better match DIMP Inspection Form. Added Process Flow Diagram
5	Legacy	1/16/2012	Added definition for IT, IWC
Appendix 1	Legacy	1/16/2012	Added material specification
Appendix 5	Legacy	1/16/2012	Added to document re-evaluation of threats & risks
Appendix 3	Legacy	1/16/2012	Added detail to Data Collection column – Excavation Damage & Tickets; Update baseline to 4 year moving average – Haz Leaks by Material/mile of main & 1000 services
Table of Contents	Legacy	1/16/2012	Added Appendix 5, updated page numbers
13	Legacy	1/16/2012	Added Process Flow Diagram
6.3	Legacy	1/26/2012	Added PGL gas quality information
6.4	Legacy	1/26/2012	Added ref to Main Ranking Index
6.6	Legacy	1/26/2012	Added review of DIMP docs & plan dev for info gathering.
9.2	Legacy	1/26/2012	Added process language for A/A.
Appendix 3	Legacy	1/26/2012	Added WAM Report R109, Modify Criteria for Re-eval for Corrosion & Natural Forces
14	Legacy	2/14/2012	Added reference to data backup procedure & superseded IM plans.
4	Legacy	2/14/2012	Added SME qualifications
11.1	Legacy	2/14/2012	Added improvement projects
7.1	Legacy	2/14/2012	Added reference to System Integrity folder
12	Legacy	2/14/2012	Added procedure for completing PHMSA Annual Report.
14	Legacy	2/23/2012	Added additional records used to show compliance to DIMP to be kept for 10 years.
13	Legacy	2/23/2012	Added reference to Distribution Manual General Order 0.107
11.1	Legacy	2/23/2012	Added SME survey information in response to initial ICC DIMP audit
9.2	Legacy	3/13/2012	Added reference to O&M Plan Exhibit General
6.6a	Legacy	3/13/2012	Added section in response to initial ICC DIMP audit.
9.2	Legacy	3/13/2012	Added detail on additional action process in response to initial ICC DIMP audit.
13	Legacy	3/13/2012	Added Mechanical Fitting Failure detail in response to initial ICC DIMP audit.
6.9	Legacy	4/9/2012	Updated table & graph with 2011 data
Appendix 3	Legacy	4/9/2012	Updated Equipment Failure value with CY 2011 Mech Fitting Failure data
6.8	Legacy	4/9/2012	Updated table & graph with 2011 PHMSA data for mains and services
4.0, 8.2, 9.2, 10.2, 10.3, 11.0, 11.1, 11.2, App 1	Legacy	12/30/2013	Annual Review – Changed Manager of System Integrity to Compliance Manager
6.1, Appendix 1	Legacy	12/30/2013	Updated records location of material standards.
1	Legacy	12/31/2014	Updated Integrys Energy Group headquarters
5	Legacy	12/31/2014	Added definition for Annual Review
6.1	Legacy	12/31/2014	Updated location for O&M Plan, Procedures, and Materials Specifications
6.2	Legacy	12/31/2014	Updated Business Units
6.3	Legacy	12/31/2014	Updated location of Main Ranking Formula and Explanation
6.6	Legacy	12/31/2014	WAM GAP references removed and updated PGL NSG Business Support site
6.6a	Legacy	12/31/2014	Updated department responsible for service information in WAM
6.9	Legacy	12/31/2014	Updated location for PGL DIMP Mandatory Metrics
7.1	Legacy	12/31/2014	Reference to location for specific records used to identify threats was removed
9.2	Legacy	12/31/2014	“and” replaced with “then” in “protect life then property” System Integrity personnel updated to Compliance personnel
11.3	Legacy	12/31/2014	Updated Continuing Improvement Projects
12	Legacy	12/31/2014	Engineer in Gas Operations changed to Engineer in Compliance
14	Legacy	12/31/2014	Updated location for IT documentations and superseded DIMP Plans
Appendix 2	Legacy	12/31/2014	Removed past practice action to install warning tape
1,3	2.1.1	10/31/2015	Changed "Integrys" to "WEC"
9.1	2.1.1	10/31/2015	Removed "Exhibit V QAQC Manual"
14	2.1.1	10/31/2015	Edited Link to Retention Info
4	2.1.1	10/31/2015	Changed "contain" to "provide"
5	2.1.1	10/31/2015	Added Asset Manager to Definitions
6.1, 6.6, 7.1, Appendix 1,3	2.1.1	10/31/2015	Changed "FMDR" to "Asset Manager"
6.8	2.2.1	11/1/2015	Update to Facility Data and tables and graphs to reflect 2010-2014 data
6.9	2.2.1	11/1/2015	Update to tables and graphs to reflect 2010-2014 data
6.1	2.2.1	11/1/2015	Added "performed work and"
Appendices	2.2.1	11/1/2015	Removed Embedded appendices from plan to individual, separate documents
6.1	2.2.1	11/1/2015	Edited hyperlink to Material Specifications, Broken Main Report, and Legacy Leak Data
9.1	2.2.1	11/1/2015	Edited Hyperlink to Liberty Final Report
8.1	2.2.1	11/1/2015	Added "Initially"
7.1, 8.2	2.2.1	11/1/2015	Removed reference to Zoomerang Survey
7.3	2.2.1	11/1/2015	Added New Section 7.3 referencing New Thread Identification survey

Section	SHRIMP Version	Date	Description of Change/Reason for Change
11.1	2.2.1	11/1/2015	Removed reference to future Zoomerang survey use
Appendices	2.2.1	11/1/2015	Appendices B through J Created
8.1	2.2.1	12/1/2015	Updated ranking methods
9.1	2.2.1	12/1/2015	Removed reference to Exhibit V in O&M Manual
9.2	2.2.1	12/1/2015	Edited references to old appendices
8.1	2.2.1	1/14/2016	Added explanation of risk determination for manually entered threats
5	2.2.1	1/14/2016	Removed non referenced terms from Definitions Section
10.2	2.2.1	1/14/2016	Added trend analysis
6.3	2.2.1	1/27/2016	Added MAOP's to low and medium pressure distinctions
6.4	2.2.1	1/27/2016	added "and provide"
6.4	2.2.1	1/27/2016	Removed "20 year" and miles per year from AMRP definition
6.8	2.2.1	1/27/2016	Denoted "Main" for Joining method table
9.2	2.2.1	1/27/2016	changed "strongly encourage" to "requires"

## **Appendix K**

# **PGL SHRIMP Written Distribution Integrity Management Plan**

# DISTRIBUTION INTEGRITY MANAGEMENT PLAN

## For PEOPLES GAS

200 East Randolph Street  
Chicago, Illinois 60601

Generated Date: 2016-01-29

Version: 2.2.1

Effective Date: 2016-01-31

Replaces Version: 2.1.1

Effective: 2011-08-02

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### Table of Contents

#### [Revisions](#)

#### [1. SCOPE](#)

#### [2. DEFINITIONS](#)

#### [3. KNOWLEDGE OF THE DISTRIBUTION SYSTEM](#)

#### [4. THREAT ASSESSMENT](#)

##### [4.1. Overview](#)

##### [4.2. PEOPLES GAS Threat Assessment](#)

###### [4.2.1. Corrosion](#)

###### [4.2.2. Equipment Malfunctions](#)

###### [4.2.3. Excavation Damage](#)

###### [4.2.4. Incorrect Operations](#)

###### [4.2.5. Materials, Welds and Joints](#)

###### [4.2.6. Natural forces](#)

###### [4.2.7. Other outside forces](#)

###### [4.2.8. Other threats](#)

#### [5. RISK EVALUATION AND PRIORITIZATION](#)

##### [5.1. Overview](#)

##### [5.2. PEOPLES GAS Section Risk Ranking](#)

#### [6. ADDITIONAL/ACCELERATED MEASURES TO ADDRESS RISKS](#)

##### [6.1. MANDATORY ADDITIONAL ACTIONS](#)

##### [6.2. RISK BASED ADDITIONAL ACTIONS](#)

#### [7. MEASURE PERFORMANCE, MONITOR RESULTS AND EVALUATE EFFECTIVENESS](#)

##### [7.1. MANDATORY PERFORMANCE MEASURES](#)

##### [7.2. RISK BASED PERFORMANCE MEASURES](#)

##### [7.3. MONITOR RESULTS AND EVALUATE EFFECTIVENESS](#)

#### [8. PERIODIC EVALUATION AND IMPROVEMENT](#)

#### [9. REPORTING](#)

#### [10. RECORD KEEPING](#)

#### [11. ATTACHMENTS](#)

##### [11.1. IMPLEMENTATION PLAN](#)

##### [11.2. LIST OF ANSWERS AND DATA SOURCES FROM SHRIMP™ INTERVIEWS](#)

##### [11.3. LIST OF DATA SOURCES FROM SHRIMP™ INTERVIEWS](#)

##### [11.4. DESCRIPTION OF THE PROCESS FOLLOWED TO DEVELOP THIS PLAN](#)

###### [11.4.1. Process Description](#)

###### [11.4.2. Relative Risk Model](#)

##### [11.5. PLAN CHANGE LOG](#)

- [11.5.1. CHANGES TO THREAT ASSESSMENT](#)
- [11.5.2. CHANGES TO RISK EVALUATION AND PRIORITIZATION](#)
- [11.5.3. CHANGES TO RISK BASED ADDITIONAL ACTIONS](#)
- [11.5.4. CHANGES TO RISK BASED PERFORMANCE MEASURES](#)
- [11.5.5. CHANGES TO LIST OF ANSWERS FROM SHRIMP™ INTERVIEWS](#)
- [11.5.6. ANALYSIS OF RISK BASED PERFORMANCE MEASURES](#)

[11.6. THREAT, RISK RANK, ADDITIONAL ACTIONS AND PERFORMANCE MEASURES ORGANIZED BY THREAT-SECTION](#)

- [11.6.1. Overview](#)
- [11.6.2. PEOPLES GAS Section Risk Ranking \(Consolidated\)](#)

## Revisions

Table 1. Plan Version History

Plan Version	Program Version	Date	By User	Notes
2.2.1	2.1.16	2016-01-29	MMeridith	Plan Re-Evaluation for 2016
2.1.1	2.1.15	2015-03-26	HMehta2	SHRIMP Update Only - Do Not Use
Legacy	1.1.31	2012-11-15	wgood	Plan Generated Prior To Version Tracking. Cannot determine Year, Mode, Effective Date.

Table 2. SHRIMP Version History

Program Version	Date	Notes
2.1.16	2015-04-09	Background processing of Written Plans
2.1.15	2014-02-01	Shade unused leak data in summaries. Add PM Metrics to plan. Add Data Sources to plan. Add Benchmarks. Add Utility System Type.
2.1.14	2013-11-15	Added Driscopipe 7000/8000 to defective materials.
2.1.13	2013-10-28	Add Consolidated Risk Ranking Report
2.1.12	2013-10-22	Remove Correct mode.
2.1.11	2013-09-09	Allow users to save their own customized, Word version of the latest plan.
2.1.10	2013-07-28	Allow limited changes to Required Settings during Correct mode. Allow direct switch from correct mode to revise mode.
2.1.9	2013-07-09	Correct problem with AA-AC-02 and AA-EC-6a; they had spaces in their lids.
2.1.8	2013-04-25	Modified Threat Assessment wording. Added capability for referencing external sources of information.
2.1.7	2013-02-25	May choose from multiple Plan Years. Detects leak trend changes when Plan Year changed. Updated Relative Risk Model description.
2.1.6	2013-01-02	Data for 2012 may now be entered.
2.1.5	2012-12-13	Corrects crashes due to certain revision notes; Shows plan type (preview or final) in list of Written Plans.
2.1.4	2012-12-02	Corrects prior plan effective date; interview end during review or correct modes; required settings.
2.1.3	2012-11-28	Fix problem with editable areas when using "Correct" mode.
2.1.2	2012-11-18	SHRIMP update adding New Leaks mode and new Required Settings.
2.1.1	2012-04-24	Initial release of SHRIMP with full DIMP version tracking and revisions.
1.1.31	2012-04-24	All versions of SHRIMP prior to the incorporation of version tracking.

## Chapter 1. SCOPE

This document is the distribution integrity management plan (Plan) for PEOPLES GAS. It is intended to meet the requirements of 49 CFR Part 192, Subpart P Distribution Integrity Management Programs (DIMP).

This Plan covers the Entire System of PEOPLES GAS.

This Plan is effective on 2016-01-31.

This Plan is Version 2.2.1.

This Plan replaces Version 2.1.1.

This Plan is based on data for the Plan Year ending 2014. Data for 2015 have not been used in the threat assessments.

The following people are responsible for ensuring that the requirements of this Plan are carried out:

Table 1.1. Responsible Parties

Name and/or Job Title	Responsible For
Compliance Manager	Ensuring the requirements of this plan are carried out.
Engineer	Ensuring the written DIMP Plan is kept up to date.

In addition, assignments for implementing action items found in this Plan are listed in [Section 11.1, "IMPLEMENTATION PLAN"](#).

## Chapter 2. DEFINITIONS

### Excavation damage

Any impact that results in the need to repair or replace an underground facility due to a weakening, or the partial or complete destruction, of the facility, including, but not limited to, the protective coating, lateral support, cathodic protection or the housing for the line device or facility.

### Excavation ticket

All receipts of information by the operator from the ONE-CALL notification center requesting marking of the location of gas pipeline facilities.

### Hazardous Leak

A leak that represents an existing or probable hazard to persons or property and requires immediate repair or continuous action until the conditions are no longer hazardous. Examples include:

- Escaping gas that has ignited.
- Any indication of gas which has migrated into or under a building, or into a tunnel,
- Any reading at the outside wall of a building, or where gas would likely migrate to an outside wall of a building,
- Any reading of 80% LEL, or greater, in a confined space,
- Any reading of 80% LEL, or greater in small substructures (other than gas associated substructures) from which gas would likely migrate to the outside wall of a building,
- Any leak that can be seen, heard, or felt, and which is in a location that may endanger the general public or property, or
- Any leak which, in the judgment of operating personnel at the scene, is regarded as an immediate hazard.

## Chapter 3. KNOWLEDGE OF THE DISTRIBUTION SYSTEM

This Plan was developed based on the design, construction, operation and maintenance records of PEOPLES GAS, including: incident and leak history, corrosion control records, continuing surveillance records, patrolling records, maintenance history, and excavation damage experience, as well as the judgment and knowledge of PEOPLES GAS' employees. The specific elements of knowledge of the infrastructure used to evaluate each threat and prioritize risks are listed in [Chapter 4, THREAT ASSESSMENT](#), [Chapter 5, RISK EVALUATION AND PRIORITIZATION](#) and [Section 11.2, "LIST OF ANSWERS AND DATA SOURCES FROM SHRIMP™ INTERVIEWS"](#) of this Plan. [Section 11.2, "LIST OF ANSWERS AND DATA SOURCES FROM SHRIMP™ INTERVIEWS"](#) also lists the data sources used to answer each question.

Any additional information needed and the plan for gaining this currently unknown information over time through normal activities is described in [Section 11.1, "IMPLEMENTATION PLAN"](#).

The processes used for Threat Evaluation and Risk Prioritization are the processes found in the Simple, Handy, Risk-based Integrity Management Plan™ (SHRIMP™) software package developed by the APGA Security and Integrity Foundation (SIF). SHRIMP™ uses an index model developed by the consultants and advisors of the SIF. Threat assessment is performed using questions developed by

the Gas Piping Technology Committee (GPTC) as modified and added to by the SHRIMP™ advisors. A description of the process followed is included in [Section 11.4, "DESCRIPTION OF THE PROCESS FOLLOWED TO DEVELOP THIS PLAN"](#).

This Plan will be reviewed at least every 1 year to continually refine and improve this Plan. Reviews may be performed more frequently as described in [Chapter 8, PERIODIC EVALUATION AND IMPROVEMENT](#) of this Plan.

Records for all piping system installed after the effective date of this Plan will be captured and retained by PEOPLES GAS. This will include the location where new piping and appurtenances are installed and the material of which they are constructed. The manner in which this will be accomplished is described in [Section 11.1, "IMPLEMENTATION PLAN"](#).

## Chapter 4. THREAT ASSESSMENT

### 4.1. Overview

The following threats were evaluated on the distribution piping covered under the scope of this Plan: corrosion, natural forces, excavation damage, other outside force damage, material, weld or joint failure (including compression coupling), equipment malfunction, incorrect operation, and any other concerns that could threaten the integrity of the pipeline. The results of these threat assessments are discussed in the following sections. Answers to all questions asked by SHRIMP and the data sources for those answers is found in [Section 11.2, "LIST OF ANSWERS AND DATA SOURCES FROM SHRIMP™ INTERVIEWS"](#).

In addition to PEOPLES GAS's own information, data from the following external sources were used to assist in identifying potential threats:

- PHMSA advisory bulletins, regulatory updates and other integrity management information sent to SHRIMP subscribers by the APGA Security and Integrity Foundation;
- PHMSA Annual and Incident Report data, used in calculating the incident probability factor in the risk ranking model, described in more detail in [Section 11.4.2, "Relative Risk Model"](#).
- Data on leak repair rates, excavation damages per 1000 locate tickets and other aggregated data from all SHRIMP users provided by the APGA SIF to SHRIMP subscribers
- Information provided through membership and/or active participation in the following organizations:

None.

### 4.2. PEOPLES GAS Threat Assessment

#### 4.2.1. Corrosion

##### Atmospheric Corrosion

Atmospheric corrosion was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- PEOPLES GAS has facilities that require atmospheric corrosion inspections.
- Inspections have found metal loss due to atmospheric corrosion over the past 15 years.
- Leaks caused by atmospheric corrosion have required repair over the past 15 years.
- Inspections have found problems with above ground pipe coatings that could not be fixed by routine maintenance

Atmospheric corrosion was determined to be limited to certain portions of the system and, therefore, separate threat assessments were performed on the following sections of the system:

##### Section Inside Atmospheric Corrosion:

Atmospheric corrosion in section **Inside Atmospheric Corrosion (Inside Service Pipe)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Inside Atmospheric Corrosion has facilities that require atmospheric corrosion inspections.
- Inspections have found metal loss due to atmospheric corrosion over the past 15 years.
- Leaks caused by atmospheric corrosion have required repair over the past 15 years.
- Inspections have found problems with above ground pipe coatings that could not be fixed by routine maintenance

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS

**Section Outside Atmospheric Corrosion:**

Atmospheric corrosion in section **Outside Atmospheric Corrosion (Outside Service Riser Pipe)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Outside Atmospheric Corrosion has facilities that require atmospheric corrosion inspections.
- Inspections have found metal loss due to atmospheric corrosion over the past 15 years.
- Leaks caused by atmospheric corrosion have required repair over the past 15 years.
- Inspections have found problems with above ground pipe coatings that could not be fixed by routine maintenance

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

**Section Bridges and Tunnels:**

Atmospheric corrosion in section **Bridges and Tunnels (Bridge and Tunnel Inspections)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Bridges and Tunnels has facilities that require atmospheric corrosion inspections.
- Inspections have found metal loss due to atmospheric corrosion over the past 15 years.
- Inspections have found problems with above ground pipe coatings that could not be fixed by routine maintenance

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The pressure/diameter of this section is substantially greater than the average of the system.
- The pipe is predominately located within business districts.
- A failure of this section could result in significant disruption of service.

**External Corrosion On Coated, Cathodically Protected, Steel Mains And Services**

External corrosion on coated, cathodically protected, steel mains and services was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Repaired leaks per mile of mains are increasing.
- Confirmed corrosion leaks have occurred on this section.
- Cathodic protection test point readings that meet or exceed acceptable cathodic protection criteria; at least 75% of readings exceed  $-0.85$  v.
- Stray currents are creating problems.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

**External Corrosion On Bare, Cathodically Protected, Steel Mains And Services**

External corrosion on bare, cathodically protected, steel mains and services was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- bare, cathodically protected, steel mains and services are not present.

**External Corrosion On Coated, Unprotected, Steel Mains And Services**

External corrosion on coated, unprotected, steel mains and services was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Exposed pipe inspections indicate a corrosion problem.
- Confirmed corrosion leaks have occurred on this section.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in

general because:

- The pipe is predominately located within business districts.

#### **External Corrosion On Bare, Unprotected, Steel Mains And Services**

External corrosion on bare, unprotected, steel mains and services was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Exposed pipe inspections indicate a corrosion problem.
- Confirmed corrosion leaks have occurred on this section.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

#### **External Corrosion On Cast, Wrought, Ductile Iron Mains And Services (8" Or Smaller)**

External corrosion on cast, wrought, ductile iron mains and services (8" or smaller) was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Repaired leaks per mile of mains are increasing.
- Exposed pipe inspections indicate a corrosion problem.
- Confirmed corrosion leaks have occurred on this section.
- Cast/ductile iron mains have steel laterals connected with no electrical isolation.
- Fractures have occurred on the cast/ductile iron pipes other than those related to excavation activities.
- Exposed pipe inspections indicate that graphitization is occurring.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

#### **External Corrosion On Plastic Mains And Services With Metal Fittings**

External corrosion on plastic mains and services with metal fittings was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- plastic mains and services with metal fittings are not present.

#### **External Corrosion On Other Metal**

External corrosion on other metal was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Exposed pipe inspections indicate a corrosion problem.
- Confirmed corrosion leaks have occurred on this section.
- Pipe is not cathodically protected.
- Corrosion is occurring due to dissimilar metals.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

#### **External Corrosion On Cast, Wrought, Ductile Iron Mains And Services (larger Than 8")**

External corrosion on cast, wrought, ductile iron mains and services (larger than 8") was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Repaired leaks per mile of mains are increasing.
- Exposed pipe inspections indicate a corrosion problem.
- Confirmed corrosion leaks have occurred on this section.
- Cast/ductile iron mains have steel laterals connected with no electrical isolation.

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- Fractures have occurred on the cast/ductile iron pipes other than those related to excavation activities.
- Exposed pipe inspections indicate that graphitization is occurring.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The pressure/diameter of this section is substantially greater than the average of the system.
- The pipe is predominately located within business districts.
- A failure of this section could result in significant disruption of service.

#### **Internal Corrosion**

Internal corrosion was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Liquids have been found in PEOPLES GAS piping.
- Liquids found in your PEOPLES GAS piping are acidic or corrosive.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

### **4.2.2. Equipment Malfunctions**

#### **Equipment Malfunctions**

Equipment malfunctions was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Leaks are occurring or inspections indicate potential equipment malfunctions.

#### **Equipment Malfunctions Due To Failing Valves**

Equipment malfunctions due to failing valves was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Failing equipment has been specified.

Equipment malfunctions due to failing valves was determined to be limited to certain portions of the system and, therefore, separate threat assessments were performed on the following sections of the system:

##### **Section Service Valves:**

Equipment malfunctions due to failing valves in section **Service Valves (All Service Valves)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Valves stick open or closed.
- Malfunctioning of these valve(s) is due to failing seals, gaskets, o-rings, packing, etc.
- The problem with these valves does result in gas leaking outside of the pipeline.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

##### **Section Distribution Valves:**

Equipment malfunctions due to failing valves in section **Distribution Valves (Distribution Valves Not Located in Basins)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Valves stick open or closed.
- Malfunctioning of these valve(s) is due to failing seals, gaskets, o-rings, packing, etc.
- The problem with these valves does result in gas leaking outside of the pipeline.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS

**Section Network Valves:**

Equipment malfunctions due to failing valves in section **Network Valves (All Network Valves)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Valves stick open or closed.
- Malfunctioning of these valve(s) is due to failing seals, gaskets, o-rings, packing, etc.
- The problem with these valves does result in gas leaking outside of the pipeline.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The equipment is primarily within business districts.

**Section Remote Oper Valves:**

Equipment malfunctions due to failing valves in section **Remote Oper Valves (All Remote Op Valves)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- The problem with these valves does result in gas leaking outside of the pipeline.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The size/capacity of the equipment is substantially greater than other equipment in the system as a whole.
- The equipment is primarily within business districts.
- The impact on the utility and its customers if this equipment were to fail would be high.

**Section Kerotest Valve:**

Equipment malfunctions due to failing valves in section **Kerotest Valve (Kerotest Valve (Kerotest, Prior to Mid 1980's))** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Malfunctioning of these valve(s) is due to failing seals, gaskets, o-rings, packing, etc.
- The problem with these valves does result in gas leaking outside of the pipeline.
- Leaking problem valves are not obtaining adequate shut off.
- The likelihood of this valve failing is medium.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

**Section Security Valves:**

Equipment malfunctions due to failing valves in section **Security Valves (Slam Shut Security Valves)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Valves stick open or closed.
- The failing element of the valve causes system pressure to exceed the MAOP.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

**Section Gas Operations Distribution Valves:**

Equipment malfunctions due to failing valves in section **Gas Operations Distribution Valves (Distribution Valves Located Inside Valve Basins)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Valves stick open or closed.
- Malfunctioning of these valve(s) is due to failing seals, gaskets, o-rings, packing, etc.

- The problem with these valves does result in gas leaking outside of the pipeline.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

#### **Equipment Malfunctions Due To Failing Regulators/relief Valves**

Equipment malfunctions due to failing regulators/relief valves was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- failing regulators/relief valves are not present.

#### **Equipment Malfunctions Due To Failing Other Equipment**

Equipment malfunctions due to failing other equipment was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Operator did not identify specific makes/models/sizes of failing equipment.
- The equipment failure occurs because of electric power failure or lightning damage.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The size/capacity of the equipment is substantially greater than other equipment in the system as a whole.
- The equipment is primarily within business districts.

Equipment malfunctions due to failing other equipment was determined to be limited to certain portions of the system and, therefore, separate threat assessments were performed on the following sections of the system:

##### **Section Gate Stations:**

Equipment malfunctions due to failing other equipment in section **Gate Stations (All Gate Stations)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- The equipment malfunctioning is due to failing seals, gaskets, o-rings, packing, etc.
- The failing element of the equipment causes system pressure to exceed the MAOP.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The size/capacity of the equipment is substantially greater than other equipment in the system as a whole.
- The impact on the utility and its customers if this equipment were to fail would be high.

##### **Section Medium Pressure Vaults:**

Equipment malfunctions due to failing other equipment in section **Medium Pressure Vaults (High Pressure to Medium Pressure Vaults)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- The failing element of the equipment causes system pressure to exceed the MAOP.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

##### **Section Low Pressure Vaults:**

Equipment malfunctions due to failing other equipment in section **Low Pressure Vaults (Medium Pressure to Low Pressure Vaults)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- The failing element of the equipment causes system pressure to exceed the MAOP.
- The likelihood of this piece of equipment failing is medium.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The equipment is primarily within business districts.

**Section High Pressure to High Pressure Stations:**

Equipment malfunctions due to failing other equipment in section **High Pressure to High Pressure Stations (High Pressure to High Pressure Station)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- The failing element of the equipment causes system pressure to exceed the MAOP.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The impact on the utility and its customers if this equipment were to fail would be high.

**Equipment Malfunctions Due To Valves Prone To Failure**

Equipment malfunctions due to valves prone to failure was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- valves prone to failure are not present.

**Equipment Malfunctions Due To Regulators / Relief Valves Prone To Failure**

Equipment malfunctions due to regulators / relief valves prone to failure was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- regulators / relief valves prone to failure are not present.

**Equipment Malfunctions Due To Other Equipment Prone To Failure**

Equipment malfunctions due to other equipment prone to failure was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- other equipment prone to failure are not present.

### 4.2.3. Excavation Damage

**Excavation Damage Due To Concentrated Damages Or Tickets**

Excavation damage due to concentrated damages or tickets was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- There are no areas with concentrations of excavation damages.
- There are no areas with concentrations of locate tickets.

**Excavation Damage Due To Your Crew Or Contractor Damages**

Excavation damage due to your crew or contractor damages was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Excavation damage has been caused by operator's crews or contractors.
- Excavation damages are being caused by operator's crews or contractors not following one call laws.
- Excavation damages caused by operator's crews or contractors have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.
- Excavation damages caused by operator's crews or contractors have occurred due to failure to follow company procedures/safety practices.

Excavation damage due to your crew or contractor damages was determined to be limited to certain portions of the system and, therefore, separate threat assessments were performed on the following sections of the system:

**Section Peoples Gas:**

Excavation damage due to your crew or contractor damages in section **Peoples Gas (Damages to PGL facilities by PGL Crews (Peoples Gas))** was determined to be a threat warranting further consideration for additional action beyond code compliance or current

system practice because:

- Excavation damages caused by operator's crews or contractors have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.
- Excavation damages caused by operator's crews or contractors have occurred due to failure to follow company procedures/safety practices.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

**Section Peoples Gas Contractors:**

Excavation damage due to your crew or contractor damages in section **Peoples Gas Contractors (Damages to PGL facilities by 2nd Parties (Peoples Gas Contractors))** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Excavation damages are being caused by operator's crews or contractors not following one call laws.
- Excavation damages caused by operator's crews or contractors have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.
- Excavation damages caused by operator's crews or contractors have occurred due to failure to follow company procedures/safety practices.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

**Excavation Damage Due To Third Party Damages**

Excavation damage due to third party damages was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Excavation damages have occurred due to third parties during the past few years.
- Excavation damages are being caused by third-party excavators not following one call laws.
- Excavation damages caused by third-party excavators have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.

Excavation damage due to third party damages was determined to be limited to certain portions of the system and, therefore, separate threat assessments were performed on the following sections of the system:

**Section City of Chicago, Water:**

Excavation damage due to third party damages in section **City of Chicago, Water (Chicago Water Dept)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Excavation damages are being caused by third-party excavators not following one call laws.
- Excavation damages caused by third-party excavators have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The (crews/contractors/excavators) identified for this section have caused damage that resulted in a reportable incident.
- Disruption of service and cost to return the system to service after the damages caused by the (crews/contractors/excavators) identified for this section are more serious when compared to all other excavation caused damages

**Section Benchmark Construction:**

Excavation damage due to third party damages in section **Benchmark Construction (Water Main Installation Contractor for City of Chicago)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Excavation damages are being caused by third-party excavators not following one call laws.

- Excavation damages caused by third-party excavators have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

**Section Joel Kennedy Construction:**

Excavation damage due to third party damages in section **Joel Kennedy Construction (Water Main Installation Contractor for City of Chicago)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Excavation damages are being caused by third-party excavators not following one call laws.
- Excavation damages caused by third-party excavators have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

**Excavation Damage Due To Blasting Damage**

Excavation damage due to blasting damage was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- No portions of the system are located where excavation in the area of pipeline would require the use of explosives.
- No portions of the system are in known areas of blasting or demolition activity, such as rock quarries or coal mining,
- No damage has occurred due to blasting.

**4.2.4. Incorrect Operations**

**Incorrect Operations Due To Inadequate Procedures**

Incorrect operations due to inadequate procedures was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Failures due to inadequate procedures are not increasing per year.

**Incorrect Operations Due To Failure To Follow Procedures**

Incorrect operations due to failure to follow procedures was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Failures due to a failure to follow procedures are not increasing per year.

For Legacy Leak system (LKMS), data is not available to discern what the root cause of the Incorrect Operation is. Therefore, those attributed to failure to follow procedures is unknown. A value of 0 was entered into the table for these years.

**Incorrect Operations Due To Operator Qualification Revocation**

Incorrect operations due to operator qualification revocation was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Increasing failures have been corrected.

All previously disqualified employees that are still employed were subsequently re-qualified.

**Incorrect Operations Due To Drugs And Alcohol**

Incorrect operations due to drugs and alcohol was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Failures due to drugs and alcohol are not increasing per year.

There is no data providing any correlation between the increased number of positive test results and any specific failures or leaks.

## 4.2.5. Materials, Welds and Joints

### Material, Weld Or Joint

Material, weld or joint was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Manufacturing defects on pipe or non-pipe components have been experienced.
- Materials with known problems are in use.

### Material, Weld Or Joint Due To Manufacturing Defects

Material, weld or joint due to manufacturing defects was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Failures in this section occur more than once per year.
- Failures Occur more frequently than the scheduled leak survey intervals.
- Your current material specification requirements and construction/installation procedures have not been modified to address this issue.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

### Material, Weld Or Joint Due To Workmanship Defects

Material, weld or joint due to workmanship defects was determined not to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- failures due to workmanship defects have not been experienced.

### Material, Weld Or Joint Due To Known Problem Materials

Material, weld or joint due to known problem materials was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Failures in this section occur more than once per year.
- Failures Occur more frequently than the scheduled leak survey intervals.
- Materials with known problems are in use.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

## 4.2.6. Natural forces

### Natural Forces

Natural forces was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Leaks, failures or damages are averaging one (1) or more per year.
- Portions of the system/section are in areas prone to land subsidence, earthquakes or washouts.
- System/section contains Cast Iron pipe 8" or less in diameter.
- Damages have occurred on cast iron due to ground movement, frost heave, earth subsidence.
- Natural forces have caused leaks, failures or damages to steel or plastic pipeline in the system/section.

Natural forces was determined to be limited to certain portions of the system and, therefore, separate threat assessments were performed on the following sections of the system:

#### Section Entire System:

Natural forces in section **Entire System (Entire System Except 6" Diameter Cast Iron Mains)** was determined to be a threat

warranting further consideration for additional action beyond code compliance or current system practice because:

- Leaks, failures or damages are averaging one (1) or more per year.
- Portions of the system/section are in areas prone to land subsidence, earthquakes or washouts.
- System/section contains Cast Iron pipe 8" or less in diameter.
- Damages have occurred on cast iron due to ground movement, frost heave, earth subsidence.
- Natural forces have caused leaks, failures or damages to steel or plastic pipeline in the system/section.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

**Section 6" Cast Iron Mains:**

Natural forces in section **6" Cast Iron Mains (6" Diameter Cast Iron Mains)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Leaks, failures or damages are averaging one (1) or more per year.
- Portions of the system/section are in areas prone to land subsidence, earthquakes or washouts.
- System/section contains Cast Iron pipe 8" or less in diameter.
- Damages have occurred on cast iron due to ground movement, frost heave, earth subsidence.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

#### **4.2.7. Other outside forces**

**Other Outside Forces**

Other outside forces was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Leaks, failures or damages are averaging one (1) or more per year.
- Above ground facilities are being hit by vehicles.
- Below ground facilities have been damaged due to heavy vehicles driving along or over the facility location.
- Damage has been caused by malicious actions (vandalism) of unauthorized individuals or unauthorized alteration of system.

Other outside forces was determined to be limited to certain portions of the system and, therefore, separate threat assessments were performed on the following sections of the system:

**Section Other Outside Force Damage - Services:**

Other outside forces in section **Other Outside Force Damage - Services (Other Outside Force Damages on Service Pipes)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Leaks, failures or damages are averaging one (1) or more per year.
- Above ground facilities are being hit by vehicles.
- Below ground facilities have been damaged due to heavy vehicles driving along or over the facility location.
- Damage has been caused by malicious actions (vandalism) of unauthorized individuals or unauthorized alteration of system.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

**Section Other Outside Force Damage - Mains:**

Other outside forces in section **Other Outside Force Damage - Mains (Other Outside Force Damages on Main Pipes)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Leaks, failures or damages are averaging one (1) or more per year.
- Above ground facilities are being hit by vehicles.
- Below ground facilities have been damaged due to heavy vehicles driving along or over the facility location.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

#### 4.2.8. Other threats

##### Other Threats

Other threats was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This system has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

Other threats was determined to be limited to certain portions of the system and, therefore, separate threat assessments were performed on the following sections of the system:

##### Section Bell Joints & Mechanical Joints:

Other threats in section **Bell Joints & Mechanical Joints (Leaking Main Bell & Mechanical Joints Due to Age)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

##### Section Other Outside Force Damage - Crossbores:

Other threats in section **Other Outside Force Damage - Crossbores (Gas Pipe Bored Through Sewer Lateral)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

##### Section Excavation Damage - Critical Facilities:

Other threats in section **Excavation Damage - Critical Facilities (Excavation near HP Pipelines, >=16" MP Pipelines, Vaults, Remote Operated Valves, and Current Rectifiers)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

##### Section Incorrect Operations - Non-Approved Material:

Other threats in section **Incorrect Operations - Non-Approved Material (Installation of Non-Approved Materials)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

**Section Other Outside Force - Occupant Use:**

Other threats in section **Other Outside Force - Occupant Use (Unauthorized Turn-on By Customer)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

**Section Excavation Damage - Inactive Services:**

Other threats in section **Excavation Damage - Inactive Services (Service Pipes Designated as Inactive)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

**Section Other - Soft Closed Accounts:**

Other threats in section **Other - Soft Closed Accounts (Supply to Vacant Property Remaining Active)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

**Section Inaccessible Valves:**

Other threats in section **Inaccessible Valves (Paved Over, Dirt in B-Box)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

**Section Meters/Shutoffs Inaccessible:**

Other threats in section **Meters/Shutoffs Inaccessible (No Access to Meter or Shutoff)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

**Section Incorrect Operations - Improper Odorization:**

Other threats in section **Incorrect Operations - Improper Odorization (Too Little or Much Mercaptin)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

**Section Corrosion - Cased Pipelines:**

Other threats in section **Corrosion - Cased Pipelines (Cathodic Protected Steel Pipelines inside Metallic Casings)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

## Chapter 5. RISK EVALUATION AND PRIORITIZATION

### 5.1. Overview

Of the sections identified during the Threat Assessment as requiring further consideration for additional actions, PEOPLES GAS has determined that the relative risk of these threats to the integrity of these lines ranks in the following priority, beginning with the highest relative risk.

RANK indicates the final relative risk rank after review and validation by PEOPLES GAS.

USER RANK indicates if the threat-segment was re-ranked by PEOPLES GAS. A zero indicates it was left where SHRIMP’s risk model ranked it – any other number indicates it was moved higher or lower by PEOPLES GAS. Where a threat-segment was re-ranked an explanation for the reason is included in the discussion for that segment.

SHRIMP Rank is where SHRIMP’s risk ranking model originally ranked the threat-segment. Segments under Other Threats were not ranked by SHRIMP so are initially placed at the bottom of the segment list. PEOPLES GAS has placed these segments in the risk ranking list based in its knowledge and judgment.

Relative Risk score is a numeric score from 0-30 based on the four factors listed – Probability, Consequence, Leak Cause Factor and Incident Probability Factor. The risk model is described in detail in [Section 11.4.2, “Relative Risk Model”](#).

The risk ranking is based on relative risk, not absolute risk. It should not be construed to suggest that the highest ranked segment is unsafe or that additional actions are required to maintain public safety. It is merely a tool to assist PEOPLES GAS to prioritize its inspection and maintenance programs.

### 5.2. PEOPLES GAS Section Risk Ranking

- a. **Section: City of Chicago, Water** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Excavation Damage -> Third Party Damages -> Third Party Damages

**Description:** Chicago Water Dept

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
1	0	1	22.52	9.42	1.5	1.275	1.25
Previous Plan							
1	3	1	19.73	7.97	1.5	1.32	1.25
	Explanation: Third party with the most hit to PGL facilities						

Ranked here, in part, for the following reasons:

- Excavation damages are being caused by third-party excavators not following one call laws.
- Excavation damages caused by third-party excavators have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.
- The (crews/contractors/excavators) identified for this section have caused damage that resulted in a reportable incident.

- b. **Section: Benchmark Construction** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Excavation Damage -> Third Party Damages -> Third Party Damages

**Description:** Water Main Installation Contractor for City of Chicago

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
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AG 4.01 Attach 05

2	2	2	16.51	9.42	1.1	1.275	1.25
	Explanation:	Equal Relative Risk Score to Joel Kennedy Damages, but per PGL Hit Database, responsible for higher hits per 1000 locate ratio.					
Previous Plan							
2	5	2	19.01	7.68	1.5	1.32	1.25
	Explanation:	Combined this is the third party with second most hits on PGL facilities.					

Ranked here, in part, for the following reasons:

- Excavation damages are being caused by third-party excavators not following one call laws.
- Excavation damages caused by third-party excavators have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.
- Disruption of service and cost to return the system to service after the damages caused by the (crews/contractors/excavators) identified for this section are about the same when compared to all other excavation caused damages
- Operator override ranking with this explanation:

Equal Relative Risk Score to Joel Kennedy Damages, but per PGL Hit Database, responsible for higher hits per 1000 locate ratio.

c. **Section: Joel Kennedy Construction** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Excavation Damage -> Third Party Damages -> Third Party Damages

**Description:** Water Main Installation Contractor for City of Chicago

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
3	3	2	16.51	9.42	1.1	1.275	1.25
	Explanation:	Equal Relative Risk Score to Benchmark Damages, but per PGL Hit Database, responsible for lower hits per 1000 locate ratio.					
No Previous Plan							

Ranked here, in part, for the following reasons:

- Excavation damages are being caused by third-party excavators not following one call laws.
- Excavation damages caused by third-party excavators have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.
- Disruption of service and cost to return the system to service after the damages caused by the (crews/contractors/excavators) identified for this section are about the same when compared to all other excavation caused damages
- Operator override ranking with this explanation:

Equal Relative Risk Score to Benchmark Damages, but per PGL Hit Database, responsible for lower hits per 1000 locate ratio.

d. **Section: Bell Joints & Mechanical Joints** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Leaking Main Bell & Mechanical Joints Due to Age

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
4	4	35	0	0	1	1.463	1.00
	Explanation:	Ranked first of the 11 Manually Entered Threats. Relative Risk Score of 16.15					
Previous Plan							
4	6	57	0	0	1	1.265	1.00
	Explanation:	A major component of "Other" category is Bell Joint & Mechanical Joint leaks					

Ranked here, in part, for the following reasons:

- Operator override ranking with this explanation:

Ranked first of the 11 Manually Entered Threats. Relative Risk Score of 16.15

e. **Section: Peoples Gas Contractors** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Excavation Damage -> Crew or Contractor Damages -> Crew or Contractor Damages

**Description:** Damages to PGL facilities by 2nd Parties (Peoples Gas Contractors)

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
5	5	4	15.09	9.47	1	1.275	1.25
Explanation:							
No Previous Plan							

Ranked here, in part, for the following reasons:

- Excavation damages caused by operator's crews or contractors have been due to unmarked or inaccurately marked facilities.
- Excavation damages are being caused by operator's crews or contractors not following one call laws.
- Excavation damages are caused by failure to protect pipe during backfill operations.
- Excavation damages caused by operator's crews or contractors have occurred due to failure to follow company procedures/safety practices.
- Operator override ranking with this explanation:

f. **Section: 6" Cast Iron Mains** portion of PEOPLES GAS

**Threat:** Natural Forces -> Concentrated Area

**Description:** 6" Diameter Cast Iron Mains

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
6	6	6	13.69	8.58	1.15	1.11	1.25
Explanation:		Per SME Group Meeting, ranked one threat higher due to high concentration of 6"CI Mains and susceptibility of this section to fail.					
Previous Plan							
6	9	6	15	10	1.05	1.143	1.25
Explanation:		Zoomerang survey rank is 9 (tie)					

Ranked here, in part, for the following reasons:

- System/section contains Cast Iron pipe 8" or less in diameter.
- Portions of the system/section are in areas prone to land subsidence, earthquakes or washouts.
- Damages have occurred on cast iron due to ground movement, frost heave, earth subsidence.
- Leaks, failures or damages are averaging one (1) or more per year.
- Operator override ranking with this explanation:

Per SME Group Meeting, ranked one threat higher due to high concentration of 6"CI Mains and susceptibility of this section to fail.

g. **Section: Entire System** portion of PEOPLES GAS

**Threat:** Natural Forces -> Concentrated Area

**Description:** Entire System Except 6" Diameter Cast Iron Mains

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
7	7	5	13.88	10	1	1.11	1.25
Explanation:							
Previous Plan							
7	2	5	15.72	10	1.1	1.143	1.25
Explanation:		Zoomerang survey rank is 2					

Ranked here, in part, for the following reasons:

AG 4.01 Attach 05

- System/section contains Cast Iron pipe 8" or less in diameter.
- Portions of the system/section are in areas prone to land subsidence, earthquakes or washouts.
- Damages have occurred on cast iron due to ground movement, frost heave, earth subsidence.
- Natural forces have caused leaks, failures or damages to steel or plastic pipeline in the system/section.
- Operator override ranking with this explanation:

h. **Section: Cast, Ductile, Wrought Iron (larger than 8")** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
8	0	7	11.21	7	1.45	1.104	1.00
Previous Plan							
8	18	17	10.24	5.8	1.45	1.218	1.00
	Explanation: Use default SHRIMP ranking						

Ranked here, in part, for the following reasons:

- Fractures have occurred on the cast/ductile iron pipes other than those related to excavation activities.
- Repaired leaks per mile of mains are increasing.
- Cast/ductile iron mains have steel laterals connected with no electrical isolation.
- Exposed pipe inspections indicate a corrosion problem.

i. **Section: Other Outside Force Damage - Services** portion of PEOPLES GAS

**Threat:** Other Outside Forces -> Other Outside Forces

**Description:** Other Outside Force Damages on Service Pipes

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
9	0	8	10.14	10	1	1.014	1.00
Previous Plan							
9	5	25	7.81	7	1.1	1.014	1.00
	Explanation: Zoomerang survey rank is 5						

Ranked here, in part, for the following reasons:

- Above ground facilities are being hit by vehicles.
- Below ground facilities have been damaged due to heavy vehicles driving along or over the facility location.
- Damage has been caused by malicious actions (vandalism) of unauthorized individuals or unauthorized alteration of system.

j. **Section: Cast, Ductile, Wrought Iron (8" or smaller)** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
10	0	9	9.51	8.2	1.05	1.104	1.00
Previous Plan							
10	2	15	11.25	8.8	1.05	1.218	1.00
	Explanation: Frequency and consequence of this material failing is high						

Ranked here, in part, for the following reasons:

- Repaired leaks per mile of mains are increasing.

AG 4.01 Attach 05

- Fractures have occurred on the cast/ductile iron pipes other than those related to excavation activities.
- Cast/ductile iron mains have steel laterals connected with no electrical isolation.
- Exposed pipe inspections indicate that graphitization is occurring.

k. **Section: Low Pressure Vaults** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Other Equipment Experiencing Failure -> Specific Other Equipment Experiencing Failure

**Description:** Medium Pressure to Low Pressure Vaults

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
11	0	10	9.44	7.75	1.2	1.015	1.00
Previous Plan							
11	25	38	5.68	5.5	1	1.033	1.00
	Explanation: Zoomerang survey rank is 25 (tie)						

Ranked here, in part, for the following reasons:

- The likelihood of this piece of equipment failing is medium.
- The likelihood that a failure of this equipment will become a Grade 1 leak is high.
- The failing element of the equipment causes system pressure to exceed the MAOP.
- The equipment is primarily within business districts.

l. **Section: Other Outside Force Damage - Mains** portion of PEOPLES GAS

**Threat:** Other Outside Forces -> Other Outside Forces

**Description:** Other Outside Force Damages on Main Pipes

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
12	0	11	9.04	7.75	1.15	1.014	1.00
Previous Plan							
12	14	42	4.26	4	1.05	1.014	1.00
	Explanation: Zoomerang survey rank is 14						

Ranked here, in part, for the following reasons:

- Above ground facilities are being hit by vehicles.
- Below ground facilities have been damaged due to heavy vehicles driving along or over the facility location.
- The pressure/diameter of this section is somewhat greater than the average of the system.
- A failure of this section could result in moderate disruption of service.

m. **Section: Peoples Gas** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Excavation Damage -> Crew or Contractor Damages -> Crew or Contractor Damages

**Description:** Damages to PGL facilities by PGL Crews (Peoples Gas)

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
13	0	12	7.92	4.97	1	1.275	1.25
Previous Plan							
13	16	16	10.26	4.44	1.4	1.32	1.25
	Explanation: Third most number of 3rd party damage to PGL facilities. Use default SHRIMP ranking						

Ranked here, in part, for the following reasons:

- Excavation damages caused by operator's crews or contractors have been due to unmarked or inaccurately marked facilities.
- Excavation damages caused by operator's crews or contractors have occurred due to failure to follow company

- Excavation damages are caused by failure to protect pipe during backfill operations.

n. **Section: Service Pipe** portion of PEOPLES GAS

**Threat:** Material, Weld or Joint Failure -> Manufacturing Defects

**Description:** Clear Plastic

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
14	0	13	7.87	7.75	1	1.015	1.00
Previous Plan							
14	31	26	7.79	7.75	1	1.005	1.00
	Explanation: Zoomerang survey rank is 31						

Ranked here, in part, for the following reasons:

- Failures in this section occur more than once per year.
- The likelihood that a leak in this section will become a Grade 1 leak is high.

o. **Section: Gate Stations** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Other Equipment Experiencing Failure -> Specific Other Equipment Experiencing Failure

**Description:** All Gate Stations

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
15	0	14	7.26	5.5	1.3	1.015	1.00
Previous Plan							
15	45	53	1.03	1	1	1.033	1.00
	Explanation: Zoomerang survey rank is 45						

Ranked here, in part, for the following reasons:

- The likelihood that a failure of this equipment will become a Grade 1 leak is high.
- The likelihood of this piece of equipment failing is low.
- The failing element of the equipment causes system pressure to exceed the MAOP.
- The size/capacity of the equipment is substantially greater than other equipment in the system as a whole.

p. **Section: Bridges and Tunnels** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Corrosion -> Atmospheric Corrosion -> Atmospheric Corrosion

**Description:** Bridge and Tunnel Inspections

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
16	0	15	7.13	4.38	1.475	1.104	1.00
Previous Plan							
16	11	19	9.9	6.25	1.3	1.218	1.00
	Explanation: Zoomerang survey rank is 11						

Ranked here, in part, for the following reasons:

- Inspections have found metal loss due to atmospheric corrosion over the past 15 years.
- Inspections have found problems with above ground pipe coatings that could not be fixed by routine maintenance
- The pressure/diameter of this section is substantially greater than the average of the system.
- The pipe is predominately located within business districts.

q. **Section: Unprotected, Bare Steel** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
17	0	16	7.07	6.4	1	1.104	1.00
Previous Plan							
17	20	20	9.26	7.6	1	1.218	1.00
Explanation: Use default SHRIMP ranking							

Ranked here, in part, for the following reasons:

- Exposed pipe inspections indicate a corrosion problem.
- Confirmed corrosion leaks have occurred on this section.

r. **Section: High Pressure to High Pressure Stations** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Other Equipment Experiencing Failure -> Specific Other Equipment Experiencing Failure

**Description:** High Pressure to High Pressure Station

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
18	0	19	6.7	5.5	1.2	1.015	1.00
Previous Plan							
18	27	43	4.03	3.25	1.2	1.033	1.00
Explanation: Zoomerang survey rank is 27							

Ranked here, in part, for the following reasons:

- The likelihood that a failure of this equipment will become a Grade 1 leak is high.
- The likelihood of this piece of equipment failing is low.
- The failing element of the equipment causes system pressure to exceed the MAOP.
- The size/capacity of the equipment is somewhat greater than other equipment in the system as a whole.

s. **Section: Inaccessible Valves** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Paved Over, Dirt in B-Box

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
19	19	35	0	0	1	1.463	1.00
Explanation: Ranked 2 of Manually Entered Threats. Relative Risk Score of 7.34.							
Previous Plan							
19	21	57	0	0	1	1.265	1.00
Explanation: potential consequence is high, annual valve inspections mitigate this threat							

Ranked here, in part, for the following reasons:

- Operator override ranking with this explanation:  
Ranked 2 of Manually Entered Threats. Relative Risk Score of 7.34.

t. **Section: Inside Atmospheric Corrosion** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Corrosion -> Atmospheric Corrosion -> Atmospheric Corrosion

**Description:** Inside Service Pipe

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
20	20	17	6.9	6.25	1	1.104	1.00
Explanation: Per SME group meeting, ranked one threat higher due to high likelihood of any failure in							

Explanation:	this section resulting in a Grade 1 Leak.						
Previous Plan							
20	17	21	8.75	6.25	1.15	1.218	1.00
Explanation: Zoomerang survey rank is 17 (tie)							

Ranked here, in part, for the following reasons:

- Inspections have found problems with above ground pipe coatings that could not be fixed by routine maintenance
- Leaks caused by atmospheric corrosion have required repair over the past 15 years.
- Inspections have found metal loss due to atmospheric corrosion over the past 15 years.
- Operator overrode ranking with this explanation:

Per SME group meeting, ranked one threat higher due to high likelihood of any failure in this section resulting in a Grade 1 Leak.

u. **Section: Outside Atmospheric Corrosion** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Corrosion -> Atmospheric Corrosion -> Atmospheric Corrosion

**Description:** Outside Service Riser Pipe

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor	
21	20	17	6.9	6.25	1	1.104	1.00	
Explanation:		Ranked one threat lower due to Inside Atmospheric Corrosion threat ranked one higher.						
Previous Plan								
21	7	21	8.75	6.25	1.15	1.218	1.00	
Explanation: Zoomerang survey rank is 7 (tie)								

Ranked here, in part, for the following reasons:

- Inspections have found problems with above ground pipe coatings that could not be fixed by routine maintenance
- Leaks caused by atmospheric corrosion have required repair over the past 15 years.
- Inspections have found metal loss due to atmospheric corrosion over the past 15 years.
- Operator overrode ranking with this explanation:

Ranked one threat lower due to Inside Atmospheric Corrosion threat ranked one higher.

v. **Section: Unprotected, Coated Steel** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor	
22	0	20	6.6	4.6	1.3	1.104	1.00	
Previous Plan								
22	39	39	5.6	4.6	1	1.218	1.00	
Explanation:		Use default SHRIMP ranking						

Ranked here, in part, for the following reasons:

- Exposed pipe inspections indicate a corrosion problem.
- Confirmed corrosion leaks have occurred on this section.
- The pipe is predominately located within business districts.
- The pressure/diameter of this section is somewhat greater than the average of the system.

w. **Section: Medium Pressure Vaults** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Other Equipment Experiencing Failure -> Specific Other Equipment Experiencing Failure

**Description:** High Pressure to Medium Pressure Vaults

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor	
23	0	21	6.42	5.5	1.15	1.015	1.00	
Previous Plan								
23	19	47	3.53	3.25	1.05	1.033	1.00	
	Explanation: Zoomerang survey rank is 19							

Ranked here, in part, for the following reasons:

- The likelihood that a failure of this equipment will become a Grade 1 leak is high.
- The likelihood of this piece of equipment failing is low.
- The failing element of the equipment causes system pressure to exceed the MAOP.
- The size/capacity of the equipment is somewhat greater than other equipment in the system as a whole.

x. **Section: Fittings** portion of PEOPLES GAS

**Threat:** Material, Weld or Joint Failure -> Manufacturing Defects

**Description:** Mechanical Joint

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor	
24	0	22	6.14	5.5	1.1	1.015	1.00	
Previous Plan								
24	34	34	6.36	5.5	1.15	1.005	1.00	
	Explanation: Zoomerang survey rank is 34							

Ranked here, in part, for the following reasons:

- Failures in this section occur more than once per year.
- The pressure/diameter of this section is somewhat greater than the average of the system.

y. **Section: Security Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** Slam Shut Security Valves

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
25	0	23	5.86	5.5	1.05	1.015	1.00
No Previous Plan							

Ranked here, in part, for the following reasons:

- The failing element of the valve causes system pressure to exceed the MAOP.
- The likelihood that a failure of this equipment will become a Grade 1 leak is high.
- The likelihood of this valve failing is low.
- The impact on the utility and its customers if this equipment were to fail would be moderate.

z. **Section: Other Metal** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
26	0	24	5.74	5.2	1	1.104	1.00
Previous Plan							
26	17	35	6.33	5.2	1	1.218	1.00

Explanation: Rank similar to Zoomerang survey for Corrosion Other
---

Ranked here, in part, for the following reasons:

- Pipe is not cathodically protected.
- Corrosion is occurring due to dissimilar metals.
- Confirmed corrosion leaks have occurred on this section.
- Exposed pipe inspections indicate a corrosion problem.

aa. **Section: Known Material** portion of PEOPLES GAS

**Threat:** Material, Weld or Joint Failure -> Known Materials

**Description:** Compression Couplings for PE Pipe

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
27	0	25	5.58	5.5	1	1.015	1.00
Previous Plan							
27	48	48	3.43	3.25	1.05	1.005	1.00
	Explanation: Use default SHRIMP rank						

Ranked here, in part, for the following reasons:

- Failures in this section occur more than once per year.

ab. **Section: Remote Oper Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** All Remote Op Valves

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
28	0	26	4.78	3.25	1.45	1.015	1.00
Previous Plan							
28	53	50	1.5	1	1.45	1.033	1.00
	Explanation: likelihood of failure is low						

Ranked here, in part, for the following reasons:

- The likelihood of this valve failing is low.
- The likelihood that a failure of this equipment will become a Grade 1 leak is high.
- The size/capacity of the equipment is substantially greater than other equipment in the system as a whole.
- The equipment is primarily within business districts.

ac. **Section: Cathodic Protected, Coated Steel** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
29	0	27	4.32	3.4	1.15	1.104	1.00
Previous Plan							
29	0	57	0	0	1	1.218	1.00

Ranked here, in part, for the following reasons:

- Repaired leaks per mile of mains are increasing.
- Cathodic protection test point readings that meet or exceed acceptable cathodic protection criteria; at least 75% of readings exceed -.85 v.

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- Stray currents are creating problems.
- Confirmed corrosion leaks have occurred on this section.

ad. **Section: Network Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** All Network Valves

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
30	0	28	3.79	3.25	1.15	1.015	1.00
Previous Plan							
30	52	51	1.34	1	1.3	1.033	1.00
	Explanation: likelihood of failure is low						

Ranked here, in part, for the following reasons:

- The likelihood of this valve failing is low.
- The likelihood that a failure of this equipment will become a Grade 1 leak is high.
- The equipment is primarily within business districts.

ae. **Section: Other Outside Force Damage - Crossbores** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Gas Pipe Bored Through Sewer Lateral

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
31	31	35	0	0	1	1.463	1.00
	Explanation: Ranked 3 of 11 Manually Entered Threats. Relative Risk Score of 3.35.						
Previous Plan							
31	30	57	0	0	1	1.265	1.00
	Explanation: frequency of failure is very low, procedures in place to check if bored through sewer line.						

Ranked here, in part, for the following reasons:

- Operator override ranking with this explanation:

Ranked 3 of 11 Manually Entered Threats. Relative Risk Score of 3.35.

af. **Section: Gas Operations Distribution Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** Distribution Valves Located Inside Valve Basins

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
32	32	29	3.3	3.25	1	1.015	1.00
	Explanation: Per SME group meeting, ranked one threat higher due to valves inside basins are generally 4" and larger.						
No Previous Plan							

Ranked here, in part, for the following reasons:

- The likelihood that a failure of this equipment will become a Grade 1 leak is high.
- The likelihood of this valve failing is low.
- Operator override ranking with this explanation:

Per SME group meeting, ranked one threat higher due to valves inside basins are generally 4" and larger.

ag. **Section: Kerotest Valve** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** Kerotest Valve (Kerotest, Prior to Mid 1980's)

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
33	33	29	3.3	3.25	1	1.015	1.00
Explanation: Ranked on threat lower due to 2" Kerotest Valve threat being ranked one higher.							
Previous Plan							
33	45	53	1.03	1	1	1.033	1.00
Explanation: Ranked similar to Zoomerang survey rank							

Ranked here, in part, for the following reasons:

- The likelihood of this valve failing is medium.
- Operator override ranking with this explanation:

Ranked on threat lower due to 2" Kerotest Valve threat being ranked one higher.

ah. **Section: Excavation Damage - Critical Facilities** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Excavation near HP Pipelines, >=16" MP Pipelines, Vaults, Remote Operated Valves, and Current Rectifiers

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
34	34	35	0	0	1	1.463	1.00
Explanation: Ranked 4 of 11 Manually Entered Threats. Relative Risk Score of 2.07.							
No Previous Plan							

Ranked here, in part, for the following reasons:

- Operator override ranking with this explanation:

Ranked 4 of 11 Manually Entered Threats. Relative Risk Score of 2.07.

ai. **Section: Incorrect Operations - Non-Approved Material** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Installation of Non-Approved Materials

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
35	35	35	0	0	1	1.463	1.00
Explanation: Ranked 5 of 11 Manually Entered Threats. Relative Risk Score of 1.64.							
Previous Plan							
35	10	57	0	0	1	1.265	1.00
Explanation: number of services that have leaked is high compared with other, modern materials.							

Ranked here, in part, for the following reasons:

- Operator override ranking with this explanation:

Ranked 5 of 11 Manually Entered Threats. Relative Risk Score of 1.64.

aj. **Section: Excavation Damage - Inactive Services** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Service Pipes Designated as Inactive

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
36	36	35	0	0	1	1.463	1.00
Explanation: Ranked 6 of the 11 Manually Entered Threats. Relative Risk Score of 1.59							
No Previous Plan							

Ranked here, in part, for the following reasons:

- Operator override ranking with this explanation:

Ranked 6 of the 11 Manually Entered Threats. Relative Risk Score of 1.59

ak. **Section: Meters/Shutoffs Inaccessible** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** No Access to Meter or Shutoff

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor	
37	37	35	0	0	1	1.463	1.00	
Explanation:		Ranked 7 of the 11 Manually Entered Threats. Relative Risk Score of 1.47.						
Previous Plan								
37	26	57	0	0	1	1.265	1.00	
Explanation:		potential consequence is high but ongoing Inside Safety Inspections, meter readings, upgrade of services, leak surveys, etc mitigate this threat.						

Ranked here, in part, for the following reasons:

- Operator override ranking with this explanation:

Ranked 7 of the 11 Manually Entered Threats. Relative Risk Score of 1.47.

al. **Section: Other - Soft Closed Accounts** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Supply to Vacant Property Remaining Active

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor	
38	38	35	0	0	1	1.463	1.00	
Explanation:		Ranked 8 of 11 Manually Entered Threats. Relative Risk Score of 1.47.						
No Previous Plan								

Ranked here, in part, for the following reasons:

- Operator override ranking with this explanation:

Ranked 8 of 11 Manually Entered Threats. Relative Risk Score of 1.47.

am. **Section: Incorrect Operations - Improper Odorization** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Too Little or Much Mercaptin

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor	
39	39	35	0	0	1	1.463	1.00	
Explanation:		Ranked 9 of 11 Manually Entered Threats. Relative Risk Score of 1.38.						
Previous Plan								
39	43	57	0	0	1	1.265	1.00	
Explanation:		Consequence of failure is potentially high, but excellent monitoring mitigates this threat						

Ranked here, in part, for the following reasons:

- Operator override ranking with this explanation:

Ranked 9 of 11 Manually Entered Threats. Relative Risk Score of 1.38.

an. **Section: Corrosion - Cased Pipelines** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Cathodic Protected Steel Pipelines inside Metallic Casings

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
40	40	35	0	0	1	1.463	1.00
Explanation: Ranked 10 of 11 Manually Entered Threats. Relative Risk Score of 1.27.							
Previous Plan							
40	49	57	0	0	1	1.265	1.00
Explanation: The frequency and consequence of this threat are very low.							

Ranked here, in part, for the following reasons:

- Operator overrode ranking with this explanation:  
Ranked 10 of 11 Manually Entered Threats. Relative Risk Score of 1.27.

ao. **Section: Distribution Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** Distribution Valves Not Located in Basins

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
41	41	33	1.02	1	1	1.015	1.00
Explanation:							
Previous Plan							
41	51	53	1.03	1	1	1.033	1.00
Explanation: likelihood of failure is low							

Ranked here, in part, for the following reasons:

- The likelihood of this valve failing is low.
- Operator overrode ranking with this explanation:

ap. **Section: Service Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** All Service Valves

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
42	42	33	1.02	1	1	1.015	1.00
Explanation: likelihood of failure is low							
Previous Plan							
42	50	53	1.03	1	1	1.033	1.00
Explanation: likelihood of failure is low							

Ranked here, in part, for the following reasons:

- The likelihood of this valve failing is low.
- Operator overrode ranking with this explanation:  
likelihood of failure is low

aq. **Section: Other Outside Force - Occupant Use** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Unauthorized Turn-on By Customer

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
43	43	35	0	0	1	1.463	1.00
Explanation: Ranked 11 of 11 Manually Entered Threats. Relative Risk Score of 1.01							
No Previous Plan							

Ranked here, in part, for the following reasons:

- Operator override ranking with this explanation:

Ranked 11 of 11 Manually Entered Threats. Relative Risk Score of 1.01

ar. **Section: PEOPLES GAS** portion of PEOPLES GAS

**Threat:** Corrosion -> Internal Corrosion

**Description:** Entire System

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor	
44	44	31	3.16	2.86	1	1.104	1.00	
	Explanation:	Per SME Group meeting, ranked 44 of 45. Threat generally only concerns the infiltration of water on Low Pressure mains and does not pose a specific corrosion threat.						
Previous Plan								
44	48	45	4.01	2.86	1.15	1.218	1.00	
	Explanation:	No documented leaks due to internal corrosion						

Ranked here, in part, for the following reasons:

- Liquids found in your PEOPLES GAS piping are acidic or corrosive.
- Liquids have been found in PEOPLES GAS piping.
- Operator override ranking with this explanation:

Per SME Group meeting, ranked 44 of 45. Threat generally only concerns the infiltration of water on Low Pressure mains and does not pose a specific corrosion threat.

as. **Section: Failing Equipment** portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Other Equipment Experiencing Failure

**Description:** Heaters

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor	
45	45	32	1.37	1	1.35	1.015	1.00	
	Explanation:	Per SME group meeting, ranked 45 of 45 threats. Heater failure is extremely rare and inspections are completed frequently.						
No Previous Plan								

Ranked here, in part, for the following reasons:

- The likelihood of this piece of equipment failing is low.
- The size/capacity of the equipment is substantially greater than other equipment in the system as a whole.
- The equipment is primarily within business districts.
- Operator override ranking with this explanation:

Per SME group meeting, ranked 45 of 45 threats. Heater failure is extremely rare and inspections are completed frequently.

## Chapter 6. ADDITIONAL/ACCELERATED MEASURES TO ADDRESS RISKS

### 6.1. MANDATORY ADDITIONAL ACTIONS

The following are mandatory additional actions required by DIMP regulations.

#### LEAK CLASSIFICATION AND ACTION CRITERIA

PEOPLES GAS has adopted leak classification and action criteria which can be found at O&M Plan Exhibit I Distribution Manual General Order 0.300.

#### LEAK LOCATION PROCEDURE(S)

## 6.2. RISK BASED ADDITIONAL ACTIONS

The following lists the additional/accelerated actions that will be taken and describes the part of PEOPLES GAS to which each applies to address the priority risks described in the previous section of this Plan. Further details can be found in [Section 11.1, "IMPLEMENTATION PLAN"](#).

a. **Section: City of Chicago, Water** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Excavation Damage -> Third Party Damages -> Third Party Damages

**Description:** Chicago Water Dept

For **excavation damage due to third party damages** on the **City of Chicago, Water** section, PEOPLES GAS will:

- conduct additional leak surveys.
- conduct enhanced awareness education programs following the guidelines of the Supplemental Frequency and Activity in API RP 1162 Public Awareness Programs for Pipeline Operators incorporated by reference in 49 CFR Part 192.
- improve accuracy of line marking.
- inspect for facility support/protection.
- monitor backfill operation.
- monitor/audit excavation activity.
- provide additional excavation damage prevention training.
- recruit support of public safety officials.
- discuss and request regulatory intervention from the appropriate agency to address specific violations by a third party (e.g., excavators, property owners, other facility operators) of state damage prevention laws.

b. **Section: Benchmark Construction** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Excavation Damage -> Third Party Damages -> Third Party Damages

**Description:** Water Main Installation Contractor for City of Chicago

For **excavation damage due to third party damages** on the **Benchmark Construction** section, PEOPLES GAS will:

- conduct additional leak surveys.
- conduct enhanced awareness education programs following the guidelines of the Supplemental Frequency and Activity in API RP 1162 Public Awareness Programs for Pipeline Operators incorporated by reference in 49 CFR Part 192.
- inspect for facility support/protection.
- monitor backfill operation.
- monitor/audit excavation activity.
- provide additional excavation damage prevention training.
- recruit support of public safety officials.
- discuss and request regulatory intervention from the appropriate agency to address specific violations by a third party (e.g., excavators, property owners, other facility operators) of state damage prevention laws.

c. **Section: Joel Kennedy Construction** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Excavation Damage -> Third Party Damages -> Third Party Damages

**Description:** Water Main Installation Contractor for City of Chicago

For **excavation damage due to third party damages** on the **Joel Kennedy Construction** section, PEOPLES GAS will:

- conduct additional leak surveys.
- conduct enhanced awareness education programs following the guidelines of the Supplemental Frequency and Activity in API RP 1162 Public Awareness Programs for Pipeline Operators incorporated by reference in 49 CFR Part 192.

- improve accuracy of line marking.
- inspect for facility support/protection.
- monitor backfill operation.
- monitor/audit excavation activity.
- provide additional excavation damage prevention training.
- recruit support of public safety officials.
- discuss and request regulatory intervention from the appropriate agency to address specific violations by a third party (e.g., excavators, property owners, other facility operators) of state damage prevention laws.

d. **Section: Bell Joints & Mechanical Joints** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Leaking Main Bell & Mechanical Joints Due to Age

For **other threats** on the **Bell Joints & Mechanical Joints** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.
- Accelerated Main Replacement Project to eliminate Cast and Ductile Iron Mains.

e. **Section: Peoples Gas Contractors** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Excavation Damage -> Crew or Contractor Damages -> Crew or Contractor Damages

**Description:** Damages to PGL facilities by 2nd Parties (Peoples Gas Contractors)

For **excavation damage due to your crew or contractor damages** on the **Peoples Gas Contractors** section, PEOPLES GAS will:

- conduct additional leak surveys.
- conduct enhanced awareness education programs following the guidelines of the Supplemental Frequency and Activity in API RP 1162 Public Awareness Programs for Pipeline Operators incorporated by reference in 49 CFR Part 192.
- expand equipment testing, calibration, upgrade.
- improve accuracy of line marking.
- inspect for facility support/protection.
- monitor backfill operation.
- monitor/audit excavation activity.
- recruit support of public safety officials.
- re-evaluate contractor.

f. **Section: 6" Cast Iron Mains** portion of PEOPLES GAS

**Threat:** Natural Forces -> Concentrated Area

**Description:** 6" Diameter Cast Iron Mains

For **natural forces** on the **6" Cast Iron Mains** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.
- Retirement Program to replace all Cast/Ductile Iron with modern materials (HDPE Plastic/CP Steel).

g. **Section: Entire System** portion of PEOPLES GAS

**Threat:** Natural Forces -> Concentrated Area

**Description:** Entire System Except 6" Diameter Cast Iron Mains

For **natural forces** on the **Entire System** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.
- Retirement Program to replace all Cast/Ductile Iron with modern materials (HDPE Plastic/CP Steel).

h. **Section: Cast, Ductile, Wrought Iron (larger than 8")** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

For **external corrosion on cast, wrought, ductile iron mains and services (larger than 8")** on the **Cast, Ductile, Wrought Iron (larger than 8")** section, PEOPLES GAS will:

- Accelerated Main Replacement Program to replace all Cast/Ductile Iron with modern materials. (HDPE Plastic and CP Steel)
- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

i. **Section: Other Outside Force Damage - Services** portion of PEOPLES GAS

**Threat:** Other Outside Forces -> Other Outside Forces

**Description:** Other Outside Force Damages on Service Pipes

For **other outside forces** on the **Other Outside Force Damage - Services** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

j. **Section: Cast, Ductile, Wrought Iron (8" or smaller)** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

For **external corrosion on cast, wrought, ductile iron mains and services (8" or smaller)** on the **Cast, Ductile, Wrought Iron (8" or smaller)** section, PEOPLES GAS will:

- Accelerated Main Replacement Program to replace all Cast/Ductile Iron with modern materials. (HDPE Plastic and CP Steel)
- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

k. **Section: Low Pressure Vaults** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Other Equipment Experiencing Failure -> Specific Other Equipment Experiencing Failure

**Description:** Medium Pressure to Low Pressure Vaults

For **equipment malfunctions due to failing other equipment** on the **Low Pressure Vaults** section, PEOPLES GAS will:

- perform inspections and maintenance on an accelerated frequency of Monthly on this portion of the distribution system.
- repair or replace problem materials.
- Accelerated Main Replacement Program to eliminate the Low Pressure side of the distribution system, and in turn, all LP vaults.

l. **Section: Other Outside Force Damage - Mains** portion of PEOPLES GAS

**Threat:** Other Outside Forces -> Other Outside Forces

**Description:** Other Outside Force Damages on Main Pipes

For **other outside forces** on the **Other Outside Force Damage - Mains** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

m. **Section: Peoples Gas** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Excavation Damage -> Crew or Contractor Damages -> Crew or Contractor Damages

**Description:** Damages to PGL facilities by PGL Crews (Peoples Gas)

For **excavation damage due to your crew or contractor damages** on the **Peoples Gas** section, PEOPLES GAS will:

- expand equipment testing, calibration, upgrade.
- improve accuracy of line marking.
- inspect for facility support/protection.
- monitor backfill operation.
- monitor/audit excavation activity.
- provide additional excavation damage prevention training.
- review map availability.

n. **Section: Service Pipe** portion of PEOPLES GAS

**Threat:** Material, Weld or Joint Failure -> Manufacturing Defects

**Description:** Clear Plastic

For **material, weld or joint due to manufacturing defects** on the **Service Pipe** section, PEOPLES GAS will:

- monitor or trend material failures.
- Accelerated Main Replacement Program to renew clear plastic services with modern materials (CP Steel/HDPE Plastic)

o. **Section: Gate Stations** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Other Equipment Experiencing Failure -> Specific Other Equipment Experiencing Failure

**Description:** All Gate Stations

For **equipment malfunctions due to failing other equipment** on the **Gate Stations** section, PEOPLES GAS will:

- perform inspections and maintenance on an accelerated frequency of Monthly on this portion of the distribution system.
- repair problem equipment and/or change settings.

p. **Section: Bridges and Tunnels** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Corrosion -> Atmospheric Corrosion -> Atmospheric Corrosion

**Description:** Bridge and Tunnel Inspections

For **atmospheric corrosion** on the **Bridges and Tunnels** section, PEOPLES GAS will:

- The relative risk posed by this threat on this section of PEOPLES GAS are adequately addressed by current inspection and maintenance. No additional actions are required. The following explanation was provided:

Visual and Leak Survey Inspections of the pipe and all supporting structures are completed quarterly, with a more comprehensive inspection completed every 3 years. Any required work is immediately brought to the attention of district management.

q. **Section: Unprotected, Bare Steel** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

For **external corrosion on bare, unprotected, steel mains and services** on the **Unprotected, Bare Steel** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.
- Accelerated Main Replacement Program to renew bare steel services with modern materials (CP steel/HDPE PLastic)

r. **Section: High Pressure to High Pressure Stations** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Other Equipment Experiencing Failure -> Specific Other Equipment Experiencing Failure

**Description:** High Pressure to High Pressure Station

For **equipment malfunctions due to failing other equipment** on the **High Pressure to High Pressure Stations** section, PEOPLES GAS will:

- perform inspections and maintenance on an accelerated frequency of Monthly on this portion of the distribution system.
- repair problem equipment and/or change settings.

s. **Section: Inaccessible Valves** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Paved Over, Dirt in B-Box

For **other threats** on the **Inaccessible Valves** section, PEOPLES GAS will:

- Monitor or Trend these Failures.

t. **Section: Inside Atmospheric Corrosion** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Corrosion -> Atmospheric Corrosion -> Atmospheric Corrosion

**Description:** Inside Service Pipe

For **atmospheric corrosion** on the **Inside Atmospheric Corrosion** section, PEOPLES GAS will:

- Inside Safety Inspections - performed every three years not to exceed 51 months.
- Accelerated Main Replacement Program to limit inside company owned piping. All inside meters to be moved outside when service is renewed. Any meters left inside require manager authorization.

u. **Section: Outside Atmospheric Corrosion** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Corrosion -> Atmospheric Corrosion -> Atmospheric Corrosion

**Description:** Outside Service Riser Pipe

For **atmospheric corrosion** on the **Outside Atmospheric Corrosion** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

v. **Section: Unprotected, Coated Steel** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

For **external corrosion on coated, unprotected, steel mains and services** on the **Unprotected, Coated Steel** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.
- Accelerated Main Replacement Program to renew non CP Steel services with modern materials (CP Steel/HDPE Plastic)

w. **Section: Medium Pressure Vaults** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Other Equipment Experiencing Failure -> Specific Other Equipment Experiencing Failure

**Description:** High Pressure to Medium Pressure Vaults

For **equipment malfunctions due to failing other equipment** on the **Medium Pressure Vaults** section, PEOPLES GAS will:

- perform inspections and maintenance on an accelerated frequency of Monthly on this portion of the distribution system.
- repair or replace problem materials.

x. **Section: Fittings** portion of PEOPLES GAS

**Threat:** Material, Weld or Joint Failure -> Manufacturing Defects

**Description:** Mechanical Joint

For **material, weld or joint due to manufacturing defects** on the **Fittings** section, PEOPLES GAS will:

- monitor or trend material failures.
- repair or replace problem materials.

y. **Section: Security Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** Slam Shut Security Valves

For **equipment malfunctions due to failing valves** on the **Security Valves** section, PEOPLES GAS will:

- repair problem equipment and/or change settings.
- repair or replace problem materials.

z. **Section: Other Metal** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

For **external corrosion on other metal** on the **Other Metal** section, PEOPLES GAS will:

- Accelerated Main Replacement Program to renew copper services with modern materials (CP Steel/HDPE Plastic)

aa. **Section: Known Material** portion of PEOPLES GAS

**Threat:** Material, Weld or Joint Failure -> Known Materials

**Description:** Compression Couplings for PE Pipe

For **material, weld or joint due to known problem materials** on the **Known Material** section, PEOPLES GAS will:

- revise construction procedures.
- revise materials specifications.

ab. **Section: Remote Oper Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** All Remote Op Valves

For **equipment malfunctions due to failing valves** on the **Remote Oper Valves** section, PEOPLES GAS will:

- repair problem equipment and/or change settings.
- repair or replace problem materials.

ac. **Section: Cathodic Protected, Coated Steel** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

For **external corrosion on coated, cathodically protected, steel mains and services** on the **Cathodic Protected, Coated Steel** section, PEOPLES GAS will:

AG 4.01 Attach 05

- correct cathodic protection deficiencies by locating and eliminating shorts (including shorted casings) in this portion of the distribution system.
- install additional test stations and evaluate in this portion of the distribution system
- correct cathodic protection deficiencies by repairing or replacing or adding a rectifier or groundbed to the existing cathodic protection system in this portion of the distribution system.
- correct cathodic protection deficiencies by replacing anode beds or add anodes section-wide in this portion of the distribution system.
- correct cathodic protection deficiencies by installing supplemental anodes in problem areas in this portion of the distribution system.
- correct cathodic protection deficiencies by mitigating interference problems in problem areas in this portion of the distribution system.
- correct cathodic protection deficiencies by isolating CP systems and reevaluating problems in this portion of the distribution system.
- correct cathodic protection deficiencies by bonding CP systems together and reevaluating problems in this portion of the distribution system.
- For insulated corrosion protected services, remediation threshold has been increased from -.85V to -.95V.
- Perform any required remediation on CP steel facilities within 12 months, instead of the 15 mandated by regulation.
- Monitor Rectifier Status, Voltage, and Current Outputs every eight days, instead of two months as required by regulations.

ad. **Section: Network Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** All Network Valves

For **equipment malfunctions due to failing valves** on the **Network Valves** section, PEOPLES GAS will:

- repair problem equipment and/or change settings.
- repair or replace problem materials.

ae. **Section: Other Outside Force Damage - Crossbores** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Gas Pipe Bored Through Sewer Lateral

For **other threats** on the **Other Outside Force Damage - Crossbores** section, PEOPLES GAS will:

- Monitor or Trend these Failures.
- Pre and Post camera work for main installations using any trenchless technologies. Daylighting all crossings. Public outreach program to notify plumbers and homeowners of danger of rodding clogged sewers.

af. **Section: Gas Operations Distribution Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** Distribution Valves Located Inside Valve Basins

For **equipment malfunctions due to failing valves** on the **Gas Operations Distribution Valves** section, PEOPLES GAS will:

- repair or replace problem materials.

ag. **Section: Kerotest Valve** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** Kerotest Valve (Kerotest, Prior to Mid 1980's)

For **equipment malfunctions due to failing valves** on the **Kerotest Valve** section, PEOPLES GAS will:

- repair problem equipment and/or change settings.

ah. **Section: Excavation Damage - Critical Facilities** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Excavation near HP Pipelines, >=16" MP Pipelines, Vaults, Remote Operated Valves, and Current Rectifiers

For **other threats** on the **Excavation Damage - Critical Facilities** section, PEOPLES GAS will:

- Monitor or Trend these Failures.
- All excavation activities near an identified critical facility are monitored on-site by company personnel, from initial excavation through final backfill. A daily email is generated by System Integrity Engineers detailing each critical excavation site, including the location, excavator, Dig #, Type of Work, and Facility Type and Size. Shut Down and Contingency Plans are developed for each proposed critical excavation in the event the facility is damaged. All boring near critical facilities is monitored.

ai. **Section: Incorrect Operations - Non-Approved Material** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Installation of Non-Approved Materials

For **other threats** on the **Incorrect Operations - Non-Approved Material** section, PEOPLES GAS will:

- Monitor or Trend these Failures.

aj. **Section: Excavation Damage - Inactive Services** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Service Pipes Designated as Inactive

For **other threats** on the **Excavation Damage - Inactive Services** section, PEOPLES GAS will:

- Monitor or Trend these Failures.
- Physical disconnects: 200 planned for 2015 and 250 planned for 2016. Alignment with AMRP retirements has also been considered. TEG Standard 1050 - Facility Deactivation and Abandonment was also established.

ak. **Section: Meters/Shutoffs Inaccessible** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** No Access to Meter or Shutoff

For **other threats** on the **Meters/Shutoffs Inaccessible** section, PEOPLES GAS will:

- Accelerated Main Replacement Program to address inside meters. All inside meters to be moved outside when service is renewed. Any meters left inside require manager authorization.

al. **Section: Other - Soft Closed Accounts** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Supply to Vacant Property Remaining Active

For **other threats** on the **Other - Soft Closed Accounts** section, PEOPLES GAS will:

- Develop procedure/directive to address soft closed accounts. Disconnect any soft closed account that has a pending ISI.

am. **Section: Incorrect Operations - Improper Odorization** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Too Little or Much Mercaptin

For **other threats** on the **Incorrect Operations - Improper Odorization** section, PEOPLES GAS will:

- Monitor or Trend these Failures.

an. **Section: Corrosion - Cased Pipelines** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Cathodic Protected Steel Pipelines inside Metallic Casings

For **other threats** on the **Corrosion - Cased Pipelines** section, PEOPLES GAS will:

- Monitor or Trend these Failures.
- All known casings are inspected annually. Casings requiring remediation are given to Engineering design and receive high importance due to the relative difficulty in repairs. Bi-Weekly status meetings between Corrosion Group and Engineering Design on pending casing remediation projects.

ao. **Section: Distribution Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** Distribution Valves Not Located in Basins

For **equipment malfunctions due to failing valves** on the **Distribution Valves** section, PEOPLES GAS will:

- repair or replace problem materials.

ap. **Section: Service Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** All Service Valves

For **equipment malfunctions due to failing valves** on the **Service Valves** section, PEOPLES GAS will:

- repair or replace problem materials.
- Accelerated Main Replacement Program - All new service line installations require an excess flow valve, and in almost all instances, the meter and shutoff is installed on the outside of the building, thereby eliminating the need for a buried valve.

aq. **Section: Other Outside Force - Occupant Use** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Unauthorized Turn-on By Customer

For **other threats** on the **Other Outside Force - Occupant Use** section, PEOPLES GAS will:

- Any accounts that are currently inactive but showing usage are immediately ordered an additional disconnect request. If the meter is outside, or if there no active accounts at the premise, the disconnect order is completed within 5 days. Otherwise, the order is completed within 30 days, and all affected customers are notified of the pending disconnect. Consecutive Occupant Use Disconnect orders for the same address are issued a Distribution Cut-off (a physical disconnection from gas service.)

ar. **Section: PEOPLES GAS** portion of PEOPLES GAS

**Threat:** Corrosion -> Internal Corrosion

**Description:** Entire System

For **internal corrosion** on the **PEOPLES GAS** section, PEOPLES GAS will:

- The relative risk posed by this threat on this section of PEOPLES GAS are adequately addressed by current inspection and maintenance. No additional actions are required. The following explanation was provided:

Relative risk for this threat is very low.

as. **Section: Failing Equipment** portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Other Equipment Experiencing Failure

**Description:** Heaters

For **equipment malfunctions due to failing other equipment** on the **Failing Equipment** section, PEOPLES GAS will:

- The relative risk posed by this threat on this section of PEOPLES GAS are adequately addressed by current inspection and maintenance. No additional actions are required. The following explanation was provided:

Relative risk for this threat is very low.

## Chapter 7. MEASURE PERFORMANCE, MONITOR RESULTS AND EVALUATE EFFECTIVENESS

## 7.1. MANDATORY PERFORMANCE MEASURES

PEOPLES GAS will keep records of the following performance measures:

1. The number of hazardous leaks either eliminated or repaired, categorized by cause;
2. The number of excavation damages;
3. The number of excavation tickets received;
4. The number of leaks either eliminated or repaired, categorized by cause; and
5. The number of hazardous leaks either eliminated or repaired, categorized by material.

## 7.2. RISK BASED PERFORMANCE MEASURES

The following lists the performance measures that will be tracked and describes the part of PEOPLES GAS to which each applies to evaluate the effectiveness of the additional measures taken to address risks as described in the previous section of this Plan.

a. **Section: City of Chicago, Water** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Excavation Damage -> Third Party Damages -> Third Party Damages

**Description:** Chicago Water Dept

For **excavation damage due to third party damages** on the **City of Chicago, Water** section, PEOPLES GAS will:

- Record the number of hits to gas facilities per 1000 tickets caused by the City of Chicago Water Department.

b. **Section: Benchmark Construction** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Excavation Damage -> Third Party Damages -> Third Party Damages

**Description:** Water Main Installation Contractor for City of Chicago

For **excavation damage due to third party damages** on the **Benchmark Construction** section, PEOPLES GAS will:

- Record the number of hits to gas facilities per 1000 tickets caused by Benchmark Construction.

c. **Section: Joel Kennedy Construction** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Excavation Damage -> Third Party Damages -> Third Party Damages

**Description:** Water Main Installation Contractor for City of Chicago

For **excavation damage due to third party damages** on the **Joel Kennedy Construction** section, PEOPLES GAS will:

- Record the number of hits to gas facilities per 1000 tickets caused by Joel Kennedy Construction.

d. **Section: Bell Joints & Mechanical Joints** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Leaking Main Bell & Mechanical Joints Due to Age

For **other threats** on the **Bell Joints & Mechanical Joints** section, PEOPLES GAS will:

- track the frequency of these failures.

e. **Section: Peoples Gas Contractors** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Excavation Damage -> Crew or Contractor Damages -> Crew or Contractor Damages

**Description:** Damages to PGL facilities by 2nd Parties (Peoples Gas Contractors)

For **excavation damage due to your crew or contractor damages** on the **Peoples Gas Contractors** section, PEOPLES GAS will:

- track the frequency of these failures per 1000 tickets.

f. **Section: 6" Cast Iron Mains** portion of PEOPLES GAS

**Threat:** Natural Forces -> Concentrated Area

**Description:** 6" Diameter Cast Iron Mains

For **natural forces** on the **6" Cast Iron Mains** section, PEOPLES GAS will:

- track the number of leaks or failures due to natural forces repaired each year per mile of main (and/or per service) in the 6" Cast Iron Mains.

g. **Section: Entire System** portion of PEOPLES GAS

**Threat:** Natural Forces -> Concentrated Area

**Description:** Entire System Except 6" Diameter Cast Iron Mains

For **natural forces** on the **Entire System** section, PEOPLES GAS will:

- track the number of leaks or failures due to natural forces repaired each year per mile of main (and/or per service) in the Entire System.

h. **Section: Cast, Ductile, Wrought Iron (larger than 8")** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

For **external corrosion on cast, wrought, ductile iron mains and services (larger than 8")** on the **Cast, Ductile, Wrought Iron (larger than 8")** section, PEOPLES GAS will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Cast, Ductile, Wrought Iron (larger than 8").

i. **Section: Other Outside Force Damage - Services** portion of PEOPLES GAS

**Threat:** Other Outside Forces -> Other Outside Forces

**Description:** Other Outside Force Damages on Service Pipes

For **other outside forces** on the **Other Outside Force Damage - Services** section, PEOPLES GAS will:

- track the frequency of these failures.

j. **Section: Cast, Ductile, Wrought Iron (8" or smaller)** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

For **external corrosion on cast, wrought, ductile iron mains and services (8" or smaller)** on the **Cast, Ductile, Wrought Iron (8" or smaller)** section, PEOPLES GAS will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Cast, Ductile, Wrought Iron (8" or smaller).

k. **Section: Low Pressure Vaults** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Other Equipment Experiencing Failure -> Specific Other Equipment Experiencing Failure

**Description:** Medium Pressure to Low Pressure Vaults

For **equipment malfunctions due to failing other equipment** on the **Low Pressure Vaults** section, PEOPLES GAS will:

- track the frequency of these failures.

l. **Section: Other Outside Force Damage - Mains** portion of PEOPLES GAS

**Threat:** Other Outside Forces -> Other Outside Forces

**Description:** Other Outside Force Damages on Main Pipes

For **other outside forces** on the **Other Outside Force Damage - Mains** section, PEOPLES GAS will:

- track the frequency of these failures.

m. **Section: Peoples Gas** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Excavation Damage -> Crew or Contractor Damages -> Crew or Contractor Damages

**Description:** Damages to PGL facilities by PGL Crews (Peoples Gas)

For **excavation damage due to your crew or contractor damages** on the **Peoples Gas** section, PEOPLES GAS will:

- track the frequency of these failures per 1000 tickets.

n. **Section: Service Pipe** portion of PEOPLES GAS

**Threat:** Material, Weld or Joint Failure -> Manufacturing Defects

**Description:** Clear Plastic

For **material, weld or joint due to manufacturing defects** on the **Service Pipe** section, PEOPLES GAS will:

- track the frequency of these failures.

o. **Section: Gate Stations** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Other Equipment Experiencing Failure -> Specific Other Equipment Experiencing Failure

**Description:** All Gate Stations

For **equipment malfunctions due to failing other equipment** on the **Gate Stations** section, PEOPLES GAS will:

- track the frequency of these failures.

p. **Section: Bridges and Tunnels** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Corrosion -> Atmospheric Corrosion -> Atmospheric Corrosion

**Description:** Bridge and Tunnel Inspections

For **atmospheric corrosion** on the **Bridges and Tunnels** section, PEOPLES GAS will:

- The relative risk posed by this threat on this section of PEOPLES GAS does not warrant additional actions. Since no additional actions are called for there is no need for action-specific performance measures.

q. **Section: Unprotected, Bare Steel** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

For **external corrosion on bare, unprotected, steel mains and services** on the **Unprotected, Bare Steel** section, PEOPLES GAS will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Unprotected, Bare Steel.

r. **Section: High Pressure to High Pressure Stations** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Other Equipment Experiencing Failure -> Specific Other Equipment Experiencing Failure

**Description:** High Pressure to High Pressure Station

For **equipment malfunctions due to failing other equipment** on the **High Pressure to High Pressure Stations** section, PEOPLES GAS will:

- track the frequency of these failures.

s. **Section: Inaccessible Valves** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Paved Over, Dirt in B-Box

For **other threats** on the **Inaccessible Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

t. **Section: Inside Atmospheric Corrosion** portion of PEOPLES GAS portion of PEOPLES GAS

**Threat:** Corrosion -> Atmospheric Corrosion -> Atmospheric Corrosion

**Description:** Inside Service Pipe

For **atmospheric corrosion** on the **Inside Atmospheric Corrosion** section, PEOPLES GAS will:

- Track the number of Inside Safety Inspections in which pipe condition was noted as poor due to corrosion.

u. **Section: Outside Atmospheric Corrosion** portion of PEOPLES GAS

**Threat:** Corrosion -> Atmospheric Corrosion -> Atmospheric Corrosion

**Description:** Outside Service Riser Pipe

For **atmospheric corrosion** on the **Outside Atmospheric Corrosion** section, PEOPLES GAS will:

- track the frequency of leaks or failures due to atmospheric corrosion repaired each year per mile of main (and/or per service) in the Outside Atmospheric Corrosion.

v. **Section: Unprotected, Coated Steel** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

For **external corrosion on coated, unprotected, steel mains and services** on the **Unprotected, Coated Steel** section, PEOPLES GAS will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Unprotected, Coated Steel.

w. **Section: Medium Pressure Vaults** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Other Equipment Experiencing Failure -> Specific Other Equipment Experiencing Failure

**Description:** High Pressure to Medium Pressure Vaults

For **equipment malfunctions due to failing other equipment** on the **Medium Pressure Vaults** section, PEOPLES GAS will:

- track the frequency of these failures.

x. **Section: Fittings** portion of PEOPLES GAS

**Threat:** Material, Weld or Joint Failure -> Manufacturing Defects

**Description:** Mechanical Joint

For **material, weld or joint due to manufacturing defects** on the **Fittings** section, PEOPLES GAS will:

- track the frequency of these failures.

y. **Section: Security Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** Slam Shut Security Valves

For **equipment malfunctions due to failing valves** on the **Security Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

z. **Section: Other Metal** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

For **external corrosion on other metal** on the **Other Metal** section, PEOPLES GAS will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Other Metal.

aa. **Section: Known Material** portion of PEOPLES GAS

**Threat:** Material, Weld or Joint Failure -> Known Materials

**Description:** Compression Couplings for PE Pipe

For **material, weld or joint due to known problem materials** on the **Known Material** section, PEOPLES GAS will:

- track the frequency of these failures.

ab. **Section: Remote Oper Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** All Remote Op Valves

For **equipment malfunctions due to failing valves** on the **Remote Oper Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

ac. **Section: Cathodic Protected, Coated Steel** portion of PEOPLES GAS

**Threat:** Corrosion -> External Corrosion

**Description:** Entire System

For **external corrosion on coated, cathodically protected, steel mains and services** on the **Cathodic Protected, Coated Steel** section, PEOPLES GAS will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Cathodic Protected, Coated Steel.

ad. **Section: Network Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** All Network Valves

For **equipment malfunctions due to failing valves** on the **Network Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

ae. **Section: Other Outside Force Damage - Crossbores** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Gas Pipe Bored Through Sewer Lateral

For **other threats** on the **Other Outside Force Damage - Crossbores** section, PEOPLES GAS will:

- Track the number of Crossbore Inspections completed and Crossbores found per year.

af. **Section: Gas Operations Distribution Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** Distribution Valves Located Inside Valve Basins

For **equipment malfunctions due to failing valves** on the **Gas Operations Distribution Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

ag. **Section: Kerotest Valve** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** Kerotest Valve (Kerotest, Prior to Mid 1980's)

For **equipment malfunctions due to failing valves** on the **Kerotest Valve** section, PEOPLES GAS will:

- track the frequency of these failures.

ah. **Section: Excavation Damage - Critical Facilities** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Excavation near HP Pipelines, >=16" MP Pipelines, Vaults, Remote Operated Valves, and Current Rectifiers

For **other threats** on the **Excavation Damage - Critical Facilities** section, PEOPLES GAS will:

- track the frequency of these failures.

ai. **Section: Incorrect Operations - Non-Approved Material** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Installation of Non-Approved Materials

For **other threats** on the **Incorrect Operations - Non-Approved Material** section, PEOPLES GAS will:

- track the frequency of these failures.

aj. **Section: Excavation Damage - Inactive Services** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Service Pipes Designated as Inactive

For **other threats** on the **Excavation Damage - Inactive Services** section, PEOPLES GAS will:

- Record the number of inactive services (over 3 years) that are cut off from their supply of gas and retired.

ak. **Section: Meters/Shutoffs Inaccessible** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** No Access to Meter or Shutoff

For **other threats** on the **Meters/Shutoffs Inaccessible** section, PEOPLES GAS will:

- Record the number of inside and outside meters.

al. **Section: Other - Soft Closed Accounts** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Supply to Vacant Property Remaining Active

For **other threats** on the **Other - Soft Closed Accounts** section, PEOPLES GAS will:

- track the frequency of these failures.

am. **Section: Incorrect Operations - Improper Odorization** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Too Little or Much Mercaptin

For **other threats** on the **Incorrect Operations - Improper Odorization** section, PEOPLES GAS will:

- track the frequency of these failures.

an. **Section: Corrosion - Cased Pipelines** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Cathodic Protected Steel Pipelines inside Metallic Casings

For **other threats** on the **Corrosion - Cased Pipelines** section, PEOPLES GAS will:

- track the frequency of these failures.

ao. **Section: Distribution Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** Distribution Valves Not Located in Basins

For **equipment malfunctions due to failing valves** on the **Distribution Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

ap. **Section: Service Valves** portion of Failing Equipment portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

**Description:** All Service Valves

For **equipment malfunctions due to failing valves** on the **Service Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

aq. **Section: Other Outside Force - Occupant Use** portion of PEOPLES GAS

**Threat:** Other Threats -> Other

**Description:** Unauthorized Turn-on By Customer

For **other threats** on the **Other Outside Force - Occupant Use** section, PEOPLES GAS will:

- track the frequency of these failures.

ar. **Section: PEOPLES GAS** portion of PEOPLES GAS

**Threat:** Corrosion -> Internal Corrosion

**Description:** Entire System

For **internal corrosion** on the **PEOPLES GAS** section, PEOPLES GAS will:

- The relative risk posed by this threat on this section of PEOPLES GAS does not warrant additional actions. Since no additional actions are called for there is no need for action-specific performance measures.

as. **Section: Failing Equipment** portion of PEOPLES GAS

**Threat:** Equipment Malfunction -> Other Equipment Experiencing Failure

**Description:** Heaters

For **equipment malfunctions due to failing other equipment** on the **Failing Equipment** section, PEOPLES GAS will:

- The relative risk posed by this threat on this section of PEOPLES GAS does not warrant additional actions. Since no additional actions are called for there is no need for action-specific performance measures.

## 7.3. MONITOR RESULTS AND EVALUATE EFFECTIVENESS

Monitoring results and evaluating effectiveness is addressed in [Chapter 8, PERIODIC EVALUATION AND IMPROVEMENT](#) of this Plan.

## Chapter 8. PERIODIC EVALUATION AND IMPROVEMENT

PEOPLES GAS will conduct a complete re-evaluation of this Plan no less than every 1 year. Trends in each of the performance measures listed in [Chapter 7, MEASURE PERFORMANCE, MONITOR RESULTS AND EVALUATE EFFECTIVENESS](#) will be reviewed during the re-evaluation. If any performance measure indicates that any of the additional action taken is not effective in reducing the risk it is intended to address, PEOPLES GAS will consider implementing additional actions to address that risk.

Re-evaluation of the Plan will also occur when changes occur on the system that may significantly change the risk of failure, including but not limited to:

- Completion of any additional actions listed in [Chapter 6, ADDITIONAL/ACCELERATED MEASURES TO ADDRESS RISKS](#) of this Plan,
- A review of performance measures concludes that a change of approach is warranted.

[Section 11.5, "PLAN CHANGE LOG"](#) provides a log of the plan changes detailing differences between this Plan (Version 2.2.1) and the previous Plan (Version 2.1.1).

A detailed description of the process for plan re-evaluation is found in [Section 11.4, "DESCRIPTION OF THE PROCESS FOLLOWED TO DEVELOP THIS PLAN"](#).

## Chapter 9. REPORTING

The following will be submitted annually to the Pipeline And Hazardous Materials Safety Administration (PHMSA) as part of the Distribution Annual Report (Form F7100.1-1) and Illinois Commerce Commission along with the distribution annual report.

PERFORMANCE MEASURES

PEOPLES GAS will track and report the following performance measures:

- Number of hazardous leaks either eliminated or repaired, categorized by cause;
- Number of excavation damages;
- Number of excavation tickets;
- Total number of leaks either eliminated or repaired, categorized by cause;

#### EXCESS FLOW VALVES

PEOPLES GAS will track the number of excess flow valves installed on the system

These data will be sent to the PHMSA Information Resource Manager as part of the Distribution Annual Report (Form F7100.1-1).

#### MECHANICAL FITTING FAILURES

PEOPLES GAS will track and report information relating to each hazardous leak resulting from the failure of a mechanical fitting. This information will include, at a minimum:

- location of the failure in the system,
- nominal pipe size,
- material type,
- nature of failure including any contribution of local pipeline environment,
- fitting manufacturer,
- lot number,
- date of manufacture, and
- any other information that can be found in markings on the failed fitting

Mechanical fitting failures will be sent to the PHMSA Information Resource Manager on the mechanical fitting failure report (Form 7100.1-2) either periodically as these failures occur or aggregated into one or more submissions made no later than March 15 of the following calendar year after the fitting failure(s).

Form 7100.1-1 and Form 7100.1-2 will be sent to the PHMSA Information Resource Manager via the online electronic reporting system available at PHMSA's home page at <http://phmsa.dot.gov>.

These data will also be sent to the Illinois Commerce Commission at:

Illinois Commerce Commission

527 East Capitol Avenue  
Springfield, IL 62701

## Chapter 10. RECORD KEEPING

The following records will be maintained for ten years.

1. This Plan,
2. Copies of previous written DIMP Plans,
3. Records of data required to be collected to calculate performance measures listed in [Chapter 7. MEASURE PERFORMANCE, MONITOR RESULTS AND EVALUATE EFFECTIVENESS](#),
4. Data Sources referenced during the Threat Assessments (listed in [Section 11.3. "LIST OF DATA SOURCES FROM SHRIMP™ INTERVIEWS"](#)),
5. Records of mechanical fitting failures,
6. Inspection, maintenance and other records relied upon in developing this written DIMP plan, as listed in the Data Source fields in [Section 11.2. "LIST OF ANSWERS AND DATA SOURCES FROM SHRIMP™ INTERVIEWS"](#) of this Plan.

## Chapter 11. ATTACHMENTS

## 11.1. IMPLEMENTATION PLAN

This Attachment lists all the action items that are included in this written Distribution Integrity Management Plan.

Section A describes how PEOPLES GAS will modify procedures, policies and/or recordkeeping systems to implement:

1. mandatory data collection and recordkeeping requirements in the regulation as listed in [Section 7.1, "MANDATORY PERFORMANCE MEASURES"](#) of this Plan, and
2. performance measures specific to Additional/Accelerated Actions as listed in [Section 7.2, "RISK BASED PERFORMANCE MEASURES"](#) of this Plan.

Section B describes how PEOPLES GAS will implement Additional/Accelerated Actions, if any, listed in [Chapter 6, ADDITIONAL/ACCELERATED MEASURES TO ADDRESS RISKS](#) of this Plan.

Section C describes how PEOPLES GAS will implement procedures to collect additional information needed to fill gaps, if any, found during the development of this Plan.

A. Procedures, policies and/or recordkeeping systems will be modified as follows to collect and retain information required to be collected and retained under the DIMP plan, including:

1. The following Recordkeeping tasks:

- a. Records for all piping system installed after the effective date of this Plan, including, at minimum, the location where new piping and appurtenances are installed and the material of which they are constructed.

PEOPLES GAS will implement as follows:

See section 6.7 Data Capture for New Construction and Ongoing O&M in PGL DIMP plan.

b. Mechanical fitting failure data, including:

- i. location of the failure in the system,
- ii. nominal pipe size,
- iii. material type,
- iv. nature of failure including any contribution of local pipeline environment,
- v. fitting manufacturer,
- vi. lot number and date of manufacture, and
- vii. other information that can be found in markings on the failed fitting

PEOPLES GAS will implement as follows:

Beginning in calendar year 2011, PGL sends any in-service mechanical fitting failure to Technical Training for analysis and entry into the electronic database maintained by the designated engineer at Technical Training.

2. The following mandatory Performance Measures:

- a. Number of hazardous leaks either eliminated or repaired as required by 49 CFR 192.703(c) (or total number of leaks if all leaks are repaired when found), categorized by cause.

PEOPLES GAS will implement as follows:

See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

b. Number of excavation damages.

PEOPLES GAS will implement as follows:

See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

c. Number of excavation tickets (receipt of information by the underground facility operator from the notification center).

PEOPLES GAS will implement as follows:

See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

d. Total number of leaks either eliminated or repaired, categorized by cause.

PEOPLES GAS will implement as follows:

See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

- e. Number of hazardous leaks either eliminated or repaired as required by Sec. 192.703(c) (or total number of leaks if all leaks are repaired when found), categorized by material;

PEOPLES GAS will implement as follows:

See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

3. The following threat specific Performance Measures (presented by section in risk rank order):

- a. For **excavation damage due to third party damages** on the **City of Chicago, Water** section, PEOPLES GAS will:

- Record the number of hits to gas facilities per 1000 tickets caused by the City of Chicago Water Department.

PEOPLES GAS will implement as follows:

Already Implemented: System Integrity tracks all damages to company facilities in PGL Facility Damage Database. See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

- b. For **excavation damage due to third party damages** on the **Benchmark Construction** section, PEOPLES GAS will:

- Record the number of hits to gas facilities per 1000 tickets caused by Benchmark Construction.

PEOPLES GAS will implement as follows:

Already Implemented: System Integrity tracks all damages to company facilities in PGL Facility Damage Database. See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

- c. For **excavation damage due to third party damages** on the **Joel Kennedy Construction** section, PEOPLES GAS will:

- Record the number of hits to gas facilities per 1000 tickets caused by Joel Kennedy Construction.

PEOPLES GAS will implement as follows:

Already Implemented: System Integrity tracks all damages to company facilities in PGL Facility Damage Database. See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

- d. For **other threats** on the **Bell Joints & Mechanical Joints** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

- e. For **excavation damage due to your crew or contractor damages** on the **Peoples Gas Contractors** section, PEOPLES GAS will:

- track the frequency of these failures per 1000 tickets.

PEOPLES GAS will implement as follows:

Already Implemented: System Integrity tracks PGL Contractor damages to company facilities in PGL Facility Damage Database. See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

- f. For **natural forces** on the **6" Cast Iron Mains** section, PEOPLES GAS will:

- track the number of leaks or failures due to natural forces repaired each year per mile of main (and/or per service) in the 6" Cast Iron Mains.

PEOPLES GAS will implement as follows:

See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

- g. For **natural forces** on the **Entire System** section, PEOPLES GAS will:

- track the number of leaks or failures due to natural forces repaired each year per mile of main (and/or per service) in the Entire System.

PEOPLES GAS will implement as follows:

See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

h. For **external corrosion on cast, wrought, ductile iron mains and services (larger than 8")** on the **Cast, Ductile, Wrought Iron (larger than 8")** section, PEOPLES GAS will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Cast, Ductile, Wrought Iron (larger than 8").

PEOPLES GAS will implement as follows:

See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

i. For **other outside forces** on the **Other Outside Force Damage - Services** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

j. For **external corrosion on cast, wrought, ductile iron mains and services (8" or smaller)** on the **Cast, Ductile, Wrought Iron (8" or smaller)** section, PEOPLES GAS will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Cast, Ductile, Wrought Iron (8" or smaller).

PEOPLES GAS will implement as follows:

See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

k. For **equipment malfunctions due to failing other equipment** on the **Low Pressure Vaults** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record, and inspection results are saved by Gas Operations Department.

l. For **other outside forces** on the **Other Outside Force Damage - Mains** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in the system of record.

m. For **excavation damage due to your crew or contractor damages** on the **Peoples Gas** section, PEOPLES GAS will:

- track the frequency of these failures per 1000 tickets.

PEOPLES GAS will implement as follows:

Already Implemented: System Integrity tracks all company crew damages to company facilities in PGL Facility Damage Database.

n. For **material, weld or joint due to manufacturing defects** on the **Service Pipe** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks and their related material type are recorded in system of record.

o. For **equipment malfunctions due to failing other equipment** on the **Gate Stations** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record, and inspection results are saved by Gas Operations Department.

- p. For **external corrosion on bare, unprotected, steel mains and services** on the **Unprotected, Bare Steel** section, PEOPLES GAS will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Unprotected, Bare Steel.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks and their related material type are recorded in system of record.

- q. For **equipment malfunctions due to failing other equipment** on the **High Pressure to High Pressure Stations** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record, and inspection results are saved by Gas Operations Department.

- r. For **other threats** on the **Inaccessible Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Valve inspections indicating access problems are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit XII: Gas Operations Manual.

- s. For **atmospheric corrosion** on the **Inside Atmospheric Corrosion** section, PEOPLES GAS will:

- Track the number of Inside Safety Inspections in which pipe condition was noted as poor due to corrosion.

PEOPLES GAS will implement as follows:

Already Implemented - Inside Safety Inspections are completed with a required field denoting the condition of exposed inside piping.

- t. For **atmospheric corrosion** on the **Outside Atmospheric Corrosion** section, PEOPLES GAS will:

- track the frequency of leaks or failures due to atmospheric corrosion repaired each year per mile of main (and/or per service) in the Outside Atmospheric Corrosion.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in the system of record.

- u. For **external corrosion on coated, unprotected, steel mains and services** on the **Unprotected, Coated Steel** section, PEOPLES GAS will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Unprotected, Coated Steel.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks and their related material type are recorded in system of record.

- v. For **equipment malfunctions due to failing other equipment** on the **Medium Pressure Vaults** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record, and inspection results are saved by Gas Operations Department.

- w. For **material, weld or joint due to manufacturing defects** on the **Fittings** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, PGL sends any in-service mechanical fitting failure to Technical Training for analysis and entry into the electronic database maintained by the designated engineer within the Compliance Group.

x. For **equipment malfunctions due to failing valves** on the **Security Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record, and inspection results are saved by Gas Operations Department.

y. For **external corrosion on other metal** on the **Other Metal** section, PEOPLES GAS will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Other Metal.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks and their related material type are recorded in system of record.

z. For **material, weld or joint due to known problem materials** on the **Known Material** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, PGL sends any in-service mechanical fitting failure to Technical Training for analysis and entry into the electronic database maintained by the designated engineer within the Compliance Group.

aa. For **equipment malfunctions due to failing valves** on the **Remote Oper Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented per SME Alonzo Foster - Supervisory Engineer Gas Operations. See PGL O&M Plan Exhibit XII - Gas Operations Manual. Leaks are recorded in system of record, and inspection results are saved by Gas Operations Department.

ab. For **external corrosion on coated, cathodically protected, steel mains and services** on the **Cathodic Protected, Coated Steel** section, PEOPLES GAS will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Cathodic Protected, Coated Steel.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks and their related material type are recorded in system of record.

ac. For **equipment malfunctions due to failing valves** on the **Network Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, valve inspections indicating failure are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit XII: Gas Operations Manual.

ad. For **other threats** on the **Other Outside Force Damage - Crossbores** section, PEOPLES GAS will:

- Track the number of Crossbore Inspections completed and Crossbores found per year.

PEOPLES GAS will implement as follows:

Already Implemented: System Integrity Engineer assigned to the Crossbore Inspection Program records all required inspections and found crossbores. See Appendix H - Mandatory Metrics and Performance Measures.

ae. For **equipment malfunctions due to failing valves** on the **Gas Operations Distribution Valves** section, PEOPLES

GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, valve inspections indicating failure are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit XII: Gas Operations Manual.

af. For **equipment malfunctions due to failing valves** on the **Kerotest Valve** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in the system of record. Any non-accessible valves are issued remediation work and followup inspections. See General Order .600: Procedure for the Inspection of Critical Distribution Valves and Valve Follow-up Work.

ag. For **other threats** on the **Excavation Damage - Critical Facilities** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - All leaks are recorded in the system of record. Additionally, all damages to company property is recorded in the PGL Hit Database managed by System Integrity Group.

ah. For **other threats** on the **Incorrect Operations - Non-Approved Material** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented: The Standards Group was developed in order to align company approved materials with work practices and standards.

ai. For **other threats** on the **Excavation Damage - Inactive Services** section, PEOPLES GAS will:

- Record the number of inactive services (over 3 years) that are cut off from their supply of gas and retired.

PEOPLES GAS will implement as follows:

Already Implemented: Distribution Planning Engineer records the number of inactive services over 3 and 10 years, as well as the number retired and cut-off. See Appendix H - Mandatory Metrics and Performance Measures.

aj. For **other threats** on the **Meters/Shutoffs Inaccessible** section, PEOPLES GAS will:

- Record the number of inside and outside meters.

PEOPLES GAS will implement as follows:

Already Implemented - Field Service Planning Engineer tracks the total number of meters and how many are located inside of the building as part of the Inside Safety Inspection Program. See Appendix H - Mandatory Metrics and Performance Measures.

ak. For **other threats** on the **Other - Soft Closed Accounts** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Leaks are recorded in the system of record. Per Compliance Group, a process will be in development in order to address soft closed accounts.

al. For **other threats** on the **Incorrect Operations - Improper Odorization** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented: Inspections are performed weekly at survey sites throughout PGL's Distribution System,

AG 4.01 Attach 05

and monthly through gas chromatography at Technical Training. Records of weekly and monthly odorant testing are maintained at District Shop Locations and by Gas Control. See PGL O&M Plan Exhibit III: Gas Control and Odorization.

am. For **other threats** on the **Corrosion - Cased Pipelines** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, casing and carrier reads are recorded by Corrosion Control Group Engineer responsible for the Casing Inspection project.

an. For **equipment malfunctions due to failing valves** on the **Distribution Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, valve inspections indicating failure are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit I (Distribution Manual, General Order 0.600)

ao. For **equipment malfunctions due to failing valves** on the **Service Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Inoperable service valves are brought to the attention of the Distribution Department for repair or service pipe renewal.

ap. For **other threats** on the **Other Outside Force - Occupant Use** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented: All previously known Occupant Use Orders were completed. Any accounts that are currently inactive but showing usage are immediately ordered an additional disconnect request. If the meter is outside, or if there no active accounts at the premise, the disconnect order is completed within 5 days. Otherwise, the order is completed within 30 days, and all affected customers are notified of the pending disconnect. Consecutive Occupant Use Disconnect orders for the same address are issued a Distribution Cut-off (a physical disconnection from gas service.)

B. Additional/Accelerated Actions included in this DIMP plan:

1. The following mandatory Accelerated/Additional Actions:

- a. Leak classification and action criteria as chosen and described in [Section 6.1, "MANDATORY ADDITIONAL ACTIONS"](#) of this Plan.

PEOPLES GAS will implement as follows:

Already Implemented - leaks are classified and actions taken per Distribution Manual General Order 0.300

2. The following threat specific Additional/Accelerated Actions (presented by section in risk rank order):

- a. For **excavation damage due to third party damages** on the **City of Chicago, Water** section, PEOPLES GAS will:

- conduct additional leak surveys.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- conduct enhanced awareness education programs following the guidelines of the Supplemental Frequency and Activity in API RP 1162 Public Awareness Programs for Pipeline Operators incorporated by reference in 49 CFR Part 192.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan

Exhibit IX: Damage Prevention Program.

- improve accuracy of line marking.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- inspect for facility support/protection.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor backfill operation.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor/audit excavation activity.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- provide additional excavation damage prevention training.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- recruit support of public safety officials.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- discuss and request regulatory intervention from the appropriate agency to address specific violations by a third party (e.g., excavators, property owners, other facility operators) of state damage prevention laws.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

b. For **excavation damage due to third party damages** on the **Benchmark Construction** section, PEOPLES GAS will:

- conduct additional leak surveys.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- conduct enhanced awareness education programs following the guidelines of the Supplemental Frequency and Activity in API RP 1162 Public Awareness Programs for Pipeline Operators incorporated by reference in 49 CFR Part 192.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- inspect for facility support/protection.

PEOPLES GAS will implement as follows:

AG 4.01 Attach 05

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor backfill operation.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor/audit excavation activity.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- provide additional excavation damage prevention training.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- recruit support of public safety officials.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- discuss and request regulatory intervention from the appropriate agency to address specific violations by a third party (e.g., excavators, property owners, other facility operators) of state damage prevention laws.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- c. For **excavation damage due to third party damages** on the **Joel Kennedy Construction** section, PEOPLES GAS will:

- conduct additional leak surveys.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- conduct enhanced awareness education programs following the guidelines of the Supplemental Frequency and Activity in API RP 1162 Public Awareness Programs for Pipeline Operators incorporated by reference in 49 CFR Part 192.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- improve accuracy of line marking.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- inspect for facility support/protection.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor backfill operation.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor/audit excavation activity.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- provide additional excavation damage prevention training.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- recruit support of public safety officials.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- discuss and request regulatory intervention from the appropriate agency to address specific violations by a third party (e.g., excavators, property owners, other facility operators) of state damage prevention laws.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

d. For **other threats** on the **Bell Joints & Mechanical Joints** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

- Accelerated Main Replacement Project to eliminate Cast and Ductile Iron Mains.

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

e. For **excavation damage due to your crew or contractor damages** on the **Peoples Gas Contractors** section, PEOPLES GAS will:

- conduct additional leak surveys.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- conduct enhanced awareness education programs following the guidelines of the Supplemental Frequency and Activity in API RP 1162 Public Awareness Programs for Pipeline Operators incorporated by reference in 49 CFR Part 192.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- expand equipment testing, calibration, upgrade.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor.

- improve accuracy of line marking.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor.

- inspect for facility support/protection.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor backfill operation.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor/audit excavation activity.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- recruit support of public safety officials.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- re-evaluate contractor.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor.

f. For **natural forces** on the **6" Cast Iron Mains** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

- Retirement Program to replace all Cast/Ductile Iron with modern materials (HDPE Plastic/CP Steel).

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

g. For **natural forces** on the **Entire System** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

- Retirement Program to replace all Cast/Ductile Iron with modern materials (HDPE Plastic/CP Steel).

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

h. For **external corrosion on cast, wrought, ductile iron mains and services (larger than 8")** on the **Cast, Ductile, Wrought Iron (larger than 8")** section, PEOPLES GAS will:

AG 4.01 Attach 05

- Accelerated Main Replacement Program to replace all Cast/Ductile Iron with modern materials. (HDPE Plastic and CP Steel)

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

i. For **other outside forces** on the **Other Outside Force Damage - Services** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

j. For **external corrosion on cast, wrought, ductile iron mains and services (8" or smaller)** on the **Cast, Ductile, Wrought Iron (8" or smaller)** section, PEOPLES GAS will:

- Accelerated Main Replacement Program to replace all Cast/Ductile Iron with modern materials. (HDPE Plastic and CP Steel)

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

k. For **equipment malfunctions due to failing other equipment** on the **Low Pressure Vaults** section, PEOPLES GAS will:

- perform inspections and maintenance on an accelerated frequency of Monthly on this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - LP Vaults are inspected monthly per SME Alonzo Foster, Supervisory Engineer Gas Operations.

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented - Gate Stations are inspected monthly per SME Alonzo Foster, Supervisory Engineer Gas Operations.

- Accelerated Main Replacement Program to eliminate the Low Pressure side of the distribution system, and in turn, all LP vaults.

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

l. For **other outside forces** on the **Other Outside Force Damage - Mains** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

m. For **excavation damage due to your crew or contractor damages** on the **Peoples Gas** section, PEOPLES GAS will:

- expand equipment testing, calibration, upgrade.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- improve accuracy of line marking.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- inspect for facility support/protection.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor backfill operation.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor/audit excavation activity.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- provide additional excavation damage prevention training.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- review map availability.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

n. For **material, weld or joint due to manufacturing defects** on the **Service Pipe** section, PEOPLES GAS will:

- monitor or trend material failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, PGL sends any in-service mechanical fitting failure to Technical Training for analysis and entry into the electronic database maintained by the designated engineer at Technical Training.

- Accelerated Main Replacement Program to renew clear plastic services with modern materials (CP Steel/HDPE Plastic)

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

o. For **equipment malfunctions due to failing other equipment** on the **Gate Stations** section, PEOPLES GAS will:

AG 4.01 Attach 05

- perform inspections and maintenance on an accelerated frequency of Monthly on this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - Gate Stations are inspected monthly per SME Alonzo Foster, Supervisory Engineer Gas Operations.

- repair problem equipment and/or change settings.

PEOPLES GAS will implement as follows:

Already Implemented per SME Interview with Supervisory Engineer Alonzo Foster - Gas Operations

- p. For **external corrosion on bare, unprotected, steel mains and services** on the **Unprotected, Bare Steel** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

- Accelerated Main Replacement Program to renew bare steel services with modern materials (CP steel/HDPE PLastic)

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

- q. For **equipment malfunctions due to failing other equipment** on the **High Pressure to High Pressure Stations** section, PEOPLES GAS will:

- perform inspections and maintenance on an accelerated frequency of Monthly on this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - HP to HP Stations are inspected monthly per SME Alonzo Foster, Supervisory Engineer Gas Operations.

- repair problem equipment and/or change settings.

PEOPLES GAS will implement as follows:

Already Implemented per SME Interview with Supervisory Engineer Alonzo Foster - Gas Operations

- r. For **other threats** on the **Inaccessible Valves** section, PEOPLES GAS will:

- Monitor or Trend these Failures.

PEOPLES GAS will implement as follows:

Already Implemented - Valve inspections indicating access problems are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit XII: Gas Operations Manual.

- s. For **atmospheric corrosion** on the **Inside Atmospheric Corrosion** section, PEOPLES GAS will:

- Inside Safety Inspections - performed every three years not to exceed 51 months.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

- Accelerated Main Replacement Program to limit inside company owned piping. All inside meters to be moved outside when service is renewed. Any meters left inside require manager authorization.

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

- t. For **atmospheric corrosion** on the **Outside Atmospheric Corrosion** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

u. For **external corrosion on coated, unprotected, steel mains and services** on the **Unprotected, Coated Steel** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

- Accelerated Main Replacement Program to renew non CP Steel services with modern materials (CP Steel/HDPE Plastic)

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

v. For **equipment malfunctions due to failing other equipment** on the **Medium Pressure Vaults** section, PEOPLES GAS will:

- perform inspections and maintenance on an accelerated frequency of Monthly on this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - MP Vaults are inspected monthly per SME Alonzo Foster, Supervisory Engineer Gas Operations.

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented per SME Interview with Supervisory Engineer Alonzo Foster - Gas Operations

w. For **material, weld or joint due to manufacturing defects** on the **Fittings** section, PEOPLES GAS will:

- monitor or trend material failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, PGL sends any in-service mechanical fitting failure to Technical Training for analysis and entry into the electronic database maintained by the designated engineer at Technical Training.

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, PGL sends any in-service mechanical fitting failure to Technical Training for analysis and entry into the electronic database maintained by the designated engineer at Technical Training.

x. For **equipment malfunctions due to failing valves** on the **Security Valves** section, PEOPLES GAS will:

- repair problem equipment and/or change settings.

PEOPLES GAS will implement as follows:

Already Implemented: See PGL O&M Plan Exhibit XII: Gas Operations Manual, Chapter 3.

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented: See PGL O&M Plan Exhibit XII: Gas Operations Manual, Chapter 3.

y. For **external corrosion on other metal** on the **Other Metal** section, PEOPLES GAS will:

- Accelerated Main Replacement Program to renew copper services with modern materials (CP Steel/HDPE Plastic)

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

z. For **material, weld or joint due to known problem materials** on the **Known Material** section, PEOPLES GAS will:

- revise construction procedures.

PEOPLES GAS will implement as follows:

Already Implemented. Per SME William Good, Supervisory Engineer, Standards Group. Electrofusion is the preferred method of joining plastic pipe.

- revise materials specifications.

PEOPLES GAS will implement as follows:

Already Implemented. Per SME William Good, Supervisory Engineer, Standards Group. Electrofusion is the preferred method of joining plastic pipe.

aa. For **equipment malfunctions due to failing valves** on the **Remote Oper Valves** section, PEOPLES GAS will:

- repair problem equipment and/or change settings.

PEOPLES GAS will implement as follows:

Already Implemented per SME Alonzo Foster - Supervisory Engineer Gas Operations. See PGL O&M Plan Exhibit XII - Gas Operations Manual.

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented per SME Alonzo Foster - Supervisory Engineer Gas Operations. See PGL O&M Plan Exhibit XII - Gas Operations Manual.

ab. For **external corrosion on coated, cathodically protected, steel mains and services** on the **Cathodic Protected, Coated Steel** section, PEOPLES GAS will:

- correct cathodic protection deficiencies by locating and eliminating shorts (including shorted casings) in this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- install additional test stations and evaluate in this portion of the distribution system

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- correct cathodic protection deficiencies by repairing or replacing or adding a rectifier or groundbed to the existing cathodic protection system in this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- correct cathodic protection deficiencies by replacing anode beds or add anodes section-wide in this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- correct cathodic protection deficiencies by installing supplemental anodes in problem areas in this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- correct cathodic protection deficiencies by mitigating interference problems in problem areas in this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- correct cathodic protection deficiencies by isolating CP systems and reevaluating problems in this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- correct cathodic protection deficiencies by bonding CP systems together and reevaluating problems in this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- For insulated corrosion protected services, remediation threshold has been increased from -.85V to -.95V.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X.

- Perform any required remediation on CP steel facilities within 12 months, instead of the 15 mandated by regulation.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- Monitor Rectifier Status, Voltage, and Current Outputs every eight days, instead of two months as required by regulations.

PEOPLES GAS will implement as follows:

Already Implemented. Rectifiers are equipped with remote monitoring units that store reads every two days, and upload them every 8 days.

ac. For **equipment malfunctions due to failing valves** on the **Network Valves** section, PEOPLES GAS will:

- repair problem equipment and/or change settings.

PEOPLES GAS will implement as follows:

Already Implemented: Valve inspections indicating failure are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit XII: Gas Operations Manual and Exhibit I: Distribution Manual General Order .600.

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented: Valve inspections indicating failure are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit XII: Gas Operations Manual and Exhibit I: Distribution Manual General Order .600.

ad. For **other threats** on the **Other Outside Force Damage - Crossbores** section, PEOPLES GAS will:

- Monitor or Trend these Failures.

PEOPLES GAS will implement as follows:

Already Implemented: System Integrity Engineer assigned to the Crossbore Inspection Program records all required inspections and found crossbores. See Appendix H - Mandatory Metrics and Performance Measures.

- Pre and Post camera work for main installations using any trenchless technologies. Daylighting all crossings.

Public outreach program to notify plumbers and homeowners of danger of rodding clogged sewers.

PEOPLES GAS will implement as follows:

Already Implemented: See Section 920: Operations and Maintenance manual: Damage Prevention Trenchless Technologies, General Order .801: Procedure and Policies for Addressing Legacy Sewer Crossbores, and PGL Administrative Directive FC 4.0: Use of Post Camera Technology to Document Directional Drill Path of Main.

ae. For **equipment malfunctions due to failing valves** on the **Gas Operations Distribution Valves** section, PEOPLES GAS will:

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented: Valve inspections indicating failure are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit I: Distribution Manual General Order .600.

af. For **equipment malfunctions due to failing valves** on the **Kerotest Valve** section, PEOPLES GAS will:

- repair problem equipment and/or change settings.

PEOPLES GAS will implement as follows:

Already Implemented: Valve inspections indicating failure are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit I: Distribution Manual General Order .600.

ag. For **other threats** on the **Excavation Damage - Critical Facilities** section, PEOPLES GAS will:

- Monitor or Trend these Failures.

PEOPLES GAS will implement as follows:

Already Implemented - All leaks are recorded in the system of record. Additionally, all damages to company property is recorded in the PGL Hit Database managed by System Integrity Group.

- All excavation activities near an identified critical facility are monitored on-site by company personnel, from initial excavation through final backfill. A daily email is generated by System Integrity Engineers detailing each critical excavation site, including the location, excavator, Dig #, Type of Work, and Facility Type and Size. Shut Down and Contingency Plans are developed for each proposed critical excavation in the event the facility is damaged. All boring near critical facilities is monitored.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IX: Damage Prevention Program and Exhibit I- Distribution Manual General Order .800, Section E: Proposed Excavations Near Critical Facilities.

ah. For **other threats** on the **Incorrect Operations - Non-Approved Material** section, PEOPLES GAS will:

- Monitor or Trend these Failures.

PEOPLES GAS will implement as follows:

As a result of the threat of unauthorized materials being installed, the Standards Group was developed in order to track and manage the types of materials that are approved for use.

ai. For **other threats** on the **Excavation Damage - Inactive Services** section, PEOPLES GAS will:

- Monitor or Trend these Failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record and tracked in Appendix H - Mandatory Metrics and Performance Measures

- Physical disconnects: 200 planned for 2015 and 250 planned for 2016. Alignment with AMRP retirements has also been considered. TEG Standard 1050 - Facility Deactivation and Abandonment was also established.

PEOPLES GAS will implement as follows:

Already Implemented in TEG 1050 detailed above.

aj. For **other threats** on the **Meters/Shutoffs Inaccessible** section, PEOPLES GAS will:

AG 4.01 Attach 05

- Accelerated Main Replacement Program to address inside meters. All inside meters to be moved outside when service is renewed. Any meters left inside require manager authorization.

PEOPLES GAS will implement as follows:

Already Implemented - See meter location totals in Appendix H - Mandatory Metrics and Performance Measures

ak. For **other threats** on the **Other - Soft Closed Accounts** section, PEOPLES GAS will:

- Develop procedure/directive to address soft closed accounts. Disconnect any soft closed account that has a pending ISI.

PEOPLES GAS will implement as follows:

Procedure to be developed by Compliance group in conjunction with Operations. Disconnects already implemented.

al. For **other threats** on the **Incorrect Operations - Improper Odorization** section, PEOPLES GAS will:

- Monitor or Trend these Failures.

PEOPLES GAS will implement as follows:

Already Implemented: Inspections are performed weekly at survey sites throughout PGL's Distribution System, and monthly through gas chromatography at Technical Training. Records of weekly and monthly odorant testing are maintained at District Shop Locations and by Gas Control. See PGL O&M Plan Exhibit III: Gas Control and Odorization.

am. For **other threats** on the **Corrosion - Cased Pipelines** section, PEOPLES GAS will:

- Monitor or Trend these Failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, casing and carrier reads are recorded by Corrosion Control Group Engineer responsible for the Casing Inspection project.

- All known casings are inspected annually. Casings requiring remediation are given to Engineering design and receive high importance due to the relative difficulty in repairs. Bi-Weekly status meetings between Corrosion Group and Engineering Design on pending casing remediation projects.

PEOPLES GAS will implement as follows:

Already Implemented - Also See Corrosion Control Orders 8.210: Carrier Casing Corrosion Inspection and 8.220: ACVG Survey for Testing Carrier-Casing Isolation

an. For **equipment malfunctions due to failing valves** on the **Distribution Valves** section, PEOPLES GAS will:

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented: Valve inspections indicating failure are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit I: Distribution Manual General Order .600.

ao. For **equipment malfunctions due to failing valves** on the **Service Valves** section, PEOPLES GAS will:

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Inoperable service valves are brought to the attention of the Distribution Department for repair or service pipe renewal.

- Accelerated Main Replacement Program - All new service line installations require an excess flow valve, and in almost all instances, the meter and shutoff is installed on the outside of the building, thereby eliminating the need for a buried valve.

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

ap. For **other threats** on the **Other Outside Force - Occupant Use** section, PEOPLES GAS will:

AG 4.01 Attach 05

- Any accounts that are currently inactive but showing usage are immediately ordered an additional disconnect request. If the meter is outside, or if there no active accounts at the premise, the disconnect order is completed within 5 days. Otherwise, the order is completed within 30 days, and all affected customers are notified of the pending disconnect. Consecutive Occupant Use Disconnect orders for the same address are issued a Distribution Cut-off (a physical disconnection from gas service.)

PEOPLES GAS will implement as follows:

Already Implemented per SME Brian Martinkus, Engineer Special Projects

C. The following Procedures to collect additional information needed to fill gaps:

a. The following gaps identified by PEOPLES GAS.

PEOPLES GAS will implement as follows:

No additional information needed.

## 11.2. LIST OF ANSWERS AND DATA SOURCES FROM SHRIMP™ INTERVIEWS

The following lists the interview responses and data sources entered during the threat assessments.

### Corrosion Threat

- Corrosion (CORR) (PEOPLES GAS - Entire System)**

- Interview Start (CORR)

Your Choice (weight: 0) --Continue

- How many leak repairs resulting from corrosion occurred during the years shown? (CORR-Leak)

*Data Source:*

PHMSA Annual Reports, compiled from R422 WAM Report

Your Choice (weight: 0) --

Table 11.1. Leak Repairs From PHMSA  
7100.1-1

End of Year	Corrosion		Totals	
	Mains	Services	Mains	Services
In 2005	62	99	62	99
In 2006	63	131	63	131
In 2007	116	209	116	209
In 2008	146	187	146	187
In 2009	94	211	94	211
In 2010	77	222	77	222
In 2011	45	159	45	159
In 2012	129	205	129	205
In 2013	104	158	104	158
In 2014	73	109	73	109

- Review the guidance. (ECMETALYES)

Your Choice (weight: 0) --Continue

- General System Description (EC101)

*Data Source:*

2014 PHMSA Annual Report, compiled from Service and Main Facility WAM Reports

Your Choice (weight: 0) --

Table 11.2. Material

	Mains	Services
Plastic	1602.707	454149
Unprotected, Bare	0.000	5227
Cathodically Protected, Bare	0.000	0
Unprotected, Coated	0.338	177
Cathodically Protected, Coated	1129.346	42591
Cast Iron, Wrought Iron	1360.874	72
Ductile Iron	233.980	275
Copper	0.000	13228
Other(1)	0.000	0
Other(2)	0.000	0

- o Mains By Size (EC101sm)

Data Source:

2014 PHMSA Annual Report, compiled from Service and Main Facility WAM Reports

Your Choice (weight: 0) --

Table 11.3. Material

	Unknown	2" or less	Over 2" thru 4"	Over 4" thru 8"	Over 8" thru 12"	Over 12"	Total
PVC	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PE	0.000	928.857	382.356	213.910	57.232	20.352	1602.707
ABS	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Steel	0.000	221.418	165.890	528.325	88.922	125.129	1129.684
Cast Iron, Wrought Iron	0.000	0.000	7.564	986.174	115.798	251.338	1360.874
Ductile Iron	0.000	0.000	0.001	155.075	23.969	54.935	233.980
Copper	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Other(1)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Other(2)	0.000	0.000	0.000	0.000	0.000	0.000	0.000

- o Services By Size (EC101ss)

Data Source:

2014 PHMSA Annual Report, compiled from Service and Main Facility WAM Reports

Your Choice (weight: 0) --

Table 11.4. Material

	Unknown	1" or less	Over 1" thru 2"	Over 2" thru 4"	Over 4" thru 8"	Over 8"	Total
PVC	0	0	0	0	0	0	0
PE	0	175130	261100	939	77	5	437251
ABS	0	0	0	0	0	0	0
Steel	0	2966	33602	10481	886	60	47995
Cast Iron, Wrought Iron	0	0	0	0	64	8	72
Ductile Iron	0	0	0	0	240	35	275
Copper	0	3	13225	0	0	0	13228
Other(1)	0	0	16898	0	0	0	16898
Other(2)	0	0	0	0	0	0	0

- o Does your plastic system contain isolated metallic fittings? (EC110)

Data Source:

WAM Facility Reports and Corrosion SME Max Meredith

Your Choice (weight: 0) --No

- o Provide Additional Information (EC101b)

Your Choice (weight: 0) --

▪ **Atmospheric Corrosion (CORRAC) (PEOPLES GAS - Entire System)**

- Interview Start (CORRAC)

Your Choice (weight: 0) --Continue

- Does PEOPLES GAS have any facilities that require atmospheric corrosion inspections? (CORRAC101)

*Data Source:*

PGL O&M Plan - Exhibit X - Corrosion Control Policy, Asset Manager

Your Choice (weight: 0) --Yes

- Over the past 15 years, have any atmospheric corrosion inspections found metal loss due to atmospheric corrosion? (CORRAC103)

*Data Source:*

Cfirst - inside atmospheric corrosion found during ISI LKMS WAM Reports R104/109 Cleared Leaks Bridge & Tunnel - inspection form Exposed Pipe Surveys Regulator Station Inspections Answered by M. Meredith

Your Choice (weight: 5) --Yes

- Over the past 15 years, have leaks caused by atmospheric corrosion required repair? (CORRAC104)

*Data Source:*

Cfirst - inside atmospheric corrosion found during ISI LKMS WAM Reports R104/109 Cleared Leaks Bridge & Tunnel - inspection form Exposed Pipe Surveys Regulator Station Inspections Answered by M. Meredith

Your Choice (weight: 5) --Yes

- Are repaired atmospheric corrosion leaks increasing? (CORRAC104a)

*Data Source:*

Cfirst - inside atmospheric corrosion found during ISI LKMS WAM Reports R104/109 Cleared Leaks Bridge & Tunnel - inspection form Residential Exposed Pipe Surveys (2005-2009 are averaged based on 2010-2014 totals) Regulator and Gate Station Leak Surveys Answered by M. Meredith

Your Choice (weight: 0) --

Table 11.5. End of Year

	<b>Leaks Repaired</b>
In 2005	30
In 2006	94
In 2007	77
In 2008	57
In 2009	56
In 2010	54
In 2011	31
In 2012	81
In 2013	27
In 2014	32

- SHRIMP has determined that leaks, failures or damages are not increasing.(see guidance).

Do you accept this determination? (CORRAC104dok)

*Data Source:*

Cfirst - inside atmospheric corrosion found during ISI LKMS WAM Reports R104/109 Cleared Leaks Bridge & Tunnel - inspection form Exposed Pipe Surveys Regulator Station Inspections Answered by M. Meredith

Your Choice (weight: 0) --Accept

- Your data and choices indicate that leaks are not increasing per year. (CORRAC104d)

Your Choice (weight: 0) --Continue

- Have inspections found problems with above ground pipe coatings that could not be fixed by routine maintenance? (CORRAC105)

*Data Source:*

Cfirst - inside atmospheric corrosion found during ISI LKMS WAM Reports R104/109 Cleared Leaks Bridge & Tunnel - inspection form Exposed Pipe Surveys Regulator Station Inspections Answered by M. Meredith

Your Choice (weight: 5) --Yes

- Are atmospheric corrosion leaks system-wide/uniform or concentrated in local areas or facilities? (CORRAC110)

*Data Source:*

Cfirst - inside atmospheric corrosion found during ISI LKMS WAM Reports R104/109 Cleared Leaks Bridge & Tunnel - inspection form Exposed Pipe Surveys Regulator Station Inspections Answered by M. Meredith

Your Choice (weight: 0) --Concentrated

- Do you want to section your system into areas of concentrated atmospheric corrosion and/or for certain facilities? (CORRAC111)

*Data Source:*

Answered by M. Meredith

Your Choice (weight: 0) --Yes

- Enter sections or facilities of concentrated atmospheric corrosion (CORRAC112)

*Data Source:*

Inside Atmospheric Corrosion - ISI inspection list from SPFS Engineer B, Martinkus. Outside Atmospheric Corrosion - WAM R45 Service Component Report Bridge and Tunnels - System Integrity Inspection Reports

Your Choice (weight: 0) --

Table 11.6. Section

	Facility	
	Number of Facilities	Description
Inside Atmospheric Corrosion	288012	Inside Service Pipe
Outside Atmospheric Corrosion	280538	Outside Service Riser Pipe
Bridges and Tunnels	32	Bridge and Tunnel Inspections
	0	
	0	
	0	
	0	
	0	
	0	
ConcAtmo_09	0	

- Provide Additional Information (CORRAC112a)

Your Choice (weight: 0) --

- o **Atmospheric Corrosion (CORRAC-1a) (Inside Atmospheric Corrosion - Inside Service Pipe)**

- Interview Start (CORRAC-1a)

Your Choice (weight: 0) --Continue

- Does PEOPLES GAS have any facilities that require atmospheric corrosion inspections? (CORRAC101)

*Data Source:*

WAM Facility Reports

Your Choice (weight: 0) --Yes

- Over the past 15 years, have any atmospheric corrosion inspections found metal loss due to atmospheric corrosion? (CORRAC103)

*Data Source:*

Inside Safety Inspections that indicate existing corrosion.

Your Choice (weight: 5) --Yes

- Over the past 15 years, have leaks caused by atmospheric corrosion required repair? (CORRAC104)

*Data Source:*

CFirst - Inside Safety Inspections that indicate existing corrosion and resulting in a leak.

Your Choice (weight: 5) --Yes

- Are repaired atmospheric corrosion leaks increasing? (CORRAC104a)

*Data Source:*

CFirst - Inside Safety Inspections that indicate existing corrosion and resulting in a leak.

Your Choice (weight: 0) --

Table 11.7. End of Year

	<b>Leaks Repaired</b>
In 2005	14
In 2006	77
In 2007	59
In 2008	36
In 2009	35
In 2010	22
In 2011	26
In 2012	54
In 2013	16
In 2014	22

- SHRIMP has determined that leaks, failures or damages are not increasing. **(see guidance)**.

Do you accept this determination? (CORRAC104dok)

Your Choice (weight: 0) --Accept

- Your data and choices indicate that leaks are not increasing per year. (CORRAC104d)

Your Choice (weight: 0) --Continue

- Have inspections found problems with above ground pipe coatings that could not be fixed by routine maintenance? (CORRAC105)

*Data Source:*

CFirst - Inside Safety Inspections that indicate existing corrosion and resulting in a leak.

Your Choice (weight: 5) --Yes

- Review the guidance. (CORRACCSQ0)

Your Choice (weight: 0) --Continue

- Are the pressure and/or diameter of this section greater than or about the same as the system as a whole? (CORRACCSQ1)

*Data Source:*

Wam Facility reports. Diameters within this section are generally 2" and less and medium and low pressures.

Your Choice (weight: 0) --About the same

- Is this section predominantly located in business districts or outside business districts (as those are defined for leak survey)? (CORRACCSQ2)

*Data Source:*

WAM Facility Reports- Majority of pipes within this section are residential.

Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (CORRACCSQ3)

*Data Source:*

CFirst Leak Response Time reporting.

Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this section were to fail? (CORRACCSQ4)

*Data Source:*

This section relates to service pipes only.

Your Choice (weight: 0) --Low

○ **Atmospheric Corrosion (CORRAC-1a) (Outside Atmospheric Corrosion - Outside Service Riser Pipe)**

- Interview Start (CORRAC-1a)

Your Choice (weight: 0) --Continue

- Does PEOPLES GAS have any facilities that require atmospheric corrosion

inspections? (CORRAC101)

*Data Source:*

WAM Facility Reports.

Your Choice (weight: 0) --Yes

- Over the past 15 years, have any atmospheric corrosion inspections found metal loss due to atmospheric corrosion? (CORRAC103)

*Data Source:*

WAM R99 Inspection Report. Exposed Pipe Inspections that resulted in a leak condition.

Your Choice (weight: 5) --Yes

- Over the past 15 years, have leaks caused by atmospheric corrosion required repair? (CORRAC104)

*Data Source:*

WAM R99 Inspection Report. Exposed Pipe Inspections that resulted in a leak condition.

Your Choice (weight: 5) --Yes

- Are repaired atmospheric corrosion leaks increasing? (CORRAC104a)

*Data Source:*

2005-2009 leak numbers are averaged. 2010-2014 leak numbers from exposed Pipe Inspections that resulted in a leak condition.

Your Choice (weight: 0) --

Table 11.8. End of Year

	<b>Leaks Repaired</b>
In 2005	15
In 2006	15
In 2007	15
In 2008	15
In 2009	15
In 2010	24
In 2011	5
In 2012	27
In 2013	11
In 2014	9

- SHRIMP has determined that leaks, failures or damages are not increasing. **(see guidance)**.

Do you accept this determination? (CORRAC104dok)

Your Choice (weight: 0) --Accept

- Your data and choices indicate that leaks are not increasing per year. (CORRAC104d)

Your Choice (weight: 0) --Continue

- Have inspections found problems with above ground pipe coatings that could not be fixed by routine maintenance? (CORRAC105)

*Data Source:*

WAM R99 Inspection Report. Exposed Pipe Inspections that resulted in a leak condition.

Your Choice (weight: 5) --Yes

- Review the guidance. (CORRACCSQ0)

Your Choice (weight: 0) --Continue

- Are the pressure and/or diameter of this section greater than or about the same as the system as a whole? (CORRACCSQ1)

*Data Source:*

Pipes within this section are services generally 2" or less and low and medium pressure.

Your Choice (weight: 0) --About the same

- Is this section predominantly located in business districts or outside business districts (as those are defined for leak survey)? (CORRACCSQ2)

*Data Source:*

WAM Facility Reports

Your Choice (weight: 0) --Outside Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (CORRACCSQ3)

*Data Source:*

CFirst Leak Response Time reporting.

Your Choice (weight: 0) --Less than one (1) hour

- What would be the impact on the utility and its customers if this section were to fail? (CORRACCSQ4)

*Data Source:*

Section relates to service pipes only.

Your Choice (weight: 0) --Low

- **Atmospheric Corrosion (CORRAC-1a) (Bridges and Tunnels - Bridge and Tunnel Inspections)**

- Interview Start (CORRAC-1a)

Your Choice (weight: 0) --Continue

- Does PEOPLES GAS have any facilities that require atmospheric corrosion inspections? (CORRAC101)

*Data Source:*

WAM Facility Reports

Your Choice (weight: 0) --Yes

- Over the past 15 years, have any atmospheric corrosion inspections found metal loss due to

atmospheric corrosion? (CORRAC103)

*Data Source:*

Bridge and Tunnel Inspection Forms

Your Choice (weight: 5) --Yes

- Over the past 15 years, have leaks caused by atmospheric corrosion required repair? (CORRAC104)

*Data Source:*

Bridge and Tunnel Inspection Forms

Your Choice (weight: 0) --No

- Have inspections found problems with above ground pipe coatings that could not be fixed by routine maintenance? (CORRAC105)

*Data Source:*

Bridge and Tunnel Inspection Forms

Your Choice (weight: 5) --Yes

- Review the guidance. (CORRACCSQ0)

Your Choice (weight: 0) --Continue

- Are the pressure and/or diameter of this section greater than or about the same as the system as a whole? (CORRACCSQ1)

*Data Source:*

Generally, pipelines that are crossing Bridges/Tunnels are larger size and/or pressure than the rest of the system as a whole. Answered by SME Max Meredith - Engineer Corrosion Control Group

Your Choice (weight: 0.2) --Substantially greater

- Is this section predominantly located in business districts or outside business districts (as those are defined for leak survey)? (CORRACCSQ2)

*Data Source:*

Bridge and Tunnel Inspection Forms

Your Choice (weight: 0.15) --Within Business Districts

- How long would it typically take utility crews to reach this part of the system after receiving notice of a possible failure? (CORRACCSQ3)

*Data Source:*

Because of the inherent location of this section, reaching the point of the leak would take somewhat more time than a standard leak. Answered by SME Max Meredith - Engineer Corrosion Control Group

Your Choice (weight: 0.025) --Between one (1) and two (2) hours

- What would be the impact on the utility and its customers if this section were to fail? (CORRACCSQ4)

*Data Source:*

Generally, pipelines in this section are larger diameter and higher pressure than the rest of the system as a whole.

Your Choice (weight: 0.1) --High

■ **External Corrosion (CORRECSTL-UB) (Unprotected, Bare Steel - Entire System)**

- Interview Start (CORRECSTL-UB)

Your Choice (weight: 0) --Continue

- Risk assigned for protected versus unprotected (AR-1u)

Your Choice (weight: 5) --Unprotected

- Risk assigned for coated versus bare (AR-2b)

Your Choice (weight: 3) --Bare

- Are repaired corrosion leaks per mile increasing? (EC102)

*Data Source:*

From PHMSA Annual Reports (2010-2014)

Your Choice (weight: 0) --

Table 11.9. End of Year

	Miles of Mains	Corrosion Leaks Repaired	Repaired Leaks/mile
In 2005	0.000	0	0.000
In 2006	0.000	0	0.000
In 2007	0.000	0	0.000
In 2008	0.000	0	0.000
In 2009	0.000	0	0.000
In 2010	0.000	0	0.000
In 2011	0.000	0	0.000
In 2012	0.000	0	0.000
In 2013	0.000	0	0.000
In 2014	0.000	0	0.000

- SHRIMP has determined that leaks, failures or damages are not increasing. **(see guidance)**.

Do you accept this determination? (EC252ok)

Your Choice (weight: 0) --Accept

- Your data and choices indicate that repaired leaks per mile of mains are not increasing. (EC252)

Your Choice (weight: 0) --Continue

- Are repaired corrosion leaks per service increasing? (EC201)

*Data Source:*

{HMSA 7100 Reports for Facility data. LKMS Database for 2005-2009 Leaks WAM R104 for Corrosion Leaks Repaired (2010-2014).

Your Choice (weight: 0) --

Table 11.10. End of Year

	Number of Services	Corrosion Leaks Repaired	Repaired Leaks/service
In 2005	6957	46	0.007
In 2006	6735	51	0.008
In 2007	6497	76	0.012
In 2008	6198	71	0.011
In 2009	5922	100	0.017
In 2010	6295	34	0.005
In 2011	6250	9	0.001
In 2012	6098	14	0.002
In 2013	5677	37	0.007
In 2014	5227	20	0.004

- SHRIMP has determined that leaks, failures or damages are not increasing. **(see guidance)**.

Do you accept this determination? (EC254ok)

Your Choice (weight: 0) --Accept

- Your data and choices indicate that repaired leaks per service are not increasing. (EC254)

Your Choice (weight: 0) --Continue

- Do exposed pipe inspections indicate a corrosion problem? (EC202)

*Data Source:*

LKMS Database, WAM Leak Reporting

Your Choice (weight: 1) --Yes

- Are repaired corrosion leaks, areas of known corrosion or low CP levels system-wide/uniform or concentrated in local areas? (EC301)

*Data Source:*

R104/109 Cleared Leaks Report 2010-2014. Bare Steel Service Leaks divided by District (North=39.5%, Central=34.5%, South=25.9%)

Your Choice (weight: 0) --Uniform

- Have confirmed corrosion leaks occurred on this section? (EC701)

*Data Source:*

WAM R104/109 Leak Reports

Your Choice (weight: 1) --Yes

- Does section contain leaks found and being monitored that are suspected to be corrosion related and reflect a corrosion problem? (EC702)

*Data Source:*

Suspected leaks on Buried Bare Steel are generally repaired immediately, with pipe renewal being the main method of repair.

Your Choice (weight: 0) --No