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IN REPLY REFER TO:

Ansley Watson, Jr.
P.O. Box 1531
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e-mail: aw@macfar.com

March 8, 2012

VIA FEDEX

Ann Cole
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: **Docket No. 110320-GU -- Petition for approval of Cast Iron/Bare Steel Pipe Replacement Rider (Rider CI/BSR), by Peoples Gas System**

Dear Ms. Cole:

Enclosed for filing with the Commission on behalf of Peoples Gas System, please find the original and five (5) copies of Peoples' responses to the Commission Staff's First Data Request dated February 17,2012 in the above docket.

Please acknowledge your receipt of the enclosures on the enclosed copy of this letter, and return the same to me in the enclosed preaddressed envelope.

Thank you for your usual assistance.

Sincerely,

Ansley Watson

Ansley Watson, Jr.

AWjr/a
Enclosures

cc: Martha C. Brown, Esquire
Ms. Kandi M. Floyd

COM ____
APA ____
ECR 3
GCL 1
RAD ____
SRC 1
ADM ____
OPC ____
CLK ____

PEOPLES GAS SYSTEM
DOCKET NO. 110320-GU
STAFF'S FIRST DATA REQUEST
REQUEST NO. 1
BATES STAMPED PAGE: 1
FILED: MARCH 9, 2012

1. What procedures will Peoples use to determine the order of replacement of cast iron and bare steel pipelines?

A. Peoples will utilize a risk-based prioritization process to determine the order of replacement of cast iron and bare steel pipelines. This prioritization will be driven largely utilizing the following factors:

a. Distribution Integrity Management Program ("DIMP")
b. Leak incident rates
c. Pressure under which the pipeline is operating
d. Areas of significant construction (municipal improvement projects, etc.)
e. Age of pipeline

2. How many miles of each type of pipeline will be replaced each year?

A. Peoples' system is comprised of approximately 156 miles of cast iron and 411 miles of bare steel for a total of 567 system miles plus associated service lines[1]. Of that total, Peoples plans to replace approximately 57 miles (10%) per year based on the prioritization listed in response to Data Request 1.

(1) Based on 2010 DOT reports filed with the Commission.

3. What procedures will be used to notify the public of the pipeline replacement activity?

A. While Peoples does not anticipate any special notification requirements for replacement projects, Peoples will continue to notify affected customers via door hangers and/or other outreach materials as currently is the standard for replacement projects.

4. Will Peoples agree to provide quarterly reports to the Commission on the progress of its replacement program, including the location of the replacements and whether the location is in a high consequence area, the mileage of pipeline replaced, the type of materials used, and the date the replacement pipeline was put into service?

A. Yes, Peoples will agree to provide quarterly progress reports to the Commission. Upon approval of the program, Peoples would meet with Staff to determine the standard components that should be included in the quarterly report. Additionally, the Commission will be able to request additional information through discovery in connection with the scheduled cost recovery process.

5. Will Peoples use the standard notice of construction to the Commission so that the Commission's engineers can evaluate the construction of the replacement pipeline?

A. Per Rule 25-12.082, Florida Administrative Code (Construction Notice), Peoples will use the standard notice of construction when required.

6. Will Peoples be using its own employee inspectors for the replacement pipeline or will it contract out the inspections? If they are contracted out, who will be hired to conduct the inspections?

A. Peoples will use a combination of internal and external inspectors to complete the work according to the Company's construction standards. As of the date of this response, Peoples has not determined which external contractors or firms will be utilized.

7. What type of materials will be used for the replacement pipeline?

A. Generally polyethylene (PE) pipe will be utilized; however, some coated steel may be utilized where appropriate in order to maintain system integrity and operational requirements.

8. Please identify by type the total dollar amount of any projected Operations and Maintenance (O&M) expenses that Peoples Gas expects to incur to replace the Cast Iron/Bare Steel Pipe during the period of July 2012 through December 2012.

A. While Peoples may incur some nominal O&M costs related to replacement activities, the Company does not anticipate seeking recovery through the Cast Iron / Bare Steel rider of any O&M expense for the replacement of Cast Iron / Bare Steel pipe during the period of July 2012 through December 2012.

9. Please identify by type the total dollar amount of any projected O&M expenses that PGS expects to incur annually to replace the Cast Iron/Bare Steel Pipe during the period of January 2013 through December 2022.

A. While Peoples may incur some nominal O&M costs related to replacement activities, Peoples is not projecting recovery of any O&M expense for the replacement of Cast Iron / Bare Steel pipe during the period of January 2013 through December 2022.

10. Please identify by type the total dollar amount of O&M expenses that PGS seeks to recover annually through the Cast Iron/Bare Steel Pipe Replacement Rider revenues during the period of July 2012 through December 2022.

A. While Peoples may incur some nominal O&M costs related to replacement activities, Peoples is not projecting recovery of any O&M expenses for the replacement of Cast Iron / Bare Steel pipe during the period of July 2012 through December 2022.

11. Please provide the foundations/assumptions utilized to determine the need for an additional $7 million of annual investment ($583,333 monthly) for the acceleration of the replacement of the bare steel and cast iron pipe currently in its distribution system, including all findings associated with the "assessment" completed in August 2011 that is cited on page 6 of the Petition.

A. Peoples plans to spend approximately $8 million annually replacing cast iron and bare steel pipe with approximately $7 million of that amount proposed to be recovered through the Cast Iron / Bare Steel rider. In Exhibit C, Peoples levelized the $7 million amount, which resulted in a monthly $583,333 for main replacement capital costs. Upon implementation of the rider, Peoples anticipates replacement dollars spent for main, services and regulator replacements to be approximately $8 million annually. The assumptions for the $7 million annual investment to be recovered through the rider is based upon a historical review of main replacement costs and the future cost to replace facilities based on current contractor pricing for the company's east and west regions. The complexity of the work in certain urban areas such as Dade and Broward counties where local government and other agencies must be notified and specific procedures must be utilized in handling the replacement can increase the cost of replacement dramatically. Conversely, in less densely populated areas the costs may be significantly lower as the level of work and procedures needed to complete the task may not be as robust. It is worth noting that the estimated total replacement cost of $80 million (consisting of $36.3 million for the west region and $36 million for the east region, plus a 10 percent contingency) is just an estimate. Peoples will true-up the costs and only recover the actual dollars incurred for the replacement of cast iron and bare steel pipe and exclude the $1 million already contemplated in base rates.

12. On Exhibit C, starting on page 22, the proposed average rate of capital investments, return on average net investment, and property taxes relating to the Cast Iron/Bare Steel Replacement (CI/BSR) program are shown, by month, for the ten year duration of the program.

a. Please provide a detailed breakdown of the expected annual investment amount of $7 million. Please identify all plant accounts and subaccounts to which the CI/BSR capital items will be recorded and any capitalized overhead expenses.

b. Please provide support for the capital structure utilized in developing the required returns shown on lines 7a and 7b of Exhibit C.

c. Please provide the calculations used to arrive at the 8.5710% used in calculating the "Equity component Grossed up for taxes" shown on line 7a of Exhibit C.

d. Please provide the calculations used to arrive at the 3.2907% used in calculating the "Debt component" shown on line 7b of Exhibit C.

e. Please provide support for the Ad Valorem Tax Rate of 1.35% used in calculating the "Property Taxes" shown on line 8d of Exhibit C.

A.

a. Peoples anticipates approximately 70% of total annual expenditures will be for main replacement and 30% of total annual expenditures for services. See breakdown of investment:

ANNUAL CAST IRON / BARE STEEL INVESTMENT					
Annual Main Investment			Annual Service Line Investment		
Steel	Plastic	Total	Steel	Plastic	Total
$490,000	$4,410,000	$4,900,000	$105,000	$1,995,000	$2,100,000

b. The capital structure utilized in developing the required debt and equity returns for the construction work in progress as well as the undepreciated plant in service balance reflected in Exhibit C is from jurisdictional rate base approved in Peoples last rate case. The attached schedule provides a breakdown of the various capital structure components used.

c. Please refer to the schedule attached as a response to 12 b. Please note that the equity return on Exhibit C should be 8.4897% instead of the 8.5710% reflected in Peoples petition.

d. Please refer to the schedule attached as a response to 12 b.

e. Please refer to the attached schedule that includes the updated 2011 composite tax property rate of 1.79% on Exhibit C. This was developed from actual 2011 property tax bills in the counties where Peoples has identified property. Additionally, property taxes are assessed in the calendar year following the year in which the asset has been placed in service; therefore no property taxes will be paid in year 1 and has been reflected in the attached schedule.

*Revised Exhibits C, D and E from the original petition are attached to this response as the changes reflected in Exhibit C slightly impact Exhibits D and E.

Peoples Gas Company
Cast Iron Bare Steel Rider
Calculation of Debt and Equity Return

Calculation of Revenue Requirement Rate of Return
(In Dollars)

	(1)	(2)	(3)	(4)
	Jurisdictional Rate Base 2009 Test Year ($000)	Ratio %	Cost Rate %	Weighted Cost Rate %
Long Term Debt	$ 221,546	39.50%	7.20%	2.8440%
Short Term Debt	3,437	0.61%	3.02%	0.0184%
Preferred Stock	0	0.00%	0.00%	0.0000%
Customer Deposits	36,129	6.44%	6.65%	0.4283%
Common Equity	272,054	48.51%	10.75%	5.2148%
Deferred ITC - Zero Cost	8	0.00%	0.00%	0.0000%
Accumulated Deferred Income Taxes - Zero Cost ITCs	27,671	4.93%	0.00%	0.0000%
Total	$ 560,845	100.00%		8.5055%

ITC split between Debt and Equity:

Long Term Debt	$ 221,546	Long Term Debt	44.57%
Short Term Debt	3,437	Short Term Debt	0.69%
Equity - Preferred	0	Equity - Preferred	0.00%
Equity - Common	272,054	Equity - Common	54.74%
Total	$ 497,037	Total	100.00%

Deferred ITC - Weighted Cost:

Debt = .0% * 45.26%	0.0000%
Equity = .0% * 54.74%	0.0000%
Weighted Cost	0.0000%

Total Equity Cost Rate:

Preferred Stock	0.0000%
Common Equity	5.2148%
Deferred ITC - Weighted Cost	0.0000%
	5.2148%
Times Tax Multiplier	1.628002
Total Equity Component	8.4897%

Total Debt Cost Rate:

Long Term Debt	2.8440%
Short Term Debt	0.0184%
Customer Deposits	0.4283%
Deferred ITC - Weighted Cost	0.0000%
Total Debt Component	3.2907%

Notes:
Column (1) - From Order No. PSC-09-0411-FOF-GU
Column (2) - Column (1) / Total Column (1)
Column (3) - From Order No. PSC-09-0411-FOF-GU
Column (4) - Column (2) x Column (3)

Peoples Gas System
2011 Property Tax Rate

	Assessment	Tax	Tax Rate
TOTAL	560,169,131	$10,017,106	1.79%

	County	Assessment	Tax	Tax Rate
1	Baker	1,323,196	$20,795.42	1.57%
2	Bay	13,231,584	$164,284.49	1.24%
3	Bradford	42,500	$709.80	1.67%
4	Broward	27,746,159	$566,581.79	2.04%
5	Charlotte	7,836,690	$126,299.84	1.61%
6	Clay	4,938,578	$76,611.80	1.55%
7	Collier	10,899,401	$120,560.61	1.11%
8	Columbia	170,994	$2,791.65	1.63%
9	Dade	31,963,789	$692,721.47	2.17%
10	Duval	48,975,812	$847,386.87	1.73%
11	Flagler	80,939,601	$1,540,108.34	1.90%
12	Hardee	439,006	$7,128.93	1.62%
13	Hernando	3,622,662	$54,016.57	1.49%
14	Highlands	1,092,474	$21,843.18	2.00%
15	Hillsborough	70,219,120	$1,409,591.88	2.01%
16	Lafayette	32,000	$520.41	1.63%
17	Lake	13,850,703	$233,964.25	1.69%
18	Lee	25,354,306	$430,008.78	1.70%
19	Leon	163,319	$2,638.86	1.62%
20	Levy	172,626	$2,614.35	1.51%
21	Liberty	49,620	$849.81	1.71%
22	Manatee	24,975,251	$384,465.62	1.54%
23	Marion	19,096,167	$306,389.89	1.60%
24	Martin	2,090,679	$35,889.92	1.72%
25	Nassau	42,328	$784.72	1.85%
26	Orange	41,624,771	$736,579.60	1.77%
27	Osceola	9,223,492	$155,276.31	1.68%
28	Palm Beach	11,405,040	$238,564.96	2.09%
29	Pasco	9,759,807	$153,378.08	1.57%
30	Pinellas	20,281,306	$385,895.67	1.90%
31	Polk	12,920,575	$228,955.93	1.77%
32	Putnam	2,080,749	$34,172.16	1.64%
33	Sarasota	19,575,461	$279,712.72	1.43%
34	Seminole	6,563,427	$105,057.07	1.60%
35	St. Johns	15,007,784	$236,833.12	1.58%
36	St. Lucie	1,484,271	$34,931.59	2.35%
37	Sumter	9,810,000	$124,404.61	1.27%
38	Union	4,750	$86.47	1.82%
39	Volusia	11,033,495	$251,636.66	2.28%
40	Wakulla	125,638	$2,062.23	1.64%

Peoples Gas System

Cast Iron / Bare Steel Replacement Program
Calculation of the Projected Amount for the Period
January 2012 to December 2012

Return on Capital Investments, Depreciation and Taxes for Eligible Replacements

Line Description	January	February	March	April	May	June	July	August	September	October	November	December	End of Period Total
1. Investments													
a. Eligible Replacements - Mains	$ -	$ -	$ -	$ -	$ -	$ -	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 3,500,000
b. Eligible Replacements - Services	0	0	0	0	0	0	0	0	0	0	0	0	
c. Eligible Replacements - Regulators	0	0	0	0	0	0	0	0	0	0	0	0	
d. Other	0	0	0	0	0	0	0	0	0	0	0	0	
2. Gross Plant-in-Service/Depreciation Base	$ -	$ -	$ -	$ -	$ -	$ -	$ 583,333	$ 1,166,667	$ 1,750,000	$ 2,333,333	$ 2,916,667	$ 3,500,000	
3. Less: Accumulated Depreciation	0	0	0	0	0	0	(1,507)	(4,521)	(9,042)	(15,069)	(22,604)	(31,646)	
4. CWIP - NonInterest Bearing	0	0	0	0	0	0	583,333	583,333	583,333	583,333	583,333	583,333	
5. Net Book Value (Lines 2 + 3 + 4)	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,165,159	$ 1,745,479	$ 2,324,291	$ 2,901,597	$ 3,477,396	$ 4,051,687	
6. Average Net Investment	$ -	$ -	$ -	$ -	$ -	$ -	$ 582,580	$ 1,455,319	$ 2,034,885	$ 2,612,944	$ 3,189,496	$ 3,764,541	
7. Return on Average Net Investment													
a. Equity component Grossed up for taxes (A)	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,122	$ 10,296	$ 14,396	$ 18,486	$ 22,565	$ 26,633	$ 96,498
b. Debt component (B)	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,598	$ 3,991	$ 5,580	$ 7,165	$ 8,746	$ 10,323	$ 37,403
8. Investment Expenses													
a. Depreciation (C)	0	0	0	0	0	0	1,507	3,014	4,521	6,028	7,535	9,042	31,646
b. Amortization	0	0	0	0	0	0	0	0	0	0	0	0	0
c. Property Taxes (D)	0	0	0	0	0	0	0	0	0	0	0	0	0
d. Other	0	0	0	0	0	0	0	0	0	0	0	0	0
9. Revenue Requirements (Lines 7 + 8)	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,227	$ 17,301	$ 24,497	$ 31,679	$ 38,846	$ 45,998	$ 165,547

Notes:
(A) Line 6 x 8.4897% x 1/12. Based on ROE of 10.75%, and weighted income tax rate of 38.575%, expansion factor of 1.628002.
(B) Line 6 x 3.2907% x 1/12.
(C) Applicable depreciation rate is .26%
(D) Ad Valorem Tax Rate is 1.79%

PEOPLES GAS SYSTEM
DOCKET NO. 110320-GU
STAFF'S FIRST DATA REQUEST
REVISED SCHEDULES EXHIBIT C
FILED: MARCH 9, 2012

Peoples Gas System

Cast Iron / Bare Steel Replacement Program
Calculation of the Projected Amount for the Period
January 2013 to December 2013

Return on Capital Investments, Depreciation and Taxes for Eligible Replacements

Line Description	Beginning of Period Amount	January	February	March	April	May	June	July	August	September	October	November	December	End of Period Total
1. Investments														
a. Eligible Replacements - Mains		$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 7,000,000
b. Eligible Replacements - Services		0	0	0	0	0	0	0	0	0	0	0	0	
c. Eligible Replacements - Regulators		0	0	0	0	0	0	0	0	0	0	0	0	
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	
2. Gross Plant-in-Service/Depreciation Base	$ 3,500,000	$ 4,083,333	$ 4,666,667	$ 5,250,000	$ 5,833,333	$ 6,416,667	$ 7,000,000	$ 7,583,333	$ 8,166,667	$ 8,750,000	$ 9,333,333	$ 9,916,667	$ 10,500,000	
3. Less: Accumulated Depreciation	(31,646)	(42,194)	(54,250)	(67,813)	(82,882)	(99,458)	(117,542)	(137,132)	(158,229)	(180,833)	(204,944)	(230,563)	(257,688)	
4. CWIP - NonInterest Bearing	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	
5. Net Book Value (Lines 2 + 3 + 4)	$ 4,051,687	$ 4,624,472	$ 5,195,750	$ 5,765,521	$ 6,333,784	$ 6,900,541	$ 7,465,791	$ 8,029,534	$ 8,591,771	$ 9,152,500	$ 9,711,722	$ 10,269,437	$ 10,825,646	
6. Average Net Investment		$ 4,125,528	$ 4,910,111	$ 5,480,635	$ 6,049,652	$ 6,617,163	$ 7,183,166	$ 7,747,663	$ 8,310,652	$ 8,872,135	$ 9,432,111	$ 9,990,580	$ 10,547,541	
7. Return on Average Net Investment														
a. Equity component Grossed up for taxes (A)		$ 29,187	$ 34,738	$ 38,774	$ 42,800	$ 46,815	$ 50,819	$ 54,813	$ 58,796	$ 62,768	$ 66,730	$ 70,681	$ 74,621	$ 631,542
b. Debt component (B)		$ 11,313	$ 13,465	$ 15,029	$ 16,590	$ 18,146	$ 19,698	$ 21,246	$ 22,790	$ 24,330	$ 25,865	$ 27,397	$ 28,924	$ 244,793
8. Investment Expenses														
a. Depreciation (C)		10,549	12,056	13,563	15,069	16,576	18,083	19,590	21,097	22,604	24,111	25,618	27,125	226,042
b. Amortization		0	0	0	0	0	0	0	0	0	0	0	0	0
c. Property Taxes (D)		4,303	4,303	4,303	4,303	4,303	4,303	4,303	4,303	4,303	4,303	4,303	4,303	51,642
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	0
9. Revenue Requirements (Lines 7 + 8)		$ 55,352	$ 64,562	$ 71,669	$ 78,763	$ 85,841	$ 92,904	$ 99,953	$ 106,987	$ 114,006	$ 121,010	$ 128,000	$ 134,973	$ 1,154,019

Notes:

(A) Line 6 x 8.4897% x 1/12. Based on ROE of 10.75%, and weighted income tax rate of 38.575%, expansion factor of 1.628002.
(B) Line 6 x 3.2907% x 1/12.
(C) Applicable depreciation rate is .26%
(D) Ad Valorem Tax Rate is 1.79%

Peoples Gas System

Cast Iron / Bare Steel Replacement Program
Calculation of the Projected Amount for the Period
January 2014 to December 2014

Return on Capital Investments, Depreciation and Taxes for Eligible Replacements

Line Description	Beginning of Period Amount	January	February	March	April	May	June	July	August	September	October	November	December	End of Period Total
1. Investments														
a. Eligible Replacements - Mains		$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 7,000,000
b. Eligible Replacements - Services		0	0	0	0	0	0	0	0	0	0	0	0	
c. Eligible Replacements - Regulators		0	0	0	0	0	0	0	0	0	0	0	0	
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	
2. Gross Plant-in-Service/Depreciation Base	10,500,000	$ 11,083,333	$ 11,666,667	$ 12,250,000	$ 12,833,333	$ 13,416,667	$ 14,000,000	$ 14,583,333	$ 15,166,667	$ 15,750,000	$ 16,333,333	$ 16,916,667	$ 17,500,000	
3. Less: Accumulated Depreciation	(257,688)	(286,319)	(316,458)	(348,104)	(381,257)	(415,917)	(452,083)	(489,757)	(528,938)	(569,625)	(611,819)	(655,521)	(700,729)	
4. CWIP - NonInterest Bearing	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	
5. Net Book Value (Lines 2 + 3 + 4)	$ 10,825,646	$ 11,380,347	$ 11,933,541	$ 12,485,229	$ 13,035,409	$ 13,584,083	$ 14,131,250	$ 14,676,909	$ 15,221,062	$ 15,763,708	$ 16,304,847	$ 16,844,479	$ 17,382,604	
6. Average Net Investment		$ 11,102,996	$ 11,656,944	$ 12,209,385	$ 12,760,319	$ 13,309,746	$ 13,857,666	$ 14,404,080	$ 14,948,986	$ 15,492,385	$ 16,034,277	$ 16,574,663	$ 17,113,541	
7. Return on Average Net Investment														
a. Equity component Grossed up for taxes (A)		$ 78,551	$ 82,470	$ 86,378	$ 90,276	$ 94,163	$ 98,040	$ 101,905	$ 105,760	$ 109,605	$ 113,439	$ 117,262	$ 121,074	$ 1,198,923
b. Debt component (B)		$ 30,447	$ 31,966	$ 33,481	$ 34,992	$ 36,499	$ 38,001	$ 39,500	$ 40,994	$ 42,484	$ 43,970	$ 45,452	$ 46,930	$ 464,716
8. Investment Expenses														
a. Depreciation (C)		28,632	30,139	31,646	33,153	34,660	36,167	37,674	39,181	40,688	42,194	43,701	45,208	443,042
b. Amortization		0	0	0	0	0	0	0	0	0	0	0	0	0
c. Property Taxes (D)		14,408	14,408	14,408	14,408	14,408	14,408	14,408	14,408	14,408	14,408	14,408	14,408	172,896
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	0
9. Revenue Requirements (Lines 7 + 8)		$ 152,038	$ 158,983	$ 165,913	$ 172,829	$ 179,730	$ 186,616	$ 193,487	$ 200,343	$ 207,184	$ 214,011	$ 220,823	$ 227,620	$ 2,279,576

Notes:
(A) Line 6 x 8.4897% x 1/12. Based on ROE of 10.75%, and weighted income tax rate of 38.575%, expansion factor of 1.628002.
(B) Line 6 x 3.2907% x 1/12.
(C) Applicable depreciation rate is .26%
(D) Ad Valorem Tax Rate is 1.79%

PEOPLES GAS SYSTEM
DOCKET NO. 110320-GU
STAFF'S FIRST DATA REQUEST
REVISED SCHEDULES EXHIBIT C
FILED: MARCH 9, 2012

Peoples Gas System

Cast Iron / Bare Steel Replacement Program
Calculation of the Projected Amount for the Period
January 2015 to December 2015

Return on Capital Investments, Depreciation and Taxes for Eligible Replacements

Line Description	Beginning of Period Amount	January	February	March	April	May	June	July	August	September	October	November	December	End of Period Total
1. Investments														
a. Eligible Replacements - Mains		$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 7,000,000
b. Eligible Replacements - Services		0	0	0	0	0	0	0	0	0	0	0	0	
c. Eligible Replacements - Regulators		0	0	0	0	0	0	0	0	0	0	0	0	
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	
2. Gross Plant-in-Service/Depreciation Base	17,500,000	$ 18,083,333	$ 18,666,667	$ 19,250,000	$ 19,833,333	$ 20,416,667	$ 21,000,000	$ 21,583,333	$ 22,166,667	$ 22,750,000	$ 23,333,333	$ 23,916,667	$ 24,500,000	
3. Less: Accumulated Depreciation	(700,729)	(747,444)	(795,667)	(845,396)	(896,632)	(949,375)	(1,003,625)	(1,059,382)	(1,116,646)	(1,175,417)	(1,235,694)	(1,297,479)	(1,360,771)	
4. CWIP - NonInterest Bearing	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	
5. Net Book Value (Lines 2 + 3 + 4)	$ 17,382,604	$ 17,919,222	$ 18,454,333	$ 18,987,937	$ 19,520,034	$ 20,050,625	$ 20,579,708	$ 21,107,284	$ 21,633,354	$ 22,157,916	$ 22,680,972	$ 23,202,521	$ 23,722,562	
6. Average Net Investment		$ 17,650,913	$ 18,186,777	$ 18,721,135	$ 19,253,986	$ 19,785,330	$ 20,315,166	$ 20,843,496	$ 21,370,319	$ 21,895,635	$ 22,419,444	$ 22,941,746	$ 23,462,541	
7. Return on Average Net Investment														
a. Equity component Grossed up for taxes (A)		$ 124,876	$ 128,667	$ 132,447	$ 136,217	$ 139,976	$ 143,725	$ 147,463	$ 151,190	$ 154,906	$ 158,612	$ 162,307	$ 165,992	$ 1,746,378
b. Debt component (B)		$ 48,403	$ 49,873	$ 51,338	$ 52,799	$ 54,256	$ 55,709	$ 57,158	$ 58,603	$ 60,043	$ 61,480	$ 62,912	$ 64,340	$ 676,914
8. Investment Expenses														
a. Depreciation (C)		46,715	48,222	49,729	51,236	52,743	54,250	55,757	57,264	58,771	60,278	61,785	63,292	660,042
b. Amortization		0	0	0	0	0	0	0	0	0	0	0	0	0
c. Property Taxes (D)		24,189	24,189	24,189	24,189	24,189	24,189	24,189	24,189	24,189	24,189	24,189	24,189	290,265
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	0
9. Revenue Requirements (Lines 7 + 8)		$ 244,183	$ 250,951	$ 257,703	$ 264,441	$ 271,164	$ 277,873	$ 284,567	$ 291,246	$ 297,909	$ 304,559	$ 311,192	$ 317,812	$ 3,373,599

Notes:

(A) Line 6 x 8.4897% x 1/12. Based on ROE of 10.75%, and weighted income tax rate of 38.575%, expansion factor of 1.628002.
(B) Line 6 x 3.2907% x 1/12.
(C) Applicable depreciation rate is .26%
(D) Ad Valorem Tax Rate is 1.79%

PEOPLES GAS SYSTEM
DOCKET NO. 110320-GU
STAFF'S FIRST DATA REQUEST
REVISED SCHEDULES EXHIBIT C
FILED: MARCH 9, 2012

Peoples Gas System

Cast Iron / Bare Steel Replacement Program
Calculation of the Projected Amount for the Period
January 2016 to December 2016

Return on Capital Investments, Depreciation and Taxes for Eligible Replacements

Line Description	Beginning of Period Amount	January	February	March	April	May	June	July	August	September	October	November	December	End of Period Total
1. Investments														
a. Eligible Replacements - Mains		$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 7,000,000
b. Eligible Replacements - Services		0	0	0	0	0	0	0	0	0	0	0	0	
c. Eligible Replacements - Regulators		0	0	0	0	0	0	0	0	0	0	0	0	
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	
2. Gross Plant-in-Service/Depreciation Base	24,500,000	$ 25,083,333	$ 25,666,667	$ 26,250,000	$ 26,833,333	$ 27,416,667	$ 28,000,000	$ 28,583,333	$ 29,166,667	$ 29,750,000	$ 30,333,333	$ 30,916,667	$ 31,500,000	
3. Less: Accumulated Depreciation	(1,360,771)	(1,425,569)	(1,491,875)	(1,559,688)	(1,629,007)	(1,699,833)	(1,772,167)	(1,846,007)	(1,921,354)	(1,998,208)	(2,076,569)	(2,156,438)	(2,237,813)	
4. CWIP - NonInterest Bearing	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	
5. Net Book Value (Lines 2 + 3 + 4)	$ 23,722,562	$ 24,241,097	$ 24,758,125	$ 25,273,646	$ 25,787,659	$ 26,300,166	$ 26,811,166	$ 27,320,659	$ 27,828,646	$ 28,335,125	$ 28,840,097	$ 29,343,562	$ 29,845,521	
6. Average Net Investment		$ 23,981,830	$ 24,499,611	$ 25,015,885	$ 25,530,652	$ 26,043,913	$ 26,555,666	$ 27,065,913	$ 27,574,652	$ 28,081,885	$ 28,587,611	$ 29,091,830	$ 29,594,541	
7. Return on Average Net Investment														
a. Equity component Grossed up for taxes (A)		$ 169,665	$ 173,329	$ 176,981	$ 180,623	$ 184,254	$ 187,875	$ 191,485	$ 195,084	$ 198,672	$ 202,250	$ 205,817	$ 209,374	$ 2,275,409
b. Debt component (B)		$ 65,764	$ 67,184	$ 68,600	$ 70,011	$ 71,419	$ 72,822	$ 74,221	$ 75,617	$ 77,008	$ 78,394	$ 79,777	$ 81,156	$ 881,973
8. Investment Expenses														
a. Depreciation (C)		64,799	66,306	67,813	69,319	70,826	72,333	73,840	75,347	76,854	78,361	79,868	81,375	877,042
b. Amortization		0	0	0	0	0	0	0	0	0	0	0	0	0
c. Property Taxes (D)		33,646	33,646	33,646	33,646	33,646	33,646	33,646	33,646	33,646	33,646	33,646	33,646	403,751
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	0
9. Revenue Requirements (Lines 7 + 8)		$ 333,873	$ 340,464	$ 347,039	$ 353,599	$ 360,145	$ 366,676	$ 373,192	$ 379,694	$ 386,180	$ 392,651	$ 399,108	$ 405,551	$ 4,438,174

Notes:
(A) Line 6 x 8.4897% x 1/12. Based on ROE of 10.75%, and weighted income tax rate of 38.575%, expansion factor of 1.628002.
(B) Line 6 x 3.2907% x 1/12.
(C) Applicable depreciation rate is .26%
(D) Ad Valorem Tax Rate is 1.79%

PEOPLES GAS SYSTEM
DOCKET NO. 110320-GU
STAFF'S FIRST DATA REQUEST
REVISED SCHEDULES EXHIBIT C
FILED: MARCH 9, 2012

Peoples Gas System

Cast Iron / Bare Steel Replacement Program
Calculation of the Projected Amount for the Period
January 2017 to December 2017

Return on Capital Investments, Depreciation and Taxes for Eligible Replacements

Line Description	Beginning of Period Amount	January	February	March	April	May	June	July	August	September	October	November	December	End of Period Total
1. Investments														
a. Eligible Replacements - Mains		$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 7,000,000
b. Eligible Replacements - Services		0	0	0	0	0	0	0	0	0	0	0	0	
c. Eligible Replacements - Regulators		0	0	0	0	0	0	0	0	0	0	0	0	
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	
2. Gross Plant-in-Service/Depreciation Base	31,500,000	$ 32,083,333	$ 32,666,667	$ 33,250,000	$ 33,833,333	$ 34,416,667	$ 35,000,000	$ 35,583,333	$ 36,166,667	$ 36,750,000	$ 37,333,333	$ 37,916,667	$ 38,500,000	
3. Less: Accumulated Depreciation	(2,237,813)	(2,320,694)	(2,405,083)	(2,490,979)	(2,578,382)	(2,667,292)	(2,757,708)	(2,849,632)	(2,943,063)	(3,038,000)	(3,134,444)	(3,232,396)	(3,331,854)	
4. CWIP - NonInterest Bearing	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	
5. Net Book Value (Lines 2 + 3 + 4)	$ 29,845,521	$ 30,345,972	$ 30,844,916	$ 31,342,354	$ 31,838,284	$ 32,332,708	$ 32,825,625	$ 33,317,034	$ 33,806,937	$ 34,295,333	$ 34,782,222	$ 35,267,604	$ 35,751,479	
6. Average Net Investment		$ 30,095,746	$ 30,595,444	$ 31,093,635	$ 31,590,319	$ 32,085,496	$ 32,579,166	$ 33,071,330	$ 33,561,986	$ 34,051,135	$ 34,538,777	$ 35,024,913	$ 35,509,541	
7. Return on Average Net Investment														
a. Equity component Grossed up for taxes (A)		$ 212,920	$ 216,455	$ 219,980	$ 223,494	$ 226,997	$ 230,489	$ 233,971	$ 237,443	$ 240,903	$ 244,353	$ 247,793	$ 251,221	$ 2,786,019
b. Debt component (B)		$ 82,530	$ 83,900	$ 85,267	$ 86,629	$ 87,986	$ 89,340	$ 90,690	$ 92,035	$ 93,377	$ 94,714	$ 96,047	$ 97,376	$ 1,079,891
8. Investment Expenses														
a. Depreciation (C)		82,882	84,389	85,896	87,403	88,910	90,417	91,924	93,431	94,938	96,444	97,951	99,458	1,094,042
b. Amortization		0	0	0	0	0	0	0	0	0	0	0	0	0
c. Property Taxes (D)		42,779	42,779	42,779	42,779	42,779	42,779	42,779	42,779	42,779	42,779	42,779	42,779	513,351
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	0
9. Revenue Requirements (Lines 7 + 8)		$ 421,111	$ 427,523	$ 433,922	$ 440,305	$ 446,672	$ 453,025	$ 459,364	$ 465,688	$ 471,997	$ 478,291	$ 484,571	$ 490,835	$ 5,473,303

Notes:
(A) Line 6 x 8.4897% x 1/12. Based on ROE of 10.75%, and weighted income tax rate of 38.575%, expansion factor of 1.628002.
(B) Line 6 x 3.2907% x 1/12.
(C) Applicable depreciation rate is .26%
(D) Ad Valorem Tax Rate is 1.79%

PEOPLES GAS SYSTEM
DOCKET NO. 110320-GU
STAFF'S FIRST DATA REQUEST
REVISED SCHEDULES EXHIBIT C
FILED: MARCH 8, 2012

Peoples Gas System

Cast Iron / Bare Steel Replacement Program
Calculation of the Projected Amount for the Period
January 2018 to December 2018

Return on Capital Investments, Depreciation and Taxes for Eligible Replacements

Line Description	Beginning of Period Amount	January	February	March	April	May	June	July	August	September	October	November	December	End of Period Total
1. Investments														
a. Eligible Replacements - Mains		$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 7,000,000
b. Eligible Replacements - Services		0	0	0	0	0	0	0	0	0	0	0	0	
c. Eligible Replacements - Regulators		0	0	0	0	0	0	0	0	0	0	0	0	
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	
2. Gross Plant-in-Service/Depreciation Base	38,500,000	$ 39,083,333	$ 39,666,667	$ 40,250,000	$ 40,833,333	$ 41,416,667	$ 42,000,000	$ 42,583,333	$ 43,166,667	$ 43,750,000	$ 44,333,333	$ 44,916,667	$ 45,500,000	
3. Less: Accumulated Depreciation	(3,331,854)	(3,432,819)	(3,535,292)	(3,639,271)	(3,744,757)	(3,851,750)	(3,960,250)	(4,070,257)	(4,181,771)	(4,294,792)	(4,409,319)	(4,525,354)	(4,642,896)	
4. CWIP - NonInterest Bearing	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	
5. Net Book Value (Lines 2 + 3 + 4)	$ 35,751,479	$ 36,233,847	$ 36,714,708	$ 37,194,062	$ 37,671,909	$ 38,148,250	$ 38,623,083	$ 39,096,409	$ 39,568,229	$ 40,038,541	$ 40,507,347	$ 40,974,646	$ 41,440,437	
6. Average Net Investment		$ 35,992,663	$ 36,474,277	$ 36,954,385	$ 37,432,986	$ 37,910,080	$ 38,385,666	$ 38,859,746	$ 39,332,319	$ 39,803,385	$ 40,272,944	$ 40,740,996	$ 41,207,541	
7. Return on Average Net Investment														
a. Equity component Grossed up for taxes (A)		$ 254,639	$ 258,046	$ 261,443	$ 264,829	$ 268,204	$ 271,569	$ 274,923	$ 278,266	$ 281,599	$ 284,921	$ 288,232	$ 291,533	$ 3,278,204
b. Debt component (B)		$ 98,701	$ 100,022	$ 101,338	$ 102,651	$ 103,959	$ 105,263	$ 106,563	$ 107,859	$ 109,151	$ 110,438	$ 111,722	$ 113,001	$ 1,270,668
8. Investment Expenses														
a. Depreciation (C)		100,965	102,472	103,979	105,486	106,993	108,500	110,007	111,514	113,021	114,528	116,035	117,542	1,311,042
b. Amortization		0	0	0	0	0	0	0	0	0	0	0	0	0
c. Property Taxes (D)		51,589	51,589	51,589	51,589	51,589	51,589	51,589	51,589	51,589	51,589	51,589	51,589	619,068
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	0
9. Revenue Requirements (Lines 7 + 8)		$ 505,894	$ 512,129	$ 518,349	$ 524,555	$ 530,745	$ 536,921	$ 543,082	$ 549,228	$ 555,360	$ 561,476	$ 567,578	$ 573,665	$ 6,478,982

Notes:

(A) Line 6 x 8.4897% x 1/12. Based on ROE of 10.75%, and weighted income tax rate of 38.575%, expansion factor of 1.628002.

(B) Line 6 x 3.2907% x 1/12.

(C) Applicable depreciation rate is .26%

(D) Ad Valorem Tax Rate is 1.79%

Peoples Gas System

Cast Iron / Bare Steel Replacement Program
Calculation of the Projected Amount for the Period
January 2019 to December 2019

Return on Capital Investments, Depreciation and Taxes for Eligible Replacements

Line Description	Beginning of Period Amount	January	February	March	April	May	June	July	August	September	October	November	December	End of Period Total
1. Investments														
a. Eligible Replacements - Mains		$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 7,000,000
b. Eligible Replacements - Services		0	0	0	0	0	0	0	0	0	0	0	0	
c. Eligible Replacements - Regulators		0	0	0	0	0	0	0	0	0	0	0	0	
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	
2. Gross Plant-in-Service/Depreciation Base	45,500,000	$ 46,083,333	$ 46,666,667	$ 47,250,000	$ 47,833,333	$ 48,416,667	$ 49,000,000	$ 49,583,333	$ 50,166,667	$ 50,750,000	$ 51,333,333	$ 51,916,667	$ 52,500,000	
3. Less: Accumulated Depreciation	(4,642,896)	(4,761,944)	(4,882,500)	(5,004,563)	(5,128,132)	(5,253,208)	(5,379,792)	(5,507,882)	(5,637,479)	(5,768,583)	(5,901,194)	(6,035,313)	(6,170,938)	
4. CWIP - Noninterest Bearing	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	
5. Net Book Value (Lines 2 + 3 + 4)	$ 41,440,437	$ 41,904,722	$ 42,367,500	$ 42,828,771	$ 43,288,534	$ 43,746,791	$ 44,203,541	$ 44,658,784	$ 45,112,521	$ 45,564,750	$ 46,015,472	$ 46,464,687	$ 46,912,396	
6. Average Net Investment		$ 41,672,580	$ 42,136,111	$ 42,598,135	$ 43,058,652	$ 43,517,663	$ 43,975,166	$ 44,431,163	$ 44,885,652	$ 45,338,635	$ 45,790,111	$ 46,240,080	$ 46,688,541	
7. Return on Average Net Investment														
a. Equity component Grossed up for taxes (A)		$ 294,823	$ 298,102	$ 301,371	$ 304,629	$ 307,877	$ 311,113	$ 314,339	$ 317,555	$ 320,760	$ 323,954	$ 327,137	$ 330,310	$ 3,751,970
b. Debt component (B)		$ 114,277	$ 115,548	$ 116,815	$ 118,078	$ 119,336	$ 120,591	$ 121,841	$ 123,088	$ 124,330	$ 125,568	$ 126,802	$ 128,032	$ 1,454,306
8. Investment Expenses														
a. Depreciation (C)		119,049	120,556	122,063	123,569	125,076	126,583	128,090	129,597	131,104	132,611	134,118	135,625	1,528,042
b. Amortization		0	0	0	0	0	0	0	0	0	0	0	0	0
c. Property Taxes (D)		60,075	60,075	60,075	60,075	60,075	60,075	60,075	60,075	60,075	60,075	60,075	60,075	720,901
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	0
9. Revenue Requirements (Lines 7 + 8)		$ 588,224	$ 594,281	$ 600,324	$ 606,351	$ 612,364	$ 618,362	$ 624,345	$ 630,315	$ 636,269	$ 642,208	$ 648,132	$ 654,042	$ 7,455,218

Notes:

(A) Line 6 x 8.4897% x 1/12. Based on ROE of 10.75%, and weighted income tax rate of 38.575%, expansion factor of 1.628002.
(B) Line 6 x 3.2907% x 1/12.
(C) Applicable depreciation rate is .26%
(D) Ad Valorem Tax Rate is 1.79%

PEOPLES GAS SYSTEM
DOCKET NO. 110320-GU
STAFF'S FIRST DATA REQUEST
REVISED SCHEDULES EXHIBIT C
FILED: MARCH 9, 2012

Peoples Gas System

Cast Iron / Bare Steel Replacement Program
Calculation of the Projected Amount for the Period
January 2020 to December 2020

Return on Capital Investments, Depreciation and Taxes for Eligible Replacements

Line Description	Beginning of Period Amount	January	February	March	April	May	June	July	August	September	October	November	December	End of Period Total
1. Investments														
a. Eligible Replacements - Mains		$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 7,000,000
b. Eligible Replacements - Services		0	0	0	0	0	0	0	0	0	0	0	0	
c. Eligible Replacements - Regulators		0	0	0	0	0	0	0	0	0	0	0	0	
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	
2. Gross Plant-in-Service/Depreciation Base	52,500,000	$ 53,083,333	$ 53,666,667	$ 54,250,000	$ 54,833,333	$ 55,416,667	$ 56,000,000	$ 56,583,333	$ 57,166,667	$ 57,750,000	$ 58,333,333	$ 58,916,667	$ 59,500,000	
3. Less: Accumulated Depreciation	(6,170,938)	(6,308,069)	(6,446,708)	(6,586,854)	(6,728,507)	(6,871,667)	(7,016,333)	(7,162,507)	(7,310,188)	(7,459,375)	(7,610,069)	(7,762,271)	(7,915,979)	
4. CWIP - NonInterest Bearing	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	
5. Net Book Value (Lines 2 + 3 + 4)	$ 46,912,396	$ 47,358,597	$ 47,803,291	$ 48,246,479	$ 48,688,159	$ 49,128,333	$ 49,567,000	$ 50,004,159	$ 50,439,812	$ 50,873,958	$ 51,306,597	$ 51,737,729	$ 52,167,354	
6. Average Net Investment		$ 47,135,496	$ 47,580,944	$ 48,024,885	$ 48,467,319	$ 48,908,246	$ 49,347,666	$ 49,785,580	$ 50,221,986	$ 50,656,885	$ 51,090,277	$ 51,522,163	$ 51,952,541	
7. Return on Average Net Investment														
a. Equity component Grossed up for taxes (A)		$ 333,472	$ 336,623	$ 339,764	$ 342,894	$ 346,014	$ 349,122	$ 352,221	$ 355,308	$ 358,385	$ 361,451	$ 364,506	$ 367,551	$ 4,207,311
b. Debt component (B)		$ 129,257	$ 130,479	$ 131,696	$ 132,910	$ 134,119	$ 135,324	$ 136,525	$ 137,721	$ 138,914	$ 140,102	$ 141,287	$ 142,467	$ 1,630,801
8. Investment Expenses														
a. Depreciation (C)		137,132	138,639	140,146	141,653	143,160	144,667	146,174	147,681	149,188	150,694	152,201	153,708	1,745,042
b. Amortization		0	0	0	0	0	0	0	0	0	0	0	0	0
c. Property Taxes (D)		68,237	68,237	68,237	68,237	68,237	68,237	68,237	68,237	68,237	68,237	68,237	68,237	818,849
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	0
9. Revenue Requirements (Lines 7 + 8)		$ 668,098	$ 673,978	$ 679,843	$ 685,694	$ 691,530	$ 697,350	$ 703,157	$ 708,947	$ 714,724	$ 720,485	$ 726,232	$ 731,964	$ 8,402,002

Notes:
(A) Line 6 x 8.4897% x 1/12. Based on ROE of 10.75%, and weighted income tax rate of 38.575%, expansion factor of 1.628002.
(B) Line 6 x 3.2907% x 1/12.
(C) Applicable depreciation rate is .26%
(D) Ad Valorem Tax Rate is 1.79%

PEOPLES GAS SYSTEM
DOCKET NO. 110320-GU
STAFF'S FIRST DATA REQUEST
REVISED SCHEDULES EXHIBIT C
FILED: MARCH 9, 2012

Peoples Gas System

Cast Iron / Bare Steel Replacement Program
Calculation of the Projected Amount for the Period
January 2021 to December 2021

Return on Capital Investments, Depreciation and Taxes for Eligible Replacements

Line Description	Beginning of Period Amount	January	February	March	April	May	June	July	August	September	October	November	December	End of Period Total
1. Investments														
a. Eligible Replacements - Mains		$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 7,000,000
b. Eligible Replacements - Services		0	0	0	0	0	0	0	0	0	0	0	0	
c. Eligible Replacements - Regulators		0	0	0	0	0	0	0	0	0	0	0	0	
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	
2. Gross Plant-in-Service/Depreciation Base	59,500,000	$ 60,083,333	$ 60,666,667	$ 61,250,000	$ 61,833,333	$ 62,416,667	$ 63,000,000	$ 63,583,333	$ 64,166,667	$ 64,750,000	$ 65,333,333	$ 65,916,667	$ 66,500,000	
3. Less: Accumulated Depreciation	(7,915,979)	(8,071,194)	(8,227,917)	(8,386,146)	(8,545,882)	(8,707,125)	(8,869,875)	(9,034,132)	(9,199,896)	(9,367,167)	(9,535,944)	(9,706,229)	(9,878,021)	
4. CWIP - Noninterest Bearing	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	583,333	
5. Net Book Value (Lines 2 + 3 + 4)	$ 52,167,354	$ 52,595,472	$ 53,022,083	$ 53,447,187	$ 53,870,784	$ 54,292,875	$ 54,713,458	$ 55,132,534	$ 55,550,104	$ 55,966,166	$ 56,380,722	$ 56,793,771	$ 57,205,312	
6. Average Net Investment		$ 52,381,413	$ 52,808,777	$ 53,234,635	$ 53,658,986	$ 54,081,830	$ 54,503,166	$ 54,922,996	$ 55,341,319	$ 55,758,135	$ 56,173,444	$ 56,587,246	$ 56,999,541	
7. Return on Average Net Investment														
a. Equity component Grossed up for taxes (A)		$ 370,585	$ 373,609	$ 376,622	$ 379,624	$ 382,615	$ 385,596	$ 388,566	$ 391,526	$ 394,475	$ 397,413	$ 400,341	$ 403,258	$ 4,644,230
b. Debt component (B)		$ 143,643	$ 144,815	$ 145,983	$ 147,146	$ 148,306	$ 149,461	$ 150,613	$ 151,760	$ 152,903	$ 154,042	$ 155,176	$ 156,307	$ 1,800,155
8. Investment Expenses														
a. Depreciation (C)		155,215	156,722	158,229	159,736	161,243	162,750	164,257	165,764	167,271	168,778	170,285	171,792	1,962,042
b. Amortization		0	0	0	0	0	0	0	0	0	0	0	0	0
c. Property Taxes (D)		76,076	76,076	76,076	76,076	76,076	76,076	76,076	76,076	76,076	76,076	76,076	76,076	912,912
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	0
9. Revenue Requirements (Lines 7 + 8)		$ 745,519	$ 751,222	$ 756,910	$ 762,582	$ 768,240	$ 773,883	$ 779,512	$ 785,126	$ 790,725	$ 796,309	$ 801,878	$ 807,433	$ 9,319,339

Notes:

(A) Line 6 x 8.4897% x 1/12. Based on ROE of 10.75%, and weighted income tax rate of 38.575%, expansion factor of 1.628002.
(B) Line 6 x 3.2907% x 1/12.
(C) Applicable depreciation rate is .26%
(D) Ad Valorem Tax Rate is 1.79%

PEOPLES GAS SYSTEM
DOCKET NO. 110320-GU
STAFF'S FIRST DATA REQUEST
REVISED SCHEDULES EXHIBIT C
FILED: MARCH 9, 2012

Peoples Gas System

Cast Iron / Bare Steel Replacement Program
Calculation of the Projected Amount for the Period
January 2022 to December 2022

Return on Capital Investments, Depreciation and Taxes for Eligible Replacements

Line Description	Beginning of Period Amount	January	February	March	April	May	June	July	August	September	October	November	December	End of Period Total
1. Investments														
a. Eligible Replacements - Mains		$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ 583,333	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,500,000
b. Eligible Replacements - Services		0	0	0	0	0	0	0	0	0	0	0	0	
c. Eligible Replacements - Regulators		0	0	0	0	0	0	0	0	0	0	0	0	
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	
2. Gross Plant-in-Service/Depreciation Base	66,500,000	$ 67,083,333	$ 67,666,667	$ 68,250,000	$ 68,833,333	$ 69,416,667	$ 70,000,000	$ 70,000,000	$ 70,000,000	$ 70,000,000	$ 70,000,000	$ 70,000,000	$ 70,000,000	
3. Less: Accumulated Depreciation	(9,878,021)	(10,051,319)	(10,226,125)	(10,402,438)	(10,580,257)	(10,759,583)	(10,940,417)	(11,121,250)	(11,302,083)	(11,482,917)	(11,663,750)	(11,844,583)	(12,025,417)	
4. CWIP - NonInterest Bearing	583,333	583,333	583,333	583,333	583,333	583,333	583,333	0	0	0	0	0	0	
5. Net Book Value (Lines 2 + 3 + 4)	$ 57,205,312	$ 57,615,347	$ 58,023,875	$ 58,430,896	$ 58,836,409	$ 59,240,416	$ 59,642,916	$ 58,878,750	$ 58,697,917	$ 58,517,083	$ 58,336,250	$ 58,155,417	$ 57,974,583	
6. Average Net Investment		$ 57,410,330	$ 57,819,611	$ 58,227,385	$ 58,633,652	$ 59,038,413	$ 59,441,666	$ 59,260,833	$ 58,788,333	$ 58,607,500	$ 58,426,667	$ 58,245,833	$ 58,065,000	
7. Return on Average Net Investment														
a. Equity component Grossed up for taxes (A)		$ 406,164	$ 409,059	$ 411,944	$ 414,818	$ 417,682	$ 420,535	$ 419,256	$ 415,913	$ 414,633	$ 413,354	$ 412,075	$ 410,795	$ 4,966,228
b. Debt component (B)		$ 157,433	$ 158,556	$ 159,674	$ 160,788	$ 161,898	$ 163,004	$ 162,508	$ 161,212	$ 160,716	$ 160,221	$ 159,725	$ 159,229	$ 1,924,964
8. Investment Expenses														
a. Depreciation (C)		173,299	174,806	176,313	177,819	179,326	180,833	180,833	180,833	180,833	180,833	180,833	180,833	2,147,396
b. Amortization		0	0	0	0	0	0	0	0	0	0	0	0	0
c. Property Taxes (D)		83,591	83,591	83,591	83,591	83,591	83,591	83,591	83,591	83,591	83,591	83,591	83,591	1,003,092
d. Other		0	0	0	0	0	0	0	0	0	0	0	0	0
9. Revenue Requirements (Lines 7 + 8)		$ 820,487	$ 826,012	$ 831,521	$ 837,016	$ 842,497	$ 847,963	$ 846,188	$ 841,549	$ 839,773	$ 837,999	$ 836,224	$ 834,448	$ 10,041,680

Notes:
(A) Line 6 x 8.4897% x 1/12. Based on ROE of 10.75%, and weighted income tax rate of 38.575%, expansion factor of 1.628002.
(B) Line 6 x 3.2907% x 1/12.
(C) Applicable depreciation rate is .26%
(D) Ad Valorem Tax Rate is 1.79%

PEOPLES GAS SYSTEM
DOCKET NO. 110320-GU
STAFF'S FIRST DATA REQUEST
REVISED SCHEDULES EXHIBIT C
FILED: MARCH 9, 2012

CAST IRON / BARE STEEL REPLACEMENT RIDER
SUMMARY OF CI/BSR SURCHARGE CALCULATION
MONTHS: July 2012 Through December 2012

RATE SCHEDULE	MAINS NET PLANT*	SERVICES NET PLANT*	TOTAL NET PLANT*	% OF TOTAL PLANT	CI/BSR REVENUES	THERMS	CI/BSR SURCHARGE PER THERM
RS & RS-SG	$59,806,570	$79,163,368	$138,969,938	34.89%	$57,757	41,522,716	$0.00139
SGS	5,474,814	5,937,386	11,412,200	2.87%	4,743	3,884,704	$0.00122
GS-1 & CS-SG	45,983,103	12,635,366	58,618,469	14.72%	24,362	36,774,234	$0.00066
GS-2	81,315,915	8,975,978	90,291,893	22.67%	37,526	59,241,597	$0.00063
GS-3	46,157,083	2,496,659	48,653,742	12.21%	20,221	43,162,261	$0.00047
GS-4	25,447,491	447,292	25,894,783	6.50%	10,762	23,499,759	$0.00046
GS-5	22,396,181	427,101	22,823,282	5.73%	9,486	45,861,621	$0.00021
WHS	786,453	35,448	821,901	0.21%	342	730,345	$0.00047
NGVS	244,131	48,338	292,469	0.07%	122	45,861,621	$0.00000
CSLS	534,119	10,816	544,935	0.14%	226	96,750	$0.00234
TOTAL	$288,145,860	$110,177,751	$398,323,611	100.00%	$165,547	300,635,608	

* Source: Data in these columns are from Schedule H-2 of the Cost of Service Study approved in Peoples' last rate case

CAST IRON / BARE STEEL REPLACEMENT RIDER
SUMMARY OF CI/BSR SURCHARGE CALCULATION
MONTHS: January 2013 Through December 2013

RATE SCHEDULE	MAINS NET PLANT*	SERVICES NET PLANT*	TOTAL NET PLANT*	% OF TOTAL PLANT	CI/BSR REVENUES	THERMS	CI/BSR SURCHARGE PER THERM
RS & RS-SG	$59,806,570	$79,163,368	$138,969,938	34.89%	$402,622	83,045,433	$0.00485
SGS	5,474,814	5,937,386	11,412,200	2.87%	33,063	7,769,409	$0.00426
GS-1 & CS-SG	45,983,103	12,635,366	58,618,469	14.72%	169,829	73,548,467	$0.00231
GS-2	81,315,915	8,975,978	90,291,893	22.67%	261,593	118,483,193	$0.00221
GS-3	46,157,083	2,496,659	48,653,742	12.21%	140,959	86,324,523	$0.00163
GS-4	25,447,491	447,292	25,894,783	6.50%	75,022	46,999,519	$0.00160
GS-5	22,396,181	427,101	22,823,282	5.73%	66,123	91,723,242	$0.00072
WHS	786,453	35,448	821,901	0.21%	2,381	1,460,689	$0.00163
NGVS	244,131	48,338	292,469	0.07%	847	91,723,242	$0.00001
CSLS	534,119	10,816	544,935	0.14%	1,579	193,500	$0.00816
TOTAL	$288,145,860	$110,177,751	$398,323,611	100.00%	$1,154,019	601,271,217	

* Source: Data in these columns are from Schedule H-2 of the Cost of Service Study approved in Peoples' last rate case

PEOPLES GAS SYSTEM
DOCKET NO. 110320-GU
STAFF'S FIRST DATA REQUEST
REVISED SCHEDULES EXHIBIT D
FILED: MARCH 9, 2012

CAST IRON / BARE STEEL REPLACEMENT RIDER
SUMMARY OF CI/BSR SURCHARGE CALCULATION
MONTHS: January 2014 Through December 2014

RATE SCHEDULE	MAINS NET PLANT*	SERVICES NET PLANT*	TOTAL NET PLANT*	% OF TOTAL PLANT	CI/BSR REVENUES	THERMS	CI/BSR SURCHARGE PER THERM
RS & RS-SG	$59,806,570	$79,163,368	$138,969,938	34.89%	$795,314	83,045,433	$0.00958
SGS	5,474,814	5,937,386	11,412,200	2.87%	65,311	7,769,409	$0.00841
GS-1 & CS-SG	45,983,103	12,635,366	58,618,469	14.72%	335,469	73,548,467	$0.00456
GS-2	81,315,915	8,975,978	90,291,893	22.67%	516,734	118,483,193	$0.00436
GS-3	46,157,083	2,496,659	48,653,742	12.21%	278,442	86,324,523	$0.00323
GS-4	25,447,491	447,292	25,894,783	6.50%	148,194	46,999,519	$0.00315
GS-5	22,396,181	427,101	22,823,282	5.73%	130,616	91,723,242	$0.00142
WHS	786,453	35,448	821,901	0.21%	4,704	1,460,689	$0.00322
NGVS	244,131	48,338	292,469	0.07%	1,674	91,723,242	$0.00002
CSLS	534,119	10,816	544,935	0.14%	3,119	193,500	$0.01612
TOTAL	$288,145,860	$110,177,751	$398,323,611	100.00%	$2,279,576	601,271,217	

* Source: Data in these columns are from Schedule H-2 of the Cost of Service Study approved in Peoples' last rate case

PEOPLES GAS SYSTEM
DOCKET NO. 110320-GU
STAFF'S FIRST DATA REQUEST
REVISED SCHEDULES EXHIBIT D
FILED: MARCH 9, 2012

CAST IRON / BARE STEEL REPLACEMENT RIDER
SUMMARY OF CI/BSR SURCHARGE CALCULATION
MONTHS: January 2015 Through December 2015

RATE SCHEDULE	MAINS NET PLANT*	SERVICES NET PLANT*	TOTAL NET PLANT*	% OF TOTAL PLANT	CI/BSR REVENUES	THERMS	CI/BSR SURCHARGE PER THERM
RS & RS-SG	$59,806,570	$79,163,368	$138,969,938	34.89%	$1,177,005	83,045,433	$0.01417
SGS	5,474,814	5,937,386	11,412,200	2.87%	96,656	7,769,409	$0.01244
GS-1 & CS-SG	45,983,103	12,635,366	58,618,469	14.72%	496,469	73,548,467	$0.00675
GS-2	81,315,915	8,975,978	90,291,893	22.67%	764,727	118,483,193	$0.00645
GS-3	46,157,083	2,496,659	48,653,742	12.21%	412,073	86,324,523	$0.00477
GS-4	25,447,491	447,292	25,894,783	6.50%	219,316	46,999,519	$0.00467
GS-5	22,396,181	427,101	22,823,282	5.73%	193,302	91,723,242	$0.00211
WHS	786,453	35,448	821,901	0.21%	6,961	1,460,689	$0.00477
NGVS	244,131	48,338	292,469	0.07%	2,477	91,723,242	$0.00003
CSLS	534,119	10,816	544,935	0.14%	4,615	193,500	$0.02385
TOTAL	$288,145,860	$110,177,751	$398,323,611	100.00%	$3,373,599	601,271,217	

* Source: Data in these columns are from Schedule H-2 of the Cost of Service Study approved in Peoples' last rate case

PEOPLES GAS SYSTEM
DOCKET NO. 110320-GU
STAFF'S FIRST DATA REQUEST
REVISED SCHEDULES EXHIBIT D
FILED: MARCH 9, 2012

CAST IRON / BARE STEEL REPLACEMENT RIDER
SUMMARY OF CI/BSR SURCHARGE CALCULATION
MONTHS: January 2016 Through December 2016

RATE SCHEDULE	MAINS NET PLANT*	SERVICES NET PLANT*	TOTAL NET PLANT*	% OF TOTAL PLANT	CI/BSR REVENUES	THERMS	CI/BSR SURCHARGE PER THERM
RS & RS-SG	$59,806,570	$79,163,368	$138,969,938	34.89%	$1,548,421	83,045,433	$0.01865
SGS	5,474,814	5,937,386	11,412,200	2.87%	127,156	7,769,409	$0.01637
GS-1 & CS-SG	45,983,103	12,635,366	58,618,469	14.72%	653,135	73,548,467	$0.00888
GS-2	81,315,915	8,975,978	90,291,893	22.67%	1,006,044	118,483,193	$0.00849
GS-3	46,157,083	2,496,659	48,653,742	12.21%	542,106	86,324,523	$0.00628
GS-4	25,447,491	447,292	25,894,783	6.50%	288,523	46,999,519	$0.00614
GS-5	22,396,181	427,101	22,823,282	5.73%	254,300	91,723,242	$0.00277
WHS	786,453	35,448	821,901	0.21%	9,158	1,460,689	$0.00627
NGVS	244,131	48,338	292,469	0.07%	3,259	91,723,242	$0.00004
CSLS	534,119	10,816	544,935	0.14%	6,072	193,500	$0.03138
TOTAL	$288,145,860	$110,177,751	$398,323,611	100.00%	$4,438,174	601,271,217	

* Source: Data in these columns are from Schedule H-2 of the Cost of Service Study approved in Peoples' last rate case

PEOPLES GAS SYSTEM
DOCKET NO. 110320-GU
STAFF'S FIRST DATA REQUEST
REVISED SCHEDULES EXHIBIT D
FILED: MARCH 9, 2012

CAST IRON / BARE STEEL REPLACEMENT RIDER
SUMMARY OF CI/BSR SURCHARGE CALCULATION
MONTHS: January 2017 Through December 2017

RATE SCHEDULE	MAINS NET PLANT*	SERVICES NET PLANT*	TOTAL NET PLANT*	% OF TOTAL PLANT	CI/BSR REVENUES	THERMS	CI/BSR SURCHARGE PER THERM
RS & RS-SG	$59,806,570	$79,163,368	$138,969,938	34.89%	$1,909,564	83,045,433	$0.02299
SGS	5,474,814	5,937,386	11,412,200	2.87%	156,813	7,769,409	$0.02018
GS-1 & CS-SG	45,983,103	12,635,366	58,618,469	14.72%	805,467	73,548,467	$0.01095
GS-2	81,315,915	8,975,978	90,291,893	22.67%	1,240,687	118,483,193	$0.01047
GS-3	46,157,083	2,496,659	48,653,742	12.21%	668,544	86,324,523	$0.00774
GS-4	25,447,491	447,292	25,894,783	6.50%	355,816	46,999,519	$0.00757
GS-5	22,396,181	427,101	22,823,282	5.73%	313,611	91,723,242	$0.00342
WHS	786,453	35,448	821,901	0.21%	11,294	1,460,689	$0.00773
NGVS	244,131	48,338	292,469	0.07%	4,019	91,723,242	$0.00004
CSLS	534,119	10,816	544,935	0.14%	7,488	193,500	$0.03870
TOTAL	$288,145,860	$110,177,751	$398,323,611	100.00%	$5,473,303	601,271,217	

* Source: Data in these columns are from Schedule H-2 of the Cost of Service Study approved in Peoples' last rate case

PEOPLES GAS SYSTEM
DOCKET NO. 110320-GU
STAFF'S FIRST DATA REQUEST
REVISED SCHEDULES EXHIBIT D
FILED: MARCH 9, 2012

CAST IRON / BARE STEEL REPLACEMENT RIDER
SUMMARY OF CI/BSR SURCHARGE CALCULATION
MONTHS: January 2018 Through December 2018

RATE SCHEDULE	MAINS NET PLANT*	SERVICES NET PLANT*	TOTAL NET PLANT*	% OF TOTAL PLANT	CI/BSR REVENUES	THERMS	CI/BSR SURCHARGE PER THERM
RS & RS-SG	$59,806,570	$79,163,368	$138,969,938	34.89%	$2,260,433	83,045,433	$0.02722
SGS	5,474,814	5,937,386	11,412,200	2.87%	185,627	7,769,409	$0.02389
GS-1 & CS-SG	45,983,103	12,635,366	58,618,469	14.72%	953,466	73,548,467	$0.01296
GS-2	81,315,915	8,975,978	90,291,893	22.67%	1,468,654	118,483,193	$0.01240
GS-3	46,157,083	2,496,659	48,653,742	12.21%	791,383	86,324,523	$0.00917
GS-4	25,447,491	447,292	25,894,783	6.50%	421,195	46,999,519	$0.00896
GS-5	22,396,181	427,101	22,823,282	5.73%	371,235	91,723,242	$0.00405
WHS	786,453	35,448	821,901	0.21%	13,369	1,460,689	$0.00915
NGVS	244,131	48,338	292,469	0.07%	4,757	91,723,242	$0.00005
CSLS	534,119	10,816	544,935	0.14%	8,864	193,500	$0.04581
TOTAL	$288,145,860	$110,177,751	$398,323,611	100.00%	$6,478,982	601,271,217	

* Source: Data in these columns are from Schedule H-2 of the Cost of Service Study approved in Peoples' last rate case

PEOPLES GAS SYSTEM
DOCKET NO. 110320-GU
STAFF'S FIRST DATA REQUEST
REVISED SCHEDULES EXHIBIT D
FILED: MARCH 9, 2012

CAST IRON / BARE STEEL REPLACEMENT RIDER
SUMMARY OF CI/BSR SURCHARGE CALCULATION
MONTHS: January 2019 Through December 2019

RATE SCHEDULE	MAINS NET PLANT*	SERVICES NET PLANT*	TOTAL NET PLANT*	% OF TOTAL PLANT	CI/BSR REVENUES	THERMS	CI/BSR SURCHARGE PER THERM
RS & RS-SG	$59,806,570	$79,163,368	$138,969,938	34.89%	$2,601,029	83,045,433	$0.03132
SGS	5,474,814	5,937,386	11,412,200	2.87%	213,596	7,769,409	$0.02749
GS-1 & CS-SG	45,983,103	12,635,366	58,618,469	14.72%	1,097,132	73,548,467	$0.01492
GS-2	81,315,915	8,975,978	90,291,893	22.67%	1,689,947	118,483,193	$0.01426
GS-3	46,157,083	2,496,659	48,653,742	12.21%	910,627	86,324,523	$0.01055
GS-4	25,447,491	447,292	25,894,783	6.50%	484,659	46,999,519	$0.01031
GS-5	22,396,181	427,101	22,823,282	5.73%	427,172	91,723,242	$0.00466
WHS	786,453	35,448	821,901	0.21%	15,383	1,460,689	$0.01053
NGVS	244,131	48,338	292,469	0.07%	5,474	91,723,242	$0.00006
CSLS	534,119	10,816	544,935	0.14%	10,199	193,500	$0.05271
TOTAL	$288,145,860	$110,177,751	$398,323,611	100.00%	$7,455,218	601,271,217	

* Source: Data in these columns are from Schedule H-2 of the Cost of Service Study approved in Peoples' last rate case

PEOPLES GAS SYSTEM
DOCKET NO. 110320-GU
STAFF'S FIRST DATA REQUEST
REVISED SCHEDULES EXHIBIT D
FILED: MARCH 9, 2012

CAST IRON / BARE STEEL REPLACEMENT RIDER
SUMMARY OF CI/BSR SURCHARGE CALCULATION
MONTHS: January 2020 Through December 2020

RATE SCHEDULE	MAINS NET PLANT*	SERVICES NET PLANT*	TOTAL NET PLANT*	% OF TOTAL PLANT	CI/BSR REVENUES	THERMS	CI/BSR SURCHARGE PER THERM
RS & RS-SG	$59,806,570	$79,163,368	$138,969,938	34.89%	$2,931,349	83,045,433	$0.03530
SGS	5,474,814	5,937,386	11,412,200	2.87%	240,722	7,769,409	$0.03098
GS-1 & CS-SG	45,983,103	12,635,366	58,618,469	14.72%	1,236,463	73,548,467	$0.01681
GS-2	81,315,915	8,975,978	90,291,893	22.67%	1,904,564	118,483,193	$0.01607
GS-3	46,157,083	2,496,659	48,653,742	12.21%	1,026,273	86,324,523	$0.01189
GS-4	25,447,491	447,292	25,894,783	6.50%	546,209	46,999,519	$0.01162
GS-5	22,396,181	427,101	22,823,282	5.73%	481,421	91,723,242	$0.00525
WHS	786,453	35,448	821,901	0.21%	17,337	1,460,689	$0.01187
NGVS	244,131	48,338	292,469	0.07%	6,169	91,723,242	$0.00007
CSLS	534,119	10,816	544,935	0.14%	11,495	193,500	$0.05940
TOTAL	$288,145,860	$110,177,751	$398,323,611	100.00%	$8,402,002	601,271,217	

* Source: Data in these columns are from Schedule H-2 of the Cost of Service Study approved in Peoples' last rate case

CAST IRON / BARE STEEL REPLACEMENT RIDER
SUMMARY OF CI/BSR SURCHARGE CALCULATION
MONTHS: January 2021 Through December 2021

RATE SCHEDULE	MAINS NET PLANT*	SERVICES NET PLANT*	TOTAL NET PLANT*	% OF TOTAL PLANT	CI/BSR REVENUES	THERMS	CI/BSR SURCHARGE PER THERM
RS & RS-SG	$59,806,570	$79,163,368	$138,969,938	34.89%	$3,251,396	83,045,433	$0.03915
SGS	5,474,814	5,937,386	11,412,200	2.87%	267,004	7,769,409	$0.03437
GS-1 & CS-SG	45,983,103	12,635,366	58,618,469	14.72%	1,371,461	73,548,467	$0.01865
GS-2	81,315,915	8,975,978	90,291,893	22.67%	2,112,505	118,483,193	$0.01783
GS-3	46,157,083	2,496,659	48,653,742	12.21%	1,138,322	86,324,523	$0.01319
GS-4	25,447,491	447,292	25,894,783	6.50%	605,845	46,999,519	$0.01289
GS-5	22,396,181	427,101	22,823,282	5.73%	533,983	91,723,242	$0.00582
WHS	786,453	35,448	821,901	0.21%	19,230	1,460,689	$0.01316
NGVS	244,131	48,338	292,469	0.07%	6,843	91,723,242	$0.00007
CSLS	534,119	10,816	544,935	0.14%	12,750	193,500	$0.06589
TOTAL	$288,145,860	$110,177,751	$398,323,611	100.00%	$9,319,339	601,271,217	

* Source: Data in these columns are from Schedule H-2 of the Cost of Service Study approved in Peoples' last rate case

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CAST IRON / BARE STEEL REPLACEMENT RIDER
SUMMARY OF CI/BSR SURCHARGE CALCULATION
MONTHS: January 2022 Through December 2022

RATE SCHEDULE	MAINS NET PLANT*	SERVICES NET PLANT*	TOTAL NET PLANT*	% OF TOTAL PLANT	CI/BSR REVENUES	THERMS	CI/BSR SURCHARGE PER THERM
RS & RS-SG	$59,806,570	$79,163,368	$138,969,938	34.89%	$3,503,412	83,045,433	$0.04219
SGS	5,474,814	5,937,386	11,412,200	2.87%	287,700	7,769,409	$0.03703
GS-1 & CS-SG	45,983,103	12,635,366	58,618,469	14.72%	1,477,763	73,548,467	$0.02009
GS-2	81,315,915	8,975,978	90,291,893	22.67%	2,276,245	118,483,193	$0.01921
GS-3	46,157,083	2,496,659	48,653,742	12.21%	1,226,554	86,324,523	$0.01421
GS-4	25,447,491	447,292	25,894,783	6.50%	652,804	46,999,519	$0.01389
GS-5	22,396,181	427,101	22,823,282	5.73%	575,372	91,723,242	$0.00627
WHS	786,453	35,448	821,901	0.21%	20,720	1,460,689	$0.01419
NGVS	244,131	48,338	292,469	0.07%	7,373	91,723,242	$0.00008
CSLS	534,119	10,816	544,935	0.14%	13,738	193,500	$0.07100
TOTAL	$288,145,860	$110,177,751	$398,323,611	100.00%	$10,041,680	601,271,217	

* Source: Data in these columns are from Schedule H-2 of the Cost of Service Study approved in Peoples' last rate case

Peoples Gas System
Average Residential Rate Impact with Cast Iron / Bare Steel Replacement Rider Surcharge

	**Year 1 2012	Year 2 2013	Year 3 2014	Year 4 2015	Year 5 2016	Year 6 2017	Year 7 2018	Year 8 2019	Year 9 2020	Year 10 2021	Year 11 2022
Revenue Requirements	$165,547	$1,154,019	$2,279,576	$3,373,599	$4,438,174	$5,473,303	$6,478,982	$7,455,218	$8,402,002	$ 9,319,339	$10,041,680
Residential Bill - 20 Therms / Month											
Bill Components											
Customer Charge	$ 15.00	$ 15.00	$ 15.00	$ 15.00	$ 15.00	$ 15.00	$ 15.00	$ 15.00	$ 15.00	$ 15.00	$ 15.00
Distribution	$ 0.268	$ 0.268	$ 0.268	$ 0.268	$ 0.268	$ 0.268	$ 0.268	$ 0.268	$ 0.268	$ 0.268	$ 0.268
Energy Conservation	$ 0.033	$ 0.033	$ 0.033	$ 0.033	$ 0.033	$ 0.033	$ 0.033	$ 0.033	$ 0.033	$ 0.033	$ 0.033
CI/BSR Surcharge	$ 0.001	$ 0.005	$ 0.010	$ 0.014	$ 0.019	$ 0.023	$ 0.027	$ 0.031	$ 0.035	$ 0.039	$ 0.042
*Purchased Gas Adjustment (Fuel)	$ 0.806	$ 0.806	$ 0.806	$ 0.806	$ 0.806	$ 0.806	$ 0.806	$ 0.806	$ 0.806	$ 0.806	$ 0.806
Gross Receipts Tax	$ 0.912	$ 0.912	$ 0.912	$ 0.912	$ 0.912	$ 0.912	$ 0.912	$ 0.912	$ 0.912	$ 0.912	$ 0.912
Bill Calculation											
Customer Charge	$ 15.00	$ 15.00	$ 15.00	$ 15.00	$ 15.00	$ 15.00	$ 15.00	$ 15.00	$ 15.00	$ 15.00	$ 15.00
Non-Gas Energy	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36	5.36
Energy Conservation	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
CI/BSR Surcharge	0.03	0.10	0.19	0.28	0.37	0.46	0.54	0.63	0.71	0.78	0.84
*Purchased Gas Adjustment (Fuel)	16.12	16.12	16.12	16.12	16.12	16.12	16.12	16.12	16.12	16.12	16.12
Gross Receipts Tax	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Total Bill with CI/BS Rider	$ 38.08	$ 38.15	$ 38.25	$ 38.34	$ 38.43	$ 38.51	$ 38.60	$ 38.68	$ 38.76	$ 38.84	$ 38.90
Total Bill without CI/BSR	$ 38.05	$ 38.05	$ 38.05	$ 38.05	$ 38.05	$ 38.05	$ 38.05	$ 38.05	$ 38.05	$ 38.05	$ 38.05
Average Total Monthly Increase	$ 0.03	$ 0.10	$ 0.19	$ 0.28	$ 0.37	$ 0.46	$ 0.54	$ 0.63	$ 0.71	$ 0.78	$ 0.84
Average Total Annual Increase	$ 0.33	$ 1.16	$ 2.30	$ 3.40	$ 4.47	$ 5.52	$ 6.53	$ 7.52	$ 8.47	$ 9.40	$ 10.12
Percent of Monthly Bill	0.07%	0.25%	0.50%	0.74%	0.98%	1.21%	1.43%	1.65%	1.86%	2.06%	2.22%

*December 2011 PGA
**Assumes surcharge for 6 months

PEOPLES GAS SYSTEM
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REVISED SCHEDULE EXHIBIT E
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13. For the purposes of the following request, please refer to Exhibit B of PGS's Petition. Under procedures for establishing CI/BSR surcharges, does Peoples envision having its annual true-up filing audited by the Commission?

A. Yes; Peoples intends to submit an annual true-up filing with an annual audit conducted by the Commission similar to the prescribed method in the annual energy conservation cost recovery clause docket.

14. How will the commission verify the actual costs associated with PGS's petition?

A. See response to Data Request No. 4.

15. For the purposes of the following request, please refer to Exhibit C of the Petition. The depreciation rate used is 2.6%.

a. Please identify the Commission order authorizing this rate.

b. Does PGS envision applying the same 2.6% depreciation rate for all three types of investments – mains, services and regulator stations?

c. If the response to (b.) is affirmative, is the 2.6% a composite rate? If so, please provide the composite rate derivation.

d. If the response to (b.) is negative, please detail the individual depreciation rates of all three types of investments – mains, services and regulator stations.

A.

a. The calculation for the 2.6% should be 0.26% and is 1/12 of the plastic pipe whole life depreciation rate of 3.1% that was filed in Peoples 2011 depreciation study. A Commission order authorizing this rate has not yet been issued.

b. No; the applicable approved Peoples' 2011 Depreciation Study depreciation rates associated with the installed assets will be applied to any mains, services and regulators (versus district regulator stations) that are replaced.

c. See response to a.

d.

Investment	Account Number	Whole Life Depreciation Rate*
Mains Steel	37600	4.0
Mains Plastic	37602	3.1
Services Steel	38000	6.3
Services Plastic	38002	4.8
House Regulator	38300	3.6

16. The Commission will be presented shortly with a staff recommendation updating PGS's currently approved depreciation rates. Does PGS envision updating the depreciation rates presented in its petition?

A. Yes; Peoples will use the updated depreciation rates as approved in Docket No. 110232-GU, Petition for approval of 2011 Depreciation Study by Peoples Gas System.

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17. Referring to paragraph 12 of the Petition, please provide a copy of any documentation that describes PGS's current program, which has been in place since 2001, to replace cast iron and bare steel mains.

A. See attached.

RECEIVED
FEB 07 2002
Florida Public Service Commission
Division of Auditing and Safety

PEOPLES GAS

February 5, 2002

Mr. C. Edward Mills
Bureau Chief, Safety
Florida Public Service Commission
Capital Circle Office Center
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: Bare, unprotected steel replacement program

Dear Mr. Mills:

In an effort to initiate the replacement program for the unprotected steel pipe, I have attached a proposed commitment for **2002** for TECO-Peoples Gas to replace approximately 50,000 lf of pipe. This commitment of approximately $1,000,000 for 2002 represents the first program specifically dedicated to the replacement of bare, unprotected steel. In addition to the attached program, we will also replace sections of bare steel in conjunction with roadway construction and continued cast iron replacement programs.

In December of this year, I will provide you with an analysis detailing the results of this plan. We are dedicated to continue this program and I will attempt to provide you a more long-term plan in the next few months. The focus of our proposed plan will be on those areas in which leak history and survey readings indicate the possibility of active corrosion.

If further information is required, please call me at 813-228-4540.

Sincerely,

Keith C. Martin
Director of Engineering Services

Cc: M.J. Pennino

PEOPLES GAS
702 NORTH FRANKLIN STREET
P. O. BOX 2562
TAMPA, FL 33601-2562
AN EQUAL OPPORTUNITY COMPANY

(813) 275-3900
HTTP://WWW.PEOPLESGAS.COM

PEOPLES GAS

February 28, 2001

Mr. C. Edward Mills
Utility Systems Engineering Supervisor
Florida Public Service Commission
Capital Circle Office Center
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: Bare unprotected steel replacement program

Dear Mr. Mills:

In your letter dated September 8, 2000, you indicated, based on the review by Mr. Norm Witman, the need to address the situation in reference to the bare, unprotected steel in North Miami. In recent meetings with the operating personnel, I would propose to have a preliminary plan to you by April 30, 2001, to address all bare, unprotected steel remaining in our system. The plan will be based on several factors including liability, road construction opportunities, economics, and the ability of our personnel to inspect and administer the plan.

The Regional Operations Managers have committed to have the specifics of their respective plans to me by March 1st. I will review the information and provide upper management with a recommendation prior to submitting to you for review.

We currently maintain approximately 500 miles of bare unprotected steel in our system. We understand the need to address this issue. Continued improvements to our system will result in reduced maintenance expenses and fewer opportunities for corrosion leaks.

In a related matter, I would also like to propose a deviation from the electrical survey requirements for bare unprotected steel. I would propose that those mains scheduled for replacement during the first five years of the plan be subjected to annual leak survey. In increasing the frequency of leak survey from a three-year cycle to a one-year cycle on these mains, we propose that the benefit will be substantial over the data collection process of electrical survey. At the end of the

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first year, we will provide you with an analysis detailing our results. We will continue the five-year window of annual leak survey on these mains until the program is complete.

Please consider this alternative and advise. I would appreciate your input prior to March 30, in order to incorporate your comments into my plan details. If further information is required, please call me at 813-228-4540.

Sincerely,

Keith C. Martin
Director – Engineering Services

STATE OF FLORIDA

DIVISION OF SAFETY & ELECTRIC RELIABILITY
JOSEPH D. JENKINS
DIRECTOR
(850) 413-6700

Public Service Commission

March 27, 2001

Keith C. Martin
Director of Engineering Services
TECO/Peoples Gas System
Post Office Box 2562
Tampa, Florida 33601-2562

Re: Bare Unprotected Steel Pipeline Replacement Program Proposal

Dear Mr. Martin:

Staff welcomes TECO/Peoples Gas System's proposal for an unprotected pipeline replacement plan. The plan will provide increased levels of public safety exceeding the current minimum standards required by the pipeline safety rules. The increased leak surveys from every three years to each year is acceptable under Commission rules and federal enforcement standards for replacing the electrical survey requirement.

The United States Department of Transportation accepts leak surveys in place of the electrical surveys. Florida's policy is stricter requiring the electrical surveys to detect corrosion. However, with a detailed replacement plan the electrical surveys would not provide any useful data. Since the purpose of the electrical surveys is to find areas of active corrosion for replacement or protection the requirement for surveys would be moot in areas scheduled for replacement.

The following are areas of consideration for the replacement plan:

- Priority should be given to areas with higher corrosion rates and leak history.
- The plan should be flexible subject to revisions based upon new data.
- Any leaks on bare steel service lines are to be made safe as currently required and then completely replaced within 180 days of the leak's made safe date.

Keith C. Martin
Page 2
March 27, 2001

Additionally, the plan should have detailed information so that the pipeline areas covered can be readily ascertained. Current copies should be available in each operating area covered by the plan. The Commission gas safety engineers should be updated annually on any changes to the plan in their areas. A report on the status and progress must be submitted annually to the Division of Safety and Electric Reliability. The report is to include annual expenditures for the program. Finally, any pipeline not replaced within the five years of the program goes back under the three-year electrical survey for corrosion requirement.

If there are any questions regarding this letter or recommendations, please call me at (850) 413-6650.

Respectfully,

C. Edward Mills
Utility Systems Engineering Supervisor

CEM:cem

cc: Joseph D. Jenkins, Director, Division of Safety and Electric Reliability
Angela Llewellyn, Administrator Regulatory Coordination, TECO/Peoples Gas System

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18. Referring to paragraph 13 of the Petition, please provide a copy of the "assessment" of the cast iron and bare steel mains and service lines that PGS completed in August 2011, if available.

A. See attached.

Gas Distribution Integrity Management Program

Gas Distribution Integrity Management Program

[redacted]

- Implementation Date: August 2, 2011

REVISION CONTROL SHEET

Title: Distribution Integrity Management Plan

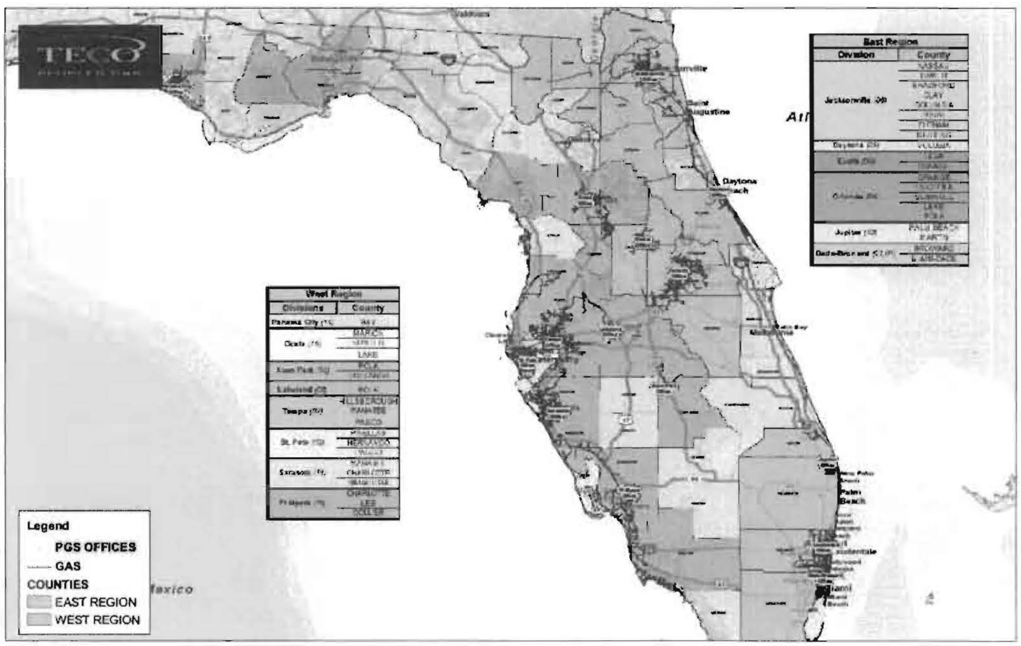
Section	Pages	Revision	Date	Comments

Table of Contents

1.0 COMPANY OVERVIEW

Headquartered in Tampa, FL TECO Peoples Gas delivers natural gas to more than 330,000 residential, commercial and industrial customers. The service territory is depicted in Figure 1.1 below.

Figure 1-1 Service Territory



2.0 SCOPE

The U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) amended the Federal Pipeline Safety Regulations on December 4, 2009 to require the Operator of gas distribution pipelines to develop and implement an integrity management (IM) program that includes a written integrity management plan.

The purpose of the IM program is to enhance safety by identifying and reducing gas distribution pipeline integrity risks. The Operator must integrate reasonably available information about their pipelines to inform their risk decisions. The rule requires that the Operator identify risks to their pipelines where an incident could cause serious consequences and focus priority attention in those areas. The rule also requires that the Operator implement a program to provide greater assurance of the integrity of their pipeline.

This written Integrity Management Plan applies to gas distribution pipelines operated by TECO Peoples Gas in the State of Florida. Gas distribution pipelines include the associated mains, services, service regulators, customer meters, valves, and other appurtenance attached to the pipe, compressor units, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies. This plan does not cover:

Transmission lines – pipelines and associated facilities, other than a gathering line, that: (1) transports gas from a gathering line or storage facility to a distribution center, storage facility, or large volume customer that is not down-stream from a distribution center; (2) operates at a hoop stress of 20 percent or more of the specified minimum yield strength; or (3) transports gas within a storage field.

The IM approach was designed to promote continuous improvement in pipeline safety by requiring the Operator to identify and invest in risk control measures beyond previously established regulatory requirements.

This written IM Plan addresses the IM Rule which requires the Operator to develop and implement an IM program that addresses the following elements:

- Knowledge
- Identify Threats
- Evaluate and Rank Risks
- Identify and Implement Measures to Address Risks
- Measure Performance, Monitor Results, and Evaluate Effectiveness
- Periodic Evaluation and Improvement
- Report results

Because of the significant diversity among distribution pipeline the Operator and pipelines, the requirements in the IM Rule are high-level and performance-based. The IM Rule specifies the required program elements but does not prescribe specific methods of implementation.

3.0 PURPOSE AND OBJECTIVES

The purpose of the IM program is to enhance safety by identifying and reducing gas distribution integrity risks. Managing the integrity and reliability of the gas distribution pipeline has always been a primary goal for TECO Peoples Gas; with design, construction, operations and maintenance activities performed in compliance with CFR Part 192 requirements. The objective of this IM Plan is to establish the requirements to comply with the Code of Federal Regulations (CFR 49) §§ 192.1005, 192.1007, 192.1009 and 192.1011, pertaining to integrity management for gas distribution pipelines. This IM Plan does not address how an operator may deviate from the required periodic inspections as provided for in §192.1013.

The IM Plan is comprised of seven elements depicted in Figure 3-1.

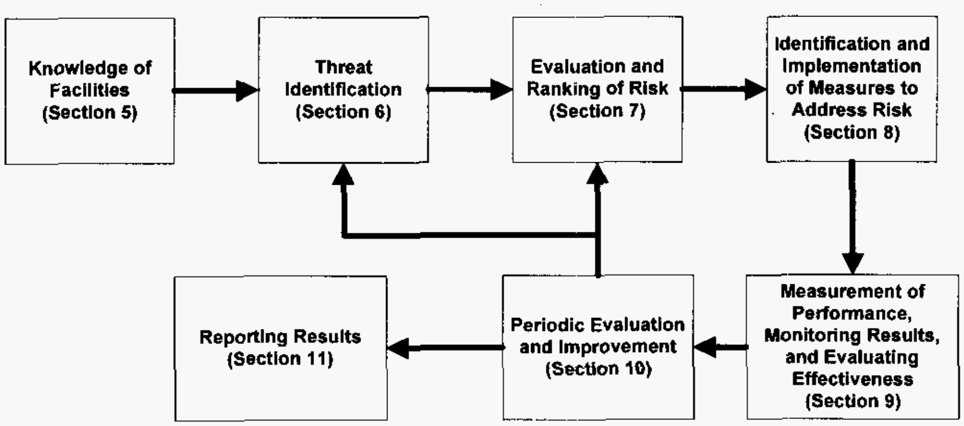


Figure 3-1 DIMP Elements

In addition to the key elements shown in Figure 3-1, the IM Plan also establishes requirements for reporting of compression coupling failures (Section 11.2) and maintaining records (Section 12).

All elements of this IM Plan shall be implemented by no later than August 2, 2011.

3.1 Company Roles

The purpose of this optional section is to describe key roles within the organization.

3.1.1 Director of Engineering and Safety

The *Director of Engineering and Safety* has overall responsibility to assure that the IM Plan processes are implemented by the organization in accordance with this IM Plan and associated regulatory requirements. The *Director of Engineering and Safety* may delegate, in writing, some or all of these responsibilities to others within the organization.

3.1.2 Manager of Compliance, Standards and Mapping

The *Manager of Compliance, Standards and Mapping* has the responsibility for day-to-day program oversight and responsibility to assure that the plan is implemented effectively and is fully integrated with the Company's operating procedures. This Plan assigns authority to the *Manager of Compliance, Standards and Mapping* for approval of documents and plans. The *Manager of Compliance, Standards and Mapping* may delegate some or all of these responsibilities. Roles for this position include:

- Monitors and controls costs and scheduling
- Determines IM Program budget requirements and makes associated Capital and Maintenance budget requests
- Assures effective implementation of the IM Program
- Authorizes and approves changes and revisions to the IM Plan
- Initiates communication with other departments within the Company
- Participates in annual effectiveness reviews and complete plan re-evaluations
- Submits reports to PHMSA and State Safety Regulators
- Administers the IM Program Compliance Activity Management system
- Monitors Performance Measures
- Assures plan compliance
- Analyzes threats
- Performs risk ranking
- Reviews and approves Exception Requests

3.1.3 Staff Engineer

The primary responsibility of the *[Staff Engineer]* is the identification and maintenance of asset, maintenance and operational data used in the IM Program and associated analyses. Data will be extracted from company systems and databases, in both electronic and hard copy format to facilitate the IM Program.

4.0 DEFINITIONS

The definitions provided in 49 CFR, §192.3 and §192.1001 shall apply to this IM Plan. The following additional definitions and acronyms shall also apply to this IM Plan.

DIMP: Distribution Integrity Management Program

D.I.R.T.: Damage Information Reporting Tool. More information on D.I.R.T. may be found at www.cga-dirt.com

Distribution Integrity Management Program Files: operator records, databases, and/or files that contain either material incorporated by reference in the Appendices of the IM Plan or outdated material that was once contained in the IM Plan Appendices but is being retained in order to comply with record keeping requirements.

Distribution Line: a pipeline other than a gathering or transmission line (reference §192.3)

EFV: Excess Flow Valve. An Excess Flow Valve is a safety device that is designed to shut off flow of natural gas automatically if the service line breaks.

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 (reference §192.1001)

FOF: Frequency of Failure; synonymous with Likelihood of Failure

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 (reference §192.1001)

HDPE: High Density Polyethylene

Integrity Management Plan (IM Plan): a written explanation of the mechanisms or procedures the operator will use to implement its integrity management program and to ensure compliance with subpart P of 49 CFR Part 192(reference §192.1001)

Integrity Management Program (IM Program): an overall approach used by an operator to ensure the integrity of its gas distribution system (reference §192.1001)

IM Rule: 49 CFR Part 192, Subpart P

Main: a distribution line that serves as a common source of supply for more than one service line (reference §192.3)

MDPE: Medium Density Polyethylene

NTSB: The National Transportation Safety Board

PHMSA: The U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration.

Pipeline: all parts of those physical facilities through which gas moves in transportation, including pipe, valves, and other appurtenances attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies (reference §192.3)

Region: areas within a distribution system consisting of mains, services, and other appurtenances with similar characteristics and reasonably consistent risk. As used in Section 7 of this User Guide, the term Region applies to a geographic area within the operator's system.

Risk: A relative measure of the likelihood of a failure associated with a threat and the potential consequences of such a failure.

Risk Model: the integration of facility data, operational data, SME input, and established algorithms to estimate the relative risk associated with a gas distribution system threat

Service Line: a distribution line that transports gas from a common source of supply to an individual customer, to two adjacent or adjoining residential or small commercial customers, or to multiple residential or small commercial customers served through a meter header or

manifold. A service line ends at the outlet of the customer meter or at the connection to customer piping, whichever is further downstream, or at the connection to customer piping.
SME: Subject Matter Expert. An SME is an individual who is judged by the operator to have specialized knowledge based on their expertise or training.

Sub-Threat: a threat type within one of the primary threat categories specified in §192.1007(b)ere is no meter (reference §192.3)

Ticket: A notification from the one-call notification center to the operator providing information of pending excavation activity for which the operator is to locate and mark its facilities.

5.0 KNOWLEDGE OF FACILITIES

The objective of this section is to assemble as complete of an understanding of the company's infrastructure as possible using reasonably available information from past and ongoing design, operations and maintenance activities. In addition, this plan will identify what additional information is needed and provide a plan for gaining that information over time through normal activities.

The information referenced in this Section shall either be placed in Appendix A or included in Appendix A by reference.

5.1 Type and Location of Records

A summary of the existing records that are utilized by the IM Plan and where they are located are documented in Table 5-1. This includes, but is not limited to, incident and leak history, corrosion control records, continuing surveillance records, patrolling records, maintenance history and excavation damage experience.

In addition to the data sources identified in §192.1007 (b), Table 5-1 below provides a summary of the records that are utilized by the IM Plan, the type of records that exist, the completeness of records, where they are located, and the key contact responsible for maintaining the records. Table 5-1 may be modified to meet the needs of the operator; however, it is recommended that at a minimum, the Table address those records specified in §192.1007 (b).

Table 5-1: IM Program Records Summary

Record	Record Type – Database, Electronic Record, Paper Record	Applicable Standard, Policy, or Guideline	Extent of Missing Records	Location of Records	Key Contact
Graphic Information System (GIS) database	Database	Map Record Standard	Unknown	Company GIS	Brendan Walsh
Wall Maps / Plats	Electronic / Paper	Historic, Varies	Not Applicable	Division Office & GIS	Local Division Manager
Gas Service Records	Electronic / Paper	Historic & MRS	Unknown	Division Office & GIS	Local Division Manager
As-Built Construction Drawings / records	Electronic / Paper	Historic & MRS	Unknown	Division Office & GIS	Local Division Manager
Gas Leak Repair Records	Electronic / Paper	O & M	0	GIS, LlaDRS, Division	Local Division Manager
Gas Leak Repair Database	Electronic / Paper, LiaDRS	O & M	0	GIS, LlaDRS, Division	Local Division Manager
Gas Leak Survey Records	Database, GIS, CIS	O & M, MRS	0	GIS, CIS, Division	Local Division Manager
DOT/PHMSA Incident Reports	Electronic / Paper	O & M	0	Corporate Engineering	
Other Incident Reports	Electronic / Paper	O & M , Emer. Proc.	0	Division	Local Division Manager
Cathodic Protection Maintenance Areas (Rectifier and Pipe-to-Soil inspection)	Paper	O & M	Unknown	Division, Region	Local Division & Region Managers

Table 5-1: IM Program Records Summary (continued)

Record	Record Type – Database, Electronic Record, Paper Record	Applicable Standard, Policy, or Guideline	Extent of Missing Records	Location of Records	Key Contact
CP Maintenance of Isolated Mains and Services subject to 10% annual inspection	Paper & CIS	O & M	Unknown	Division, CIS & Region	Local Division Manager & Regional Operations Manager
Atmospheric Corrosion Inspection Records	Paper & CIS	O & M	Unknown	Division, CIS & Region	Local Division Manager & Regional Operations Manager
Patrol Records	Paper	O & M	Unknown	Division	Division Manager
Valve Maintenance Records	Paper & Electronic	O & M	0	Division	Division Manager
Regulator Station Maintenance Records	Paper & Electronic	O & M	0	Division	Division Manager
Requests to Locate Gas Facilities	Database / Electronic	O & M, D.P., S.S.O.C.	0	S.S.O.C., IRTH	Division Manager & IRTH Admin.
3rd Party Damage Claims	LlaDRS	O & M, Damage Prevention	Unknown	LlaDRS	Supvr. Damage Prevention
Material Failure Reports	Paper / Electronic	O & M	0	LlaDRS / PGS 24	Division Manager
Main & Service Condition Reports	Paper	O & M	Unknown / n/a	Division	Division Manager
Liquid Removal Records	n/a	n/a	n/a	n/a	n/a
Environmental Factor: Areas subject to frost heave	n/a	n/a	n/a	n/a	n/a

Table 5-1: IM Program Records Summary (continued)

Record	Record Type – Database, Electronic Record, Paper Record	Applicable Standard, Policy, or Guideline	Extent of Missing Records	Location of Records	Key Contact
Environmental Factor: Areas subject to earthquake and fault lines	n/a	n/a	n/a	n/a	n/a
Environmental Factor: Areas subject to flood	n/a	n/a	n/a	n/a	n/a
Environmental Factor: Areas subject to landslide	n/a	n/a	n/a	n/a	n/a
Environmental Factor: Population Density Records					
Environmental Factor: Areas of Wall-to-Wall Paving					
SME Interview Records					

5.2 Overview of Past Design, Operations and Maintenance

Tables 5-2 and 5-3, located in Appendix A, provide how an operator may demonstrate knowledge from past design, operations and maintenance. The Operator may also wish to obtain SME involvement for this aspect of knowledge. In particular, personnel with extensive experience in operations and maintenance may be aware of unique risks posed by historical practices that are otherwise not well documented. The Operator should modify the tables presented in this section based on the availability of data.

Table 5-2: Summary of System Design by Operating Pressure

Table 5-3: Summary of Material Types and Years Installed

5.3 Characteristics of Design, Operations and Environmental Factors

Characteristics of the pipeline's design, operations and environmental factors that are necessary to assess the applicable threats and risks shall be documented, or included by reference, in Appendix A,

Tables 5-5 through 5-7, located in Appendix A, are reports that are already mandated by PHMSA or the State. Tables 5-8 through 5-35, located in Appendix A, demonstrate understanding of the characteristics of design, operations and environmental factors, using information from the records specified in §192.1007 (b). The Operator may also wish to obtain SME involvement for this aspect of knowledge if available data is lacking. The Operator may modify, delete or add new material to the tables presented in this section based on applicability and the availability of data.

Table 5-5: Miles of Mains and Number of Services by Material Type
[Part B1 of PHMSA Form F 7100.1-1 incorporated by reference]

Table 5-6: Miles of Mains and Number of Service lines by material and nominal diameter *[Part B2 & B3 of PHMSA Form F 7100.1-1 incorporated by reference]*

5.4 Additional Information Needed

Additional information needed to support the IM plan (information that is not reasonably available today) is identified in Appendix A, Section 2. Plans for gaining additional information over time through normal activities conducted on the pipeline shall also be documented, or included by reference, in Appendix A, Section 4.

Table 5-36 below may be used by the operator to identify additional information needed to support the IM Program.

Table 5-36: Identification of Additional Information Needed for IM Program

Area of incomplete records or Knowledge	Can it be acquired over time through normal activities? Y / N	Does Action Plan Exist? Y / N
Summary of Construction Practices	N	N
District Regulators, Security Valves and Relief Valves Manufacturer and Type	Y	N
Service Regulators Manufacturer and Type	Y	N
Mechanical Coupling Type	Y	N
Plastic Piping Type	Y	N

Table 5-37 below may be used by the operator to document action plans for gathering information over time through normal activities. Plans for gaining the additional information over time through normal activities conducted on the pipeline should be documented, or included by reference.

Table 5-37: Action Plans to Gain Additional Information Over Time

Action Plan Scope Gaining Additional Information	Schedule	Completion Date	Officer / Manager Responsible
Revision of Gas Leak Repair Form	Complete by 12/31/2011		Manager Compliance Standards and Mapping.

Knowledge of the gas distribution system should be refined and improved as needed. A record of planned and/or completed improvements (other than those plans for gaining additional information through normal activities, identified in Section 5.5) may be documented, or included by reference. Such efforts may include new data management practices or information gathered through special efforts that are not part of normal activities. Table 5-38 below may be used by the operator to document action plans to enhance knowledge.

Table 5-38: Documentation of Action Plans to Enhance Knowledge

Action Plans to Enhance Knowledge			
Action Plan Scope	Schedule	Completion Date	Officer / Manager Responsible
Revision of Gas Leak Repair Form	Complete by 12/31/2011		Manager Compliance Standards and Mapping.

5.5 Data Capture for New Construction and Ongoing O&M

Data is continuously collected for both construction of new facilities, reconstruction of existing facilities and ongoing operations and maintenance. In particular, the standard or procedure that require data capture for the location where the new pipeline is installed and the material of which it is constructed is contained in the Company Map Record Standard.

5.6 Knowledge Capture – Subject Matter Experts

§192.1007 does not specifically require or mention the use of Subject Matter Experts (SMEs). However, in addition to maps, records, and databases, valuable information may be gathered and captured from SMEs. SMEs are individuals who have specialized knowledge based on their experience or training. SMEs may be used to supplement existing, incomplete, or missing records and may be the only or best source of information in subjects such as historical operations, maintenance, and construction practices. SME interviews are also utilized to ensure that all threats have been identified. All SME interviews shall be documented and stored in the Distribution Integrity Management Program files.

Figure 5-1 below may be used for documenting SME interviews.

SME Name	Current Job Title Role	Yrs Experience	Comment(s) re: Qualification & Experience

Written record

Describe nature of information (First Hand witness or direct experience vs. Second Hand)

Date:	

Interviewer Name:	
Interviewer Title:	

Signature of Interviewer (Reqd):	
Signature of SMEs (Optional):	

6.0 THREAT IDENTIFICATION

The objective of this section of the plan is to identify existing and potential threats to the gas distribution pipeline. The following categories of threats shall be considered for each gas distribution pipeline:

- Corrosion
- Natural Forces
- Excavation Damage
- Other Outside Force
- Material, Weld or Joint Failure
- Equipment Failure
- Incorrect Operation
- Other concerns that could threaten the integrity of the pipeline.

A review of information gathered for Section 5 shall be conducted to identify existing and potential threats. A description of the process used to identify threats shall be documented in Appendix B, Section 1. Threats identified as applicable to the gas distribution pipeline shall be documented in Appendix B, Section 2. Prior versions of the threat identification process and results that are not longer current shall be retained and stored in the Distribution Integrity Management Program files.

6.1 Corrosion

Corrosion is the 4th largest threat to the TECO Peoples Gas gas distribution system, representing approximately 0 % of all serious incidents and 14.55 % of all recorded leak repairs during the five years from 2006 to 2010.

6.2 Natural Forces

Damage by Natural Forces is the 6th largest threat to the TECO Peoples Gas gas distribution system, representing approximately 0 % of all serious incidents and 7.6 % of all recorded leak repairs during the five years from 2006 to 2010.

6.3 Excavation Damage

Excavation damage is the largest threat to the TECO Peoples Gas gas distribution system, representing approximately 100 % of all serious incidents and 26.55 % of all recorded leak repairs during the five years from 2006 to 2010. The most significant root-cause factors are discussed below.

6.4 Other Outside Force Damage

Other Outside Force Damage is the 8th largest threat to the TECO Peoples Gas gas distribution system, representing approximately 0 % of all serious incidents and 2.00% of all recorded leak repairs during the five years from 2006 to 2010.

6.5 Material, Weld or Joint Failure

Material, weld, or joint failure is the 2nd largest threat to the TECO Peoples Gas gas distribution system, representing approximately 0 % of all serious incidents and 20.02 % of all recorded leak repairs during the five years from 2006 to 2010.

6.6 Equipment Failure

Equipment Failure is the 3rd largest threat to the TECO Peoples Gas gas distribution system, representing approximately 0 % of all serious incidents and 17.75 % of all recorded leak repairs during the five years from 2006 to 2010.

6.7 Incorrect Operation

Incorrect operation is the 7th largest threat to the TECO Peoples Gas gas distribution system, representing approximately 0 % of all serious incidents and 2.18 % of all recorded leak repairs during the five years from 2006 to 2010.

6.8 Other

Other concerns that could threaten the integrity of the pipeline (other than those listed previously) also represent a threat to the TECO Peoples Gas gas distribution system, representing approximately 0 % of all serious incidents and 9.35 % of all recorded leak repairs during the five years from 2006 to 2010.

6.9 Potential Threat Identification

Code Requirement: §192.1007 (b) An operator must consider reasonably available information to identify existing and potential threats. §192.1011 An operator must maintain records demonstrating compliance with the requirements of this subpart;

§192.1007 (b) does not specify the process by which an operator should identify potential threats. However, it is recommended that the operator develop a specific process and plan for the identification of potential threats and document this as part of the overall threat identification process. Potential Threats are those that are not currently evident based on failures, leak, or incident data. However, an operator may become aware of potential threats by routinely monitoring information from sources that include:

- National Transportation and Safety Board (NTSB) Reports and Recommendations applicable to Pipeline Accidents. Reports may be found at: http://www.ntsb.gov/Publictn/P_Acc.htm; Recommendation Letters may be found at: http://www.ntsb.gov/recs/letters/

- Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Advisory Bulletins: http://phmsa.dot.gov/pipeline/regs/advisory-bulletin

- Membership in a local, regional, or national gas association (e.g. American Gas Association, Northeast Gas Association, Southern Gas Association, etc.) and involvement in Association workshops and forums that share knowledge regarding distribution pipeline threats

- Review of trade journals and magazines that publish material regarding gas distribution

A summary of applicable NTSB Reports and Recommendations as well as PHMSA Advisory Bulletins regarding gas distribution threats are provided in Appendix UG4.

Table 6-1 below presents an example of how an operator may document their efforts to identify potential threats.

Table 6-1: Review of Potential Threats Applicable to the Gas Distribution System

Date of Review	Source 1 - PHMSA Bulletin 2 - NTSB Report 3 - NTSB Recommendation 4 - Gas Association 5 - Trade Journal	Threat Root Cause	Is this Threat already evaluated for in the IM Program? Y / N	Date that threat was added to program and incorporated into Risk Evaluation and Ranking (If Applicable)

6.10 Data Centric Approach to Existing Threat Identification

It is recommended that the operator use the best information available in order to understand the system and identify threats. The data centric approach example provided below is a Threat Identification methodology that uses available leak repair and incident data to identify threats that have a known history. Table 6-2 below provides an example of how an operator may review leak repairs, equipment failure reports, and incidents by threat category and sub-category for the five year period 2005 through 2009 and document an evaluation of applicable threats. The results are then reviewed by the SME(s) to make a final conclusion as to which threats are applicable. The SME(s) should also seek to identify any threats that not covered by the threat and sub-threat categories described in the User Guide. This SME review should be documented. The operator must document their Threat Identification process in Appendix B of the written IM Plan.

If it is found that the level of detail available from leak repair and incidents does not fully support this approach, the operator may wish to consider the SME Centric approach outlined in Section 6.11. An operator may also wish to combine the data centric and SME centric approaches in order to have as complete an evaluation as possible.

6.11 SME Centric Approach to Threat Identification

An operator may not have leak repair or other key data that is detailed enough to support the threat identification approach described in Section 6.10 and/or may wish to leverage the knowledge and experience of SMEs to perform threat identification. The available SME centric approach to Threat Identification uses SME input to identify threats that have a known history to the operator's personnel. Table 6-3 provides an example framework that may be used by SMEs in the evaluation of applicable threats. This SME review should be documented.

7.0 EVALUATION AND RANKING OF RISK

7.1 Objective

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

- Consider each applicable current and potential threat
- Consider the likelihood of failure associated with each threat
- Consider the potential consequences of such a failure
- Estimate and rank the risks (i.e. determine the relative importance) posed to the pipeline
- Consider the relevance of threats in one location to other areas

7.2 Risk Assessment Process

The current process used for Risk Assessment (the evaluation and ranking of risk) shall be documented, or included by reference, in Appendix C, Section 1. Prior risk assessment processes shall be retained and stored in the Distribution Integrity Management Program files.

7.3 Risk Assessment

The current risk assessment (likelihood, consequence, and resultant risk ranking) shall be documented, or included by reference, in Appendix C, Section 2. Prior risk assessment results shall be retained and stored in the Distribution Integrity Management Program files.

8.0 IDENTIFICATION AND IMPLEMENTATION OF MEASURES TO ADDRESS RISKS

The objective of this section of the IM Plan is to describe existing and proposed measures to address the risks that have been evaluated and prioritized in Section 7.

8.1 Leak Management Program

The Leak Management program is established in the Company's Operating and Maintenance Procedures Manual Section 18 - Leak Survey- Distribution and Section 19 -- Leak Classification & Action Criteria, the Company's Emergency Procedures Manual, the Company's Job Procedures JP 11-001 -- Investigate Outside Leak and JP 11-002 – Investigate Inside Leak and the Company's Pipeline Public Awareness Plan.

8.1.1 Description of Existing Program

A summary of the key elements of the Leak Management Program shall be documented, or included by reference, in Appendix D, Section 1.

8.1.2 Key Performance Metrics & Analysis of Effectiveness

The Leak Management Program key performance metrics (those that establish program effectiveness) shall be documented, or included by reference, in Appendix D, Section 2. Prior documentation shall be retained and stored in the Distribution Integrity Management Program files.

8.2 Other Additional or Accelerated Actions

The following Sections 8.2.1 through 8.2.8 outline additional or accelerated actions that have been taken or are being planned in order to reduce the risks from failure of the gas distribution pipeline.

8.2.1 Corrosion

Additional or Accelerated Actions that are currently scheduled or in place in order to reduce the risks associated with corrosion shall be documented, or included by reference, in Appendix D, Section 3. Prior documentation shall be retained and stored in the Distribution Integrity Management Program files.

Table 8-3: Corrosion Action Plans

Sub-Threat	Damage Prevention Action Plan Scope	Status	Officer / Manager Responsible
Cast Iron Pipe	Increase Leak Survey Frequency on areas of highest risk	Determined by risk review	Region Operations and Division Manager
	Implement or increase schedule of a replacement program that prioritizes the replacement schedule based on highest risk areas/segments	Determined by risk review	Director Engineering and Safety and Director(s) Gas Operations
	Provide training for crews to identify and determine extent of graphitization. Inspect all CI exposed for other work. Replace any segment with evidence of graphitization.	Ongoing	Division Manager
	Review process for ensuring adequate support or work-around during adjacent 3rd party construction.	Ongoing	Division Manager
Bare Steel (No CP)	Increase Leak Survey Frequency on areas of highest risk	Determined by risk review	Region Operations and Division Manager
	Implement or increase schedule of a replacement program that prioritizes the replacement schedule based on highest risk areas/segments	Determined by risk review	Director Engineering and Safety and Director(s) Gas Operations
	Assess whether CP would be effective and install	Ongoing	Region Operations and Division Manager

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Table 8-3: Corrosion Action Plans (continued)

Sub-Threat	Damage Prevention Action Plan Scope	Status	Officer / Manager Responsible
Bare Steel (with CP)	Increase Leak Frequency on areas of highest risk	Determined by risk review	Region Operations and Division Manager
	Implement or increase schedule of a replacement program that prioritizes the replacement schedule based on highest risk areas/segments	Determined by risk review	Director Engineering and Safety and Director(s) Gas Operations
	Assess effectiveness of existing CP	Ongoing	Region Operations and Division Manager
Coated Steel (with CP)	Review adequacy of CP design and whether existing test locations are truly indicative of minimum protection level in the system	Ongoing	Region Operations and Division Manager
	Evaluate whether timely corrective action is taken when CP levels fall below standard	Ongoing	Region Operations and Division Manager
	Establish and monitor key performance measures for the maintenance of CP areas	Ongoing	Region Operations and Division Manager
Coated Steel (without CP)	Evaluate ability to install effective CP and install	Ongoing	Region Operations and Division Manager
	Ensure that inspection data is being taken when lines are exposed to record level of corrosion. Organize data such that it can be used to target and prioritize replacement	Ongoing	Region Operations and Division Manager
	Establish replacement program	Determined by risk review	Region Operations and Division Manager

Coated Steel (without CP)	Increase Leak Survey Frequency on areas of highest risk	Ongoing	Region Operations and Division Manager
	Implement review of all new projects to ensure that they do not result in isolation of steel services or sections of steel main from effective CP current	Ongoing	Region Operations and Division Manager

Table 8-3: Corrosion Action Plans (continued)

Sub-Threat	Damage Prevention Action Plan Scope	Status	Officer / Manager Responsible
Stray Current	Increase Leak Survey Frequency on areas of highest risk	Determined by risk review	Region Operations and Division Manager
	Test for and resolve DC current interference in areas located near DC transit systems, foreign utilities under CP, etc.	Ongoing	Region Operations and Division Manager
	Replace sections of poorly coated pipe subject to stray current	Determined by risk review	Region Operations and Division Manager
	Install insulation joints, magnesium anodes, and/or drainage bonds	Ongoing	Region Operations and Division Manager
Atmospheric Corrosion	Increase inspection frequency on areas of highest risk	Determined by risk review	Region Operations and Division Manager
	Implement a replacement program	Determined by risk review	Region Operations and Division Manager
	Review coating materials to ensure that they are appropriate for areas susceptible to atmospheric corrosion	Ongoing	Region Operations and Division Manager

8.2.2 Natural Forces

Additional or Accelerated Actions that are currently scheduled or in place in order to reduce the risks associated with natural forces shall be documented, or included by reference, in Appendix D, Section 4. Prior documentation shall be retained and stored in the Distribution Integrity Management Program files.

Table 8-4: Natural Forces Action Plans

Sub-Threat	Damage Prevention Action Plan Scope	Status	Officer / Manager Responsible
Flooding	Monitor flood threats and shut off gas service to impacted areas in advance of flooding	Ongoing	Region Operations and Division Manager
	Patrol and leak survey after flooding	As necessary	Region Operations and Division Manager
	Design Emergency Isolation Zones and install zone shut off valves for areas known to have high risk of flooding	Ongoing	Region Operations and Division Manager
Tree Roots	Increase leakage survey in areas with history of problems	As necessary	Region Operations and Division Manager
	Replace / relocate sections of main or service subject to abnormal stress due to known root impact	As necessary	Region Operations and Division Manager

8.2.3 Excavation Damage

Additional or Accelerated Actions that are currently scheduled or in place in order to reduce the risks associated with excavation damage shall be documented, or included by reference, in Appendix D, Section 5. Prior documentation shall be retained and stored in the Distribution Integrity Management Program files.

Table 8-5: Excavation Damage Action Plans

Sub-Threat	Damage Prevention Action Plan Scope	Status	Officer / Manager Responsible
Improper Excavation Practice	Track dig-ins and identify problem excavators. Implement repeat offender policy that includes a formal letter of warning to excavator and their insurance provider, targeted education, and targeted field inspections.	In-place / Ongoing	Sr. Manager Project Management and Damaged Facilities
	Work with jurisdictional authorities to implement right to increase damages for cases of gross negligence.	Under review	Sr. Manager Project Management and Damaged Facilities
	Conduct pre-construction meeting or site-visits for excavation near critical or high risk facilities.	Ongoing	Sr. Manager Project Management, Damaged Facilities, and Division Manager
	Special patrols or job site visits for high-risk excavators or high-risk excavation practices.	Ongoing	Sr. Manager Project Management, Damaged Facilities, and Division Manager
Facility Not Located or Marked	Analyze root cause and implement corrective action. Adopt formal procedure that requires written investigation and signed review/approval.	Ongoing	Sr. Manager Project Management and Damaged Facilities
	Require all 1st party excavation to also require one-call notification and marking (if not already policy)	Ongoing	Sr. Manager Project Management and Damaged Facilities

Table 8-5: Excavation Damage Action Plans (continued)

Sub-Threat	Damage Prevention Action Plan Scope	Status	Officer / Manager Responsible
One-call Notification Center Error	Follow-up with notification center and ask for documentation of corrective action. Adopt formal procedure that requires written investigation and signed review/approval.	Ongoing	Sr. Manager Project Management and Damaged Facilities
Mis-marked Facilities	Monitor and track for dig-ins resulting from mis-marked facilities. Analyze root cause and implement corrective action. Adopt formal procedure that requires written investigation and signed review/approval.	Ongoing	Sr. Manager Project Management and Damaged Facilities
	Conduct sample audits of locates to monitor performance.	Ongoing	Sr. Manager Project Management and Damaged Facilities
	Conduct analysis of capability/accuracy of existing locating equipment and deploy improved tools as necessary.	Ongoing	Sr. Manager Project Management and Damaged Facilities
Incorrect Facility Records	Monitor and track for dig-ins resulting from incorrect facility records. Analyze root cause and implement corrective action. Adopt formal procedure that requires written investigation and signed review/approval.	Ongoing	Sr. Manager Project Management and Damaged Facilities
	Monitor timeliness of as-built mapping for new and/or reconstructed facilities. Implement process for indicating existence of plans for new construction or reconstruction on facility maps/records.	Ongoing	Sr. Manager Project Management and Damaged Facilities

8.2.4 Other Outside Force

Additional or Accelerated Actions that are currently scheduled or in place in order to reduce the risks associated with other outside force shall be documented, or included by reference, in Appendix D, Section 6. Prior documentation shall be retained and stored in the Distribution Integrity Management Program files.

Table 8-6: Other Outside Force Action Plans

Sub-Threat	Damage Prevention Action Plan Scope	Status	Officer / Manager Responsible
Vehicle Damage to Riser/Meter	Train personnel to identify meters/risers at high risk. Implement or expand program to install protection or relocate facilities.	Ongoing	Division Manager
	Relocate or protect any meter/riser that is hit or damaged by a vehicle.	Ongoing	Division Manager
Vehicle Damage to above ground equipment or stations	Train personnel to identify facilities at high risk. Implement or expand program to install protection or relocate facilities.	Ongoing	Division Manager
	Relocate or protect any facility that is hit or damaged by a vehicle.	Ongoing	Division Manager
Vandalism	Ensure locks are installed on critical valves and existing gates.	Ongoing	Division Manager
	Install fences or other enclosures for high risk stations or other facilities.	Ongoing	Division Manager
	Increase visibility/lighting or other actions at critical facilities.	As necessary	Division Manager
Structure Fire	Ensure that a shutoff valve (riser or curb valve) exists outside the structure and is operable. Monitor and expedite repairs of these service shutoff valves.	Ongoing	Division Manager
	Verify that first responder training is adequate and frequent.	Ongoing	Division Manager

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8.2.5 Material, Weld or Joint Failure

Additional or Accelerated Actions that are currently scheduled or in place in order to reduce the risks associated with material, weld or joint failure shall be documented, or included by reference, in Appendix D, Section 7. Prior documentation shall be retained and stored in the Distribution Integrity Management Program files.

Table 8-7: Material, Weld or Joint Failure Action Plans

Sub-Threat	Damage Prevention Action Plan Scope	Status	Officer / Manager Responsible
MDPE 2306 Aldyl A HDPE 3306 PVC ABS CAB PB	Provide training and process to identify these plastics by type whenever facilities are exposed and maintain database to identify where these facilities exist.	Ongoing	Region Operations and Division Manager
	Increase Leak Survey Frequency on areas of highest risk	Determined by risk review	Region Operations and Division Manager
	Implement or increase schedule of a replacement program that prioritizes the replacement schedule based on highest risk areas/segments.	Determined by risk review	Region Operations and Division Manager

Table 8-7: Material, Weld or Joint Failure Action Plans (continued)

Sub-Threat	Damage Prevention Action Plan Scope	Status	Officer / Manager Responsible
Delrin Insert Tap Tees	Provide training and process to identify these Tees whenever facilities are exposed and maintain database to identify where these facilities exist.	Ongoing	Region Operations and Division Manager
Plexco Service Tee Celcon Caps	Increase Leak Survey Frequency on areas of highest risk.	Determined by risk review	Region Operations and Division Manager
	Implement or increase schedule of a replacement program that prioritizes the replacement schedule based on highest risk areas/segments.	Determined by risk review	Region Operations and Division Manager
PE Fusion Failure	Track Fusion failures by material type, diameter and fusion type in order to identify any trends.	Ongoing	Region Operations and Division Manager
	Increase Leak Survey Frequency on areas of highest risk.	Determined by risk review	Region Operations and Division Manager
	Perform QA/QC review of fusion procedures; modify as necessary	Ongoing	Region Operations and Division Manager
Mechanical Coupling Pullout or Seal Leak	Track coupling leaks/failures by coupling type, material type, diameter and manufacturer in order to identify any trends.	Ongoing	Region Operations and Division Manager
	Increase Leak Survey Frequency on identified areas of highest risk.	Determined by risk review	Region Operations and Division Manager
	Establish criteria for replacement in lieu of repair for any mechanical couplings that are excavated for leak repair.	Determined by risk review	Region Operations and Division Manager
Pre-1940 Oxy-Acetylene girth welds	Track weld leaks/failures by age and diameter in order to identify any trends.	Ongoing	Region Operations and Division Manager

Pre-1940 Oxy-Acetylene girth welds	Increase Leak Survey Frequency on pre-1940 steel mains greater than 4 inches in diameter.	Determined by risk review	Region Operations and Division Manager
	Replace pre-1940 OA girth welds subject to high axial or bending stresses.	Determined by risk review	Region Operations and Division Manager
	Establish criteria for replacement in lieu of repair for any mechanical couplings that are excavated for leak repair.	Determined by risk review	Region Operations and Division Manager

8.2.6 Equipment Failure

Additional or Accelerated Actions that are currently scheduled or in place in order to reduce the risks associated with equipment failure shall be documented, or included by reference, in Appendix D, Section 8. Prior documentation shall be retained and stored in the Distribution Integrity Management Program files.

Table 8-8: Equipment Failure Action Plans

Sub-Threat	Damage Prevention Action Plan Scope	Status	Officer / Manager Responsible
Valves	Track valve leaks/failures by age and diameter in order to identify any trends.	Ongoing	Region Operations and Division Manager
	Establish criteria for replacement in lieu of repair for any mechanical couplings that are excavated for leak repair.	Ongoing	Region Operations and Division Manager
Service Regulators	Track Service Regulator failures by age, size, style and manufacturer in order to identify any trends.	Ongoing	Region Operations and Division Manager
	Establish or advance existing replacement program if failure history warrants	Determined by risk review	Region Operations and Division Manager
Control / Relief Station Equipment	Increase inspection and/or maintenance frequency	Determined by risk review	Region Operations and Division Manager
	Track failures by age, size, style and manufacturer in order to identify any trends.	Ongoing	Region Operations and Division Manager

	Establish replacement program if failure history warrants	Determined by risk review	Region Operations and Division Manager

8.2.7 Incorrect Operation

Additional or Accelerated Actions that are currently scheduled or in place in order to reduce the risks associated with incorrect operation shall be documented, or included by reference, in Appendix D, Section 9. Prior documentation shall be retained and stored in the Distribution Integrity Management Program files.

Table 8-9: Incorrect Operation Action Plans

Sub-Threat	Damage Prevention Action Plan Scope	Status	Officer / Manager Responsible
Operating Error	Track failures/leaks that results from operating errors in order to identify any trends.	Ongoing	Region Operations and Division Manager
	Perform root cause analysis of operating errors and take corrective action.	Ongoing	Region Operations and Division Manager
	Review training and qualification programs and procedures for adequacy and take correct action.	Ongoing	Region Operations and Division Manager
	Implement QA/QC program for key maintenance and operations tasks	Ongoing	Region Operations and Division Manager
Service Lines Bored thru Sewers	Identify possible locations and prioritize investigation of highest risk sites.	Determined by risk review	Region Operations and Division Manager

8.2.8 *Other*

Additional or Accelerated Actions that are currently scheduled or in place in order to reduce the risks associated with other causes shall be documented, or included by reference, in Appendix D, Section 10. Prior documentation shall be retained and stored in the Distribution Integrity Management Program files.

Table 8-10: Other Action Plans

Sub-Threat	Damage Prevention Action Plan Scope	Status	Officer / Manager Responsible
Bell Joint Leakage	Increase Survey Leak Frequency on areas of highest risk	Determined by risk review	Region Operations and Division Manager
	Implement or increase schedule of a replacement program that prioritizes the replacement schedule based on highest risk areas/segments	Determined by risk review	Region Operations and Division Manager
	Review process for ensuring adequate support or work-around during adjacent 3^{rd} party construction.	Ongoing	Region Operations and Division Manager
Construction over gas mains and services	Implement program for identifying, tracking, prioritizing, scheduling and resolving construction over gas mains and services in a timely manner.	Participation in S.S.O.C.	Sr. Manager Project Management and Damaged Facilities
	Implement education as part of the Public Awareness program	Current Damage Prevention Program	Sr. Manager Project Management and Damaged Facilities

9.0 MEASUREMENT OF PERFORMANCE, MONITORING RESULTS, AND EVALUATING EFFECTIVENESS

The objective of this section of the plan is to establish performance measures that shall be monitored from an established baseline in order to evaluate the effectiveness of the IM program. The performance measures detailed in Sections 9.1 through 9.6 have been established in order to monitor performance and assist in the ongoing evaluation of threats.

9.1 Number of Hazardous Leaks either Eliminated or Repaired, per §192.703(c), Categorized by Cause

The baseline and ongoing performance of the number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by cause, shall be documented, or included by reference, in Appendix E.

9.2 Number of Excavation Damages

The baseline and ongoing performance of the number of excavation damages shall be documented, or included by reference, in Appendix E.

9.3 Number of Excavation Tickets (received from the notification center)

The baseline and ongoing performance of the number of excavation tickets received from the notification center(s) shall be documented, or included by reference, in Appendix E.

9.4 Total Number of Leaks either Eliminated or Repaired, Categorized by Cause

The baseline and ongoing performance of the total number of leaks either eliminated or repaired, categorized by cause, shall be documented, or included by reference, in Appendix E.

9.5 Number of Hazardous Leaks Either Eliminated or Repaired, per §192.703(c), Categorized by Material

The baseline and ongoing performance of the number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by material, shall be documented, or included by reference, in Appendix E.

9.6 Additional Performance Measures

If it is determined that additional performance measures are needed to evaluate the effectiveness of the IM Program in controlling an identified threat, the performance measures shall be documented, or included by reference, in Appendix E.

10.0 PERIODIC EVALUATION AND IMPROVEMENT

The objective of this section of the plan is to periodically re-evaluate threats and risks on the entire pipeline and periodically evaluate the effectiveness of its program.

10.1 Plan Updating, Review Frequency and Documentation

This written integrity management plan shall be reviewed annually and updated as required to reflect changes and improvements that have occurred in process, procedures and analysis for each element of the program. A complete program re-evaluation shall be completed every five years. All changes to the written plan, inclusive of material from the appendices, shall be recorded on the Revision Control Sheet on page ii. However, changes to material in the appendices that is included by reference need not be recorded on the Revision Control Sheet.

10.2 Effectiveness Review

An assessment of the performance measures described in Sections 9.1 through 9.6 shall be performed. In cases where the re-evaluation criteria specified is met or exceeded, a re-evaluation of the associated threats and risks shall be completed. An emerging threat in one or more location shall be evaluated for relevance to other areas. The re-evaluation of threats and risks shall be documented in Appendix F and the results of the re-evaluation shall be documented in Appendices B and C. The review shall also establish whether a complete program re-evaluation shall be completed in a shorter timeframe than five years; this decision shall also be documented. Past effectiveness reviews that are no longer current shall be retained and stored in the Distribution Integrity Management Program files.

11.0 REPORTING RESULTS

11.1 State & Federal Annual Reporting Requirements

The following four measures shall be reported, annually by March 15, to PHMSA as part of the annual report required by 49 CFR, § 191.11:

- Number of hazardous leaks either eliminated or repaired (or total number of leaks if all leaks are repaired when found), per § 192.703(c), categorized by cause
- Number of excavation damages
- Number of excavation tickets (receipt of information by the underground facility operator from the notification center)
- Total number of leaks either eliminated or repaired, categorized by cause
- Information related to failure of compression couplings, excluding those that result only in nonhazardous leaks, shall be reported to PHMSA as part of the annual report required by §191.11 beginning with the report submitted March 15, 2011. This information must include, as available, location of the failure in the pipeline, nominal pipe size, material type, nature of failure including any contribution of local pipeline environment, coupling manufacturer, lot number and date of manufacture, and other information that can be found in markings on the failed coupling.

If a State exercises jurisdiction over the pipeline, these five measures shall also be reported to the State Pipeline Safety Authority in the State where the gas distribution pipeline is located. A copy of the reports shall be maintained in the Distribution Integrity Management Program files.

12.0 DOCUMENT AND RECORD RETENTION

The following records shall be retained in the Distribution Integrity Management Program files.

- The most current as well as prior versions of this written IM Plan
- Documents supporting Knowledge of Facilities (material supporting Appendix A of the IM Plan)
- Documents supporting threat identification (material supporting Appendix B of the IM Plan)

- Documents supporting risk evaluation and ranking (material supporting Appendix C of the IM Plan)
- Documents supporting the identification and implementation of measures to address risks (material supporting Appendix D of the IM Plan)
- Documents supporting measurement of performance, monitoring results and evaluating effectiveness (material supporting Appendix E of the IM Plan)
- Effectiveness Reviews (material supporting Appendix F of the IM Plan)
- Annual Reports to PHMSA (as required by §191.11) and State pipeline safety authorities
- Compression Coupling Failure Reports

Documentation demonstrating compliance with the requirements of 49 CFR, Part 192, Subpart P shall be retained for at least 10 years.

APPENDIX A
KNOWLEDGE OF FACILITIES

Division 01 (Dade-Broward)

Table 5-2: Summary of System Design by Operating Pressure

Maximum Operating Pressure	Miles of Main
Low-Pressure (1 psig or less)	18
Intermediate Pressure – 60 psig or less	1,721
High Pressure – greater than 60 psig	26

Table 5-3: Summary of Material Types and Years Installed

Material Type	2010			
	Mains		Services	
	Current Miles of Main	Years Installed (of remaining)	Number of Services	Years Installed (of remaining)
Cast Iron	44	Pre 1940		
Wrought Iron				
Bare Steel – with CP	6	Pre 1940-1949	413	Pre 1940-1949
Bare Steel – No CP	18	Pre 1940-1949	2,032	Pre 1940-1949
Coated Steel – with CP	1,190	1959-present	44,577	1959-present
Coated Steel – no CP	7	1950-1959	2,475	1950-1959
Ductile Iron				
Copper				
Plastic	419	1970-present	18,534	1970-present
Plastic – Aldyl-A	unk	Unk	Unk	Unk
Plastic – HDPE 3306	unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

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Table 5-4: Summary of Construction Practices

Material Type	Year first deployed	Year Ceased
Replacement via insertion of Copper		
Replacement via Insertion of Plastic		
Replacement via insertion and pipe bursting/splitting		
Internal lining / slip-lining		
Joint Trench with other utilities		
Unguided Bore – soil displacement		
Unguided Bore – Ram		
Guided Directional Bore / Drill		
Blasting		
Plow-in		

Division 01 (Dade-Broward)

Table 5-5: Miles of Mains and Number of Services by Material Type

Material Type	2010 Mains	Services
	Current Miles of Main	Number of Services
Bare unprotected steel	18	2,032
Coated unprotected steel	7	2,475
Bare cathodically protected steel	6	413
Coated cathodically protected steel	1,190	44,577
Plastic	419	18,534
Cast iron/Wrought iron	44	
Other		

Division 01 (Dade-Broward)

Table 5-6: Miles of Mains and Number of Service lines by material and nominal diameter

Material & Nominal Diameter	2010 Mains Current Miles of Main	Years Installed (of remaining)	Services Number of Services	Years Installed (of remaining)
1" or less steel			45,267	1947-CURRENT
1" or less cast iron				
1" or less plastic			15,466	1969-CURRENT
Other				
Over 1" – 2" steel			4,203	1959-CURRENT
Over 1" – 2" cast iron				
Over 1" – 2" plastic			2,934	1971-CURRENT
Other				
2" or less steel	786	1934-CURRENT		
2" or less cast iron	1	Pre1940-1959		
2" or less plastic	234	1970-CURRENT		
Over 2" – 4" steel	241	1934-CURRENT	94	1949-CURRENT
Over 2" – 4" cast iron	16	Pre1940-1959		
Over 2" – 4" plastic	127	1970-CURRENT	54	1971-CURRENT
Over 4" – 8" steel	161	1934-CURRENT	8	1959-2010
Over 4" – 8" cast iron	24	Pre1940-1959		
Over 4" – 8" plastic	57	1970-CURRENT	5	1985-CURRENT
Over 8" – 12" steel	28	1934-CURRENT		
Over 8" – 12" cast iron	2	1934-CURRENT		
Over 12" steel	5	1940-2007		
Over 12" cast iron	1	Pre1940-1959		
Plastic	N/A			
Plastic – Aldyl-A	Unk			
Plastic – HDPE 3306	Unk			
Plastic – All Others	Unk			

Table 5-7: Miles of Mains and Number of Services by material and decade

Material Type	2010 Mains: Decade Installed	Mains: Current Miles of Main	Services: Decade Installed	Services: Number of Services
Cast Iron	Pre 1940	44		
Wrought Iron				
Bare Steel – with CP	Pre 1940-1949	6	Pre 1940-1949	413
Bare Steel – No CP	Pre 1940-1949	18	Pre 1940-1949	2,032
Coated Steel – with CP	1959-present	1,190	1959-present	44,577
Coated Steel – no CP	1950-1959	7	1950-1959	2,475
Steel				
Copper				
Plastic	1970-present	419	1970-present	18,534
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

Table 5-8: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized

Cause of Leak	Number of Hazardous Leaks – 2010 *
Corrosion	42
Natural Forces	1
Excavation	238
Other Outside Force	1
Material, Weld or Joint Failure	25
Equipment Failure	31
Incorrect Operation	
Other	44

Table 5-9: Number of Excavation Damages

Year	Number of Excavation Damages
2010	258
2009	319
2008	276
2007	391
2006	417
2005	355

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Table 5-10: Number of Excavation Tickets

Year	Number of Excavation Tickets
2010	42,628
2009	50,555
2008	60,432
2007	69,853
2006	94,669
2005	104,256

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Table 5-11: Number of leaks either eliminated or repaired, categorized by cause

Cause of Leak	Number of leaks eliminated or repaired– 2010
Corrosion	100
Natural Forces	1
Excavation	258
Other Outside Force	1
Material, Weld or Joint Failure	58
Equipment Failure	167
Incorrect Operation	
Other	116

Table 5-12: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by material

Material	Number of leaks eliminated or repaired–2010
Bare Steel	86
Cast Iron / Wrought Iron	
Coated Steel	108
Plastic	190
Other	3

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Table 5-13: State Specific Reports

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Table 5-14: Number of EFVs Installed

Year	EFVs Installed
2010	460
2009	
2008	
2007	
2006	
2005	
System Total	2,887

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Table 5-15: District Regulators, Security Valves and Relief Valves

Manufacturer and Type	System Count 2010

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Table 5-16: Service regulators

Regulator Manufacturer and Type	System Count 2010

Division 01 (Dade-Broward)

Table 5-17: Mechanical Couplings

Mechanical Coupling Type	Estimated System Count 2010

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Table 5-18: Plastic piping

Plastic Piping Type	Estimated System miles 2010
PVC	
ABS	
CAB	
PB	
Aldyl A	
MDPE 2306	
HDPE 3306	
Other PE	
Other	

Table 5-19: MAOP of Systems

Material	High – Pressure > 60 psi	Intermediate Pressure 60 psi or less	Low Pressure Same as delivered to customer	Unknown
Miles of Main	26	1,721	18	
Number of Services	12	59,247	1,489	18,210

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Table 5-21: Reportable/Significant Gas Incidents Summary by Year

Year	Miles of Main	Number of Incidents	Fatalities	Injuries	Property Damage
2010					
2009					
2008					
2007					
2006					
2005					
2004					
2003					
2002					
2001					
2000					
1999					
1998					
1997					
1996					
1995					
1994					
1993					
1992					
1991					
1990					
Total					
5- Year Average (2006-2010)					
10- Year Average (2006-2010)					
20- Year Average (2006-2010)					

Note: The criteria for significant gas incidents that must be reported to PHMSA are established in 49 CFR Part 191 and in-patient hospitalization, or $50,000 or more in total costs, measured in 1984 dollars. Significant Incident include incidents that result in fatalities, summary statistics for the U.Swebsite. are also provided on the PHMSA

Table 5-22: Reportable/Significant Gas Incidents by Cause

Year	Corrosion	Natural Forces	Excavation Damage	Outside Force	Material, Weld or Joint Failure	Equipment Failure	Incorrect Operation	Other
2010								
2009								
2008								
2007								
2006								
2005								
2004								
2003								
2002								
2001								
2000								
1999								
1998								
1997								
1996								
1995								
1994								
1993								
1992								
1991								
1990								
20-Yr Total								

Table 5-28: Corrosion Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity		Leaks Repaired		Frequency of Failure		
	Miles Main	# Services	Mains	Services	Main Leaks/Mile	Service Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Corrosion							
Cast Iron	44		1		0.0227		0.0227
Bare Steel	24		6	37	0.2500	0.3700	1.7917
Ductile Iron							
Copper							
Coated Steel (with CP)	1,190	49,572	24	32	0.0202	0.3200	0.0471
Coated Steel (No CP)							
Other							

Threat / Sub-Threat	Leak Ratio 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Corrosion							
Cast Iron	4	5	10	3	1	4.60	
Bare Steel	67	83	221	99	43	102.60	
Ductile Iron							
Copper							
Coated Steel (with CP)	139	158	120	97	56	114.00	
Coated Steel (No CP)							
Other	1	6	18	1		5.20	

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Table 5-29: Natural Forces Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Quantity: # of Units	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Leaks Repaired: Units	2010 Frequency of Failure: Main Leaks/Mile	2010 Frequency of Failure: Service Leaks/100	2010 Frequency of Failure: Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Natural Forces										
Seismic										
Earth Movement / Landslide										
Tree Roots										
Frost Heave / Temperature										
Flood										
Ice/Snow Blockage of Control Equip										
Other	1,683	68,031			1			0.0100		0.0006

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Natural Forces							
Seismic							
Earth Movement / Landslide							
Tree Roots							
Frost Heave / Temperature							
Flood							
Ice/Snow Blockage of Control Equip							
Other	1,002	199	3	1	1	241.20	

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Table 5-30: Excavation Damage Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: System Miles of Main	System Number of Services	System Number of Tickets	Leaks Repaired: Mains	Services	Total System Miles	Frequency of Failure: Leaks per Ticket	Leaks per System Mile
Excavation Damage - All	1,683	68,031	42,628	55	203	1,683	**0.0061**	**0.1533**

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Excavation Damage							
Miles of Main	1,624	1,655	1,661	1,682	1,683		
Tickets	81,088	59,707	56,912	50,555	42,628	**52,178**	
Leaks	417	391	276	319	258	**332**	
Leaks per Ticket	**0.0051**	**0.0065**	**0.0048**	**0.0063**	**0.0061**	**0.0058**	
Leaks per System Mile	0.2568	0.2363	0.1662	0.1896	0.1533	**0.20**	

120

Table 5-31: Outside Force Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Quantity: # of Units	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Leaks Repaired: Units	2010 Frequency of Failure: Main Leaks/Mile	2010 Frequency of Failure: Service Leaks/100	2010 Frequency of Failure: Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Outside Force										
Vehicle Damage										
Vandalism										
Fire / Explosion										
Previous Damage										
Other	1,683	68,031		1			0.0006			0.0006

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Outside Force							
Vehicle Damage							
Vandalism							
Fire / Explosion							
Previous Damage							
Other	12	4	7		1	4.80	

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Table 5-32: Material, Weld or Joint Failure Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity		2010 Leaks Repaired		2010 Frequency of Failure		
	Miles Main	# Services	Mains	Services	Main Leaks/Mile	Service Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	419	18534	9	17	0.0215	0.1700	0.0621
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	1264	49497	15	17	0.0119	0.1700	0.0253

Threat / Sub-Threat	Leak Ratio 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	13	6	8	17	32	15.20	
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	31	27	31	13	26	25.60	

Table 5-33: Equipment Failure Threat – Frequency and Trend

Threat / Sub-Threat	Quantity			2010 Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fittin g Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Equipment Failure										
Valves	1,683	68,031		1	51		0.0006	0.5100		0.0309
Service Regulators	1,683	68,031		1	19		0.0006	0.1900		0.0119
Control/Relief Station										
Other	1,683	68,031		19	76		0.0113	0.7600		0.0564

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Equipment Failure							
Valves	2	176	97	32	52	71.80	
Service Regulators		86	21	23	20	30.00	
Control/Relief Station				1		0.20	
Other	3	197	105	60	95	92.00	

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Table 5-34: Incorrect Operation Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Quantity: # of Units	2010 Incidents: Mains	2010 Incidents: Services	2010 Incidents: Units	2010 Frequency of Failure: Main Incidents/Mile	2010 Frequency of Failure: Service Incidents/100	2010 Frequency of Failure: Equip/Fitting Incidents/100	2010 Frequency of Failure: Total Incidents / Facility Mile (mains & svcs)
Incorrect Operation										
Operating Error										
Service Line bored thru Sewer										
Other										

Threat / Sub-Threat	Leak Ratio: 2006	Leak Ratio: 2007	Leak Ratio: 2008	Leak Ratio: 2009	Leak Ratio: 2010	Leak Ratio: 5-Year Average	Is Leak Frequency Increasing? Y/N
Incorrect Operation							
Operating Error							
Service Line bored thru Sewer							
Other	3	2	19	18		8.40	

Table 5-35: Other Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	Quantity: Number of Services	Quantity: Number Copper Services	Leaks Repaired: Mains	Leaks Repaired: Services	Frequency of Failure: Main Leaks/ Mile	Frequency of Failure: All Services Leaks / 100	Frequency of Failure: Copper Services Only Leaks / 100	Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Other									
Bell Joint leaks									
Copper Pipe Puncture									
Copper Sulfide									
Other	1,683	68,031		1	115	**0.0006**		**1.1500**	**0.0689**

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing ? Y/N
Other							
Bell Joint Leaks							
Copper Pipe Puncture							
Copper Sulfide							
Other	287	77	458	266	116	**240.80**	

Division 02 (Tampa)

Table 5-2: Summary of System Design by Operating Pressure

Maximum Operating Pressure	Miles of Main
Low-Pressure (1 psig or less)	44
Intermediate Pressure – 60 psig or less	1,449
High Pressure – greater than 60 psig	421

Table 5-3: Summary of Material Types and Years Installed

Material Type	2010			
	Mains		Services	
	Current Miles of Main	Years Installed (of remaining)	Number of Services	Years Installed (of remaining)
Cast Iron	47	Pre1940-1949		
Wrought Iron				
Bare Steel – with CP	4	1950-1959		
Bare Steel – No CP	79	1950-1959	3,570	Pre1940-1959
Coated Steel – with CP	585	1960-CURRENT	7,468	1960-CURRENT
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	1,015	1970-CURRENT	48,684	1970-CURRENT
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

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Table 5-4: Summary of Construction Practices

Material Type	Year first deployed	Year Ceased
Replacement via insertion of Copper		
Replacement via Insertion of Plastic		
Replacement via insertion and pipe bursting/splitting		
Internal lining / slip-lining		
Joint Trench with other utilities		
Unguided Bore – soil displacement		
Unguided Bore – Ram		
Guided Directional Bore / Drill		
Blasting		
Plow-in		

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Division 02 (Tampa)

Table 5-5: Miles of Mains and Number of Services by Material Type

Material Type	2010	
	Mains	Services
	Current Miles of Main	Number of Services
Bare unprotected steel	79	3,570
Coated unprotected steel		
Bare cathodically protected steel	4	
Coated cathodically protected steel	585	7,468
Plastic	1,015	48,684
Cast iron/Wrought iron	47	
Other		

Table 5-6: Miles of Mains and Number of Service lines by material and nominal diameter

Material & Nominal Diameter	2010 Mains: Current Miles of Main	2010 Mains: Years Installed (of remaining)	2010 Services: Number of Services	2010 Services: Years Installed (of remaining)
1" or less steel			194	1977-CURRENT
1" or less cast iron			4,631	Pre1940-1949
1" or less plastic				
Other			46,756	1960-CURRENT
Over 1" – 2" steel				
Over 1" – 2" cast iron			6,101	Pre1940-1949
Over 1" – 2" plastic				
Other			1,855	1960-CURRENT
2" or less steel				
2" or less cast iron	282	Pre1940-1949		
2" or less plastic				
Over 2" – 4" steel	798	1974-CURRENT		
Over 2" – 4" cast iron	158	Pre1940-1949	104	Pre1940-1949
Over 2" – 4" plastic	40	1972-CURRENT		
Over 4" – 8" steel	178	1925-CURRENT	69	1930-2009
Over 4" – 8" cast iron	224	Pre1940-1949	8	Pre1940-1949
Over 4" – 8" plastic	4	1978-CURRENT	0	
Over 8" – 12" steel	39	1925-2010	4	1968-1982
Over 8" – 12" cast iron	2	Pre1940-1949		
Over 12" steel				
Over 12" cast iron				
Plastic	1	2010		
Plastic – Aldyl-A				
Plastic – HDPE 3306				
Plastic – All Others				

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Table 5-7: Miles of Mains and Number of Services by material and decade

Material Type	2010 Mains Decade Installed	2010 Mains Current Miles of Main	2010 Services Decade Installed	2010 Services Number of Services
Cast Iron	Pre1940-1949	47		
Wrought Iron				
Bare Steel – with CP	1950-1959	4		
Bare Steel – No CP	1950-1959	79	Pre1940-1959	3,570
Coated Steel – with CP	1960-CURRENT	585	1960-CURRENT	7,468
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	1970-CURRENT	1,015	1970-CURRENT	48,684
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

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Table 5-8: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized

Cause of Leak	Number of Hazardous Leaks – 2010 *
Corrosion	61
Natural Forces	4
Excavation	86
Other Outside Force	1
Material, Weld or Joint Failure	9
Equipment Failure	60
Incorrect Operation	
Other	84

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Table 5-9: Number of Excavation Damages

Year	Number of Excavation Damages
2010	90
2009	88
2008	144
2007	166
2006	217
2005	246

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Table 5-10: Number of Excavation Tickets

Year	Number of Excavation Tickets
2010	42,339
2009	46,485
2008	83,234
2007	125,739
2006	155,106
2005	124,895

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Table 5-11: Number of leaks either eliminated or repaired, categorized by cause

Cause of Leak	Number of leaks eliminated or repaired– 2010
Corrosion	127
Natural Forces	4
Excavation	90
Other Outside Force	1
Material, Weld or Joint Failure	59
Equipment Failure	155
Incorrect Operation	
Other	584

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Table 5-12: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by material

Material	Number of leaks eliminated or repaired–2010
Bare Steel	177
Cast Iron / Wrought Iron	7
Coated Steel	36
Plastic	81
Other	4

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Table 5-13: State Specific Reports

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Table 5-14: Number of EFVs Installed

Year	EFVs Installed
2010	153
2009	
2008	
2007	
2006	
2005	
System Total	2,795

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Table 5-15: District Regulators, Security Valves and Relief Valves

Manufacturer and Type	System Count 2010

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Table 5-16: Service regulators

Regulator Manufacturer and Type	System Count 2010

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Table 5-17: Mechanical Couplings

Mechanical Coupling Type	Estimated System Count 2010

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Table 5-18: Plastic piping

Plastic Piping Type	Estimated System miles 2010
PVC	
ABS	
CAB	
PB	
Aldyl A	
MDPE 2306	
HDPE 3306	
Other PE	
Other	

Table 5-19: MAOP of Systems

Material	High – Pressure > 60 psi	Intermediate Pressure 60 psi or less	Low Pressure Same as delivered to customer	Unknown
Miles of Main	421	1,449	44	
Number of Services	1,572	59,242	1,811	

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Table 5-21: Reportable/Significant Gas Incidents Summary by Year

Year	Miles of Main	Number of Incidents	Fatalities	Injuries	Property Damage
2010					
2009					
2008					
2007					
2006					
2005					
2004					
2003					
2002					
2001					
2000					
1999					
1998					
1997					
1996					
1995					
1994					
1993					
1992					
1991					
1990					
Total					
5- Year Average (2006-2010)					
10- Year Average (2006-2010)					
20- Year Average (2006-2010)					

Note: The criteria for significant gas incidents that must be reported to PHMSA are established in 49 CFR Part 191 and in-patient hospitalization, or $50,000 or more in total costs, measured in 1984 dollars. Significant Incident include incidents that result in fatalities, summary statistics for the U.Swebsite. are also provided on the PHMSA

Table 5-22: Reportable/Significant Gas Incidents by Cause

Year	Corrosion	Natural Forces	Excavation Damage	Outside Force	Material, Weld or Joint Failure	Equipment Failure	Incorrect Operation	Other
2010								
2009								
2008								
2007								
2006								
2005								
2004								
2003								
2002								
2001								
2000								
1999								
1998								
1997								
1996								
1995								
1994								
1993								
1992								
1991								
1990								
20-Yr Total								

Table 5-28: Corrosion Threat – Frequency and Trend

Threat / Sub-Threat	2010						
	Quantity		Leaks Repaired		Frequency of Failure		
	Miles Main	# Services	Mains	Services	Main Leaks/Mile	Service Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Corrosion							
Cast Iron							
Bare Steel	83	3,570	17	57	**0.2048**	**0.5700**	**0.8916**
Ductile Iron							
Copper							
Coated Steel (with CP)	585	7,468	10	43	**0.0171**	**0.4300**	**0.0906**
Coated Steel (No CP)							
Other							

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Corrosion							
Cast Iron	39	12	9	3	1	**12.80**	
Bare Steel	23	32	41	37	73	**41.20**	
Ductile Iron							
Copper							
Coated Steel (with CP)	11	19	5	13	53	**20.20**	
Coated Steel (No CP)							
Other			2			**0.40**	

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Table 5-29: Natural Forces Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Quantity: # of Units	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Leaks Repaired: Units	2010 Frequency of Failure: Main Leaks/Mile	2010 Frequency of Failure: Service Leaks/100	2010 Frequency of Failure: Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Natural Forces										
Seismic										
Earth Movement / Landslide										
Tree Roots										
Frost Heave / Temperature										
Flood										
Ice/Snow Blockage of Control Equip										
Other	1,730	59,722		2	2		0.0012	0.0200		0.0023

Threat / Sub-Threat	Leak Ratio: 2006	Leak Ratio: 2007	Leak Ratio: 2008	Leak Ratio: 2009	Leak Ratio: 2010	Leak Ratio: 5-Year Average	Is Leak Frequency Increasing? Y/N
Natural Forces							
Seismic							
Earth Movement / Landslide							
Tree Roots							
Frost Heave / Temperature							
Flood							
Ice/Snow Blockage of Control Equip							
Other			6	4	4	2.80	

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Table 5-30: Excavation Damage Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: System Miles of Main	2010 Quantity: System Number of Services	2010 Quantity: System Number of Tickets	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Leaks Repaired: Total System Miles	2010 Frequency of Failure: Leaks per Ticket	2010 Frequency of Failure: Leaks per System Mile
Excavation Damage - All	1,730	59,722	42,339	18	72	1,730	**0.0021**	**0.0520**

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Excavation Damage							
Miles of Main	1,623	1,662	1,678	1,688	1,730		
Tickets	155,106	125,739	83,234	46,485	42,339	**90,581**	
Leaks	217	166	144	88	90	**141**	
Leaks per Ticket	0.0014	0.0013	0.0017	0.0019	0.0021	**0.0017**	
Leaks per System Mile	0.1337	0.0999	0.0858	0.0521	0.0520	**0.0847**	

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Table 5-31: Outside Force Threat – Frequency and Trend

Threat / Sub-Threat	2010									
	Quantity			Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Outside Force										
Vehicle Damage										
Vandalism										
Fire / Explosion										
Previous Damage										
Other	1,730	59,722			1			0.0100		0.0006

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Outside Force							
Vehicle Damage							
Vandalism							
Fire / Explosion							
Previous Damage							
Other	3	5	7	5	1	4.20	

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Table 5-32: Material, Weld or Joint Failure Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity Miles Main	2010 Quantity # Services	2010 Leaks Repaired Mains	2010 Leaks Repaired Services	Main Leaks/Mile	Frequency of Failure Service Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	1,015	48,684	2	3	0.0020	0.0300	0.0049
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	715	11,038	52	2	0.0727	0.0200	0.0755

Threat / Sub-Threat	Leak Ratio 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	15	24	21	18	5	16.60	
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	59	84	138	78	54	82.60	

Table 5-33: Equipment Failure Threat – Frequency and Trend

Threat / Sub-Threat	Quantity			2010 Leaks Repaired			Frequency of Failure			Total Leaks / Facility Mile (mains & svcs)
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	
Equipment Failure										
Valves	1,730	59,722			7			0.0700		0.0040
Service Regulators	1,730	59,722			125			1.2500		0.0723
Control/Relief Station	1,730	59,722			3			0.0300		0.0017
Other	1,730	59,722		3	17		0.0017	0.1700		0.0116

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Equipment Failure							
Valves	2		1	17	7	5.40	
Service Regulators	1		2	89	121	42.60	
Control/Relief Station				2	3	1.00	
Other	1	2	4	44	24	15.00	

Table 5-34: Incorrect Operation Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity			2010 Incidents			2010 Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Incidents/Mile	Service Incidents/100	Equip/Fitting Incidents/100	Total Incidents / Facility Mile (mains & svcs)
Incorrect Operation										
Operating Error										
Service Line bored thru Sewer										
Other										

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Incorrect Operation							
Operating Error							
Service Line bored thru Sewer							
Other	1		2	14		3.40	

Table 5-35: Other Threat – Frequency and Trend

Threat / Sub-Threat	Quantity: Miles Main	Quantity: Number of Services	Quantity: Number Copper Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	Frequency of Failure: Main Leaks/ Mile	Frequency of Failure: All Services Leaks / 100	Frequency of Failure: Copper Services Only Leaks / 100	Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Other									
Bell Joint leaks									
Copper Pipe Puncture									
Copper Sulfide									
Other	1,730	59,722		20	564	0.0116		5.6400	0.3376

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing ? Y/N
Other							
Bell Joint Leaks	107	27	39	10		36.60	
Copper Pipe Puncture							
Copper Sulfide							
Other	1	5	98	366	584	210.80	

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Table 5-2: Summary of System Design by Operating Pressure

Maximum Operating Pressure	Miles of Main
Low-Pressure (1 psig or less)	101
Intermediate Pressure – 60 psig or less	731
High Pressure – greater than 60 psig	90

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Table 5-3: Summary of Material Types and Years Installed

Material Type	2010			
	Mains		Services	
	Current Miles of Main	Years Installed (of remaining)	Number of Services	Years Installed (of remaining)
Cast Iron	30	Pre1940-1949		
Wrought Iron				
Bare Steel – with CP				
Bare Steel – No CP	133	1960-1969	2,298	1960-1969
Coated Steel – with CP	293	1970-CURRENT	1,048	1970-CURRENT
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	318	1970-CURRENT	19,110	1970-CURRENT
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

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Table 5-4: Summary of Construction Practices

Material Type	Year first deployed	Year Ceased
Replacement via insertion of Copper		
Replacement via Insertion of Plastic		
Replacement via insertion and pipe bursting/splitting		
Internal lining / slip-lining		
Joint Trench with other utilities		
Unguided Bore – soil displacement		
Unguided Bore – Ram		
Guided Directional Bore / Drill		
Blasting		
Plow-in		

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Table 5-5: Miles of Mains and Number of Services by Material Type

Material Type	2010	
	Mains	Services
	Current Miles of Main	Number of Services
Bare unprotected steel	133	2,298
Coated unprotected steel		
Bare cathodically protected steel		
Coated cathodically protected steel	293	1,048
Plastic	318	19,110
Cast iron/Wrought iron	30	
Other		

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Table 5-6: Miles of Mains and Number of Service lines by material and nominal diameter

Material & Nominal Diameter	2010 Mains: Current Miles of Main	Mains: Years Installed (of remaining)	Services: Number of Services	Services: Years Installed (of remaining)
Unkown Steel			2,298	1948-CURRENT
1" or less steel			228	1948-CURRENT
1" or less cast iron				
1" or less plastic			15,544	1967-CURRENT
Other				
Over 1" – 2" steel			799	1930-2009
Over 1" – 2" cast iron				
Over 1" – 2" plastic			3,549	1972-CURRENT
Other				
2" or less steel	289	1968-CURRENT		
2" or less cast iron				
2" or less plastic	232	1986-CURRENT		
Over 2" – 4" steel	68	1968-1979	21	1948-2009
Over 2" – 4" cast iron	21	Pre1940-1949		
Over 2" – 4" plastic	57	1970-CURRENT	17	1972-CURRENT
Over 4" – 8" steel	59	1968-1992		
Over 4" – 8" cast iron	2	Pre1940-1949		
Over 4" – 8" plastic	29	1970-CURRENT		
Over 8" – 12" steel	9	1968-2010		
Over 8" – 12" cast iron	4	Pre1940-1949		
Over 12" steel	1	1968-2010		
Over 12" cast iron	3	Pre1940-1949		
Plastic				
Plastic – Aldyl-A				
Plastic – HDPE 3306				
Plastic – All Others				

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Table 5-7: Miles of Mains and Number of Services by material and decade

Material Type	2010			
	Mains		Services	
	Decade Installed	Current Miles of Main	Decade Installed	Number of Services
Cast Iron	Pre1940-1949	30		
Wrought Iron				
Bare Steel – with CP				
Bare Steel – No CP	1960-1969	133		
Coated Steel – with CP	1970-CURRENT	293		
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	1970-CURRENT	318		
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

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Table 5-8: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized

Cause of Leak	Number of Hazardous Leaks – 2010 *
Corrosion	38
Natural Forces	2
Excavation	114
Other Outside Force	2
Material, Weld or Joint Failure	15
Equipment Failure	95
Incorrect Operation	1
Other	57

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Table 5-9: Number of Excavation Damages

Year	Number of Excavation Damages
2010	116
2009	105
2008	142
2007	136
2006	196
2005	218

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Table 5-10: Number of Excavation Tickets

Year	Number of Excavation Tickets
2010	17,940
2009	21,638
2008	30,602
2007	29,507
2006	41,311
2005	41,419

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Table 5-11: Number of leaks either eliminated or repaired, categorized by cause

Cause of Leak	Number of leaks eliminated or repaired– 2010
Corrosion	110
Natural Forces	4
Excavation	116
Other Outside Force	3
Material, Weld or Joint Failure	43
Equipment Failure	495
Incorrect Operation	1
Other	396

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Table 5-12: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by material

Material	Number of leaks eliminated or repaired–2010
Bare Steel	157
Cast Iron / Wrought Iron	
Coated Steel	43
Plastic	123
Other	1

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Table 5-13: State Specific Reports

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Table 5-14: Number of EFVs Installed

Year	EFVs Installed
2010	272
2009	
2008	
2007	
2006	
2005	
System Total	929

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Table 5-15: District Regulators, Security Valves and Relief Valves

Manufacturer and Type	System Count 2010

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Table 5-16: Service regulators

Regulator Manufacturer and Type	System Count 2010

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Table 5-17: Mechanical Couplings

Mechanical Coupling Type	Estimated System Count 2010

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Table 5-18: Plastic piping

Plastic Piping Type	Estimated System miles 2010
PVC	
ABS	
CAB	
PB	
Aldyl A	
MDPE 2306	
HDPE 3306	
Other PE	
Other	

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Table 5-19: MAOP of Systems

Material	High – Pressure > 60 psi	Intermediate Pressure 60 psi or less	Low Pressure Same as delivered to customer	Unknown
Miles of Main	90	731	101	
Number of Services	109	15,394	1,939	10,314

Division 03 (St Petersburg)

Table 5-21: Reportable/Significant Gas Incidents Summary by Year

Year	Miles of Main	Number of Incidents	Fatalities	Injuries	Property Damage
2010					
2009					
2008					
2007					
2006					
2005					
2004					
2003					
2002					
2001					
2000					
1999					
1998					
1997					
1996					
1995					
1994					
1993					
1992					
1991					
1990					
Total					
5- Year Average (2006-2010)					
10- Year Average (2006-2010)					
20- Year Average (2006-2010)					

Note: The criteria for significant gas incidents that must be reported to PHMSA are established in 49 CFR Part 191 and in-patient hospitalization, or $50,000 or more in total costs, measured in 1984 dollars. Significant Incident include incidents that result in fatalities, summary statistics for the U.Swebsite. are also provided on the PHMSA

Table 5-22: Reportable/Significant Gas Incidents by Cause

Year	Corrosion	Natural Forces	Excavation Damage	Outside Force	Material, Weld or Joint Failure	Equipment Failure	Incorrect Operation	Other
2010								
2009								
2008								
2007								
2006								
2005								
2004								
2003								
2002								
2001								
2000								
1999								
1998								
1997								
1996								
1995								
1994								
1993								
1992								
1991								
1990								
20-Yr Total								

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Table 5-28: Corrosion Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Frequency of Failure: Main Leaks/Mile	2010 Frequency of Failure: Service Leaks/100	2010 Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Corrosion							
Cast Iron							
Bare Steel	133	2298	8	52	0.0602	0.5200	0.4511
Ductile Iron							
Copper							
Coated Steel (with CP)	293	1048	2	48	0.0068	0.4800	0.1706
Coated Steel (No CP)							
Other							

Threat / Sub-Threat	Leak Ratio 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Corrosion							
Cast Iron			2	1		0.60	
Bare Steel	75	90	93	62	60	76.00	
Ductile Iron							
Copper							
Coated Steel (with CP)	39	37	50	49	50	45.00	
Coated Steel (No CP)							
Other							

Table 5-29: Natural Forces Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Quantity: # of Units	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Leaks Repaired: Units	2010 Frequency of Failure: Main Leaks/Mile	2010 Frequency of Failure: Service Leaks/100	2010 Frequency of Failure: Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Natural Forces										
Seismic										
Earth Movement / Landslide										
Tree Roots										
Frost Heave / Temperature										
Flood										
Ice/Snow Blockage of Control Equip										
Other	774	22,456		2	2		0.0026	0.0200		0.0052

Threat / Sub-Threat	Leak Ratio: 2006	Leak Ratio: 2007	Leak Ratio: 2008	Leak Ratio: 2009	Leak Ratio: 2010	Leak Ratio: 5-Year Average	Is Leak Frequency Increasing? Y/N
Natural Forces							
Seismic							
Earth Movement / Landslide							
Tree Roots							
Frost Heave / Temperature							
Flood							
Ice/Snow Blockage of Control Equip							
Other			1	5	4	2.00	

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Table 5-30: Excavation Damage Threat – Frequency and Trend

Threat / Sub-Threat	2010							
	Quantity			Leaks Repaired			Frequency of Failure	
	System Miles of Main	System Number of Services	System Number of Tickets	Mains	Services	Total System Miles	Leaks per Ticket	Leaks per System Mile
Excavation Damage - All	774	22,456	17,940	13	103	774	**0.0065**	**0.1499**

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Excavation Damage							
Miles of Main	757	765	776	775	774		
Tickets	41,311	29,507	30,602	21,638	17,940	**28,200**	
Leaks	196	136	142	105	116	**139**	
Leaks per Ticket	0.0047	0.0046	0.0046	0.0049	0.0065	**0.0051**	
Leaks per System Mile	0.2589	0.1778	0.1830	0.1355	0.1499	**0.1810**	

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Table 5-31: Outside Force Threat – Frequency and Trend

Threat / Sub-Threat	Quantity (2010)			Leaks Repaired (2010)			Frequency of Failure (2010)			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Outside Force										
Vehicle Damage										
Vandalism										
Fire / Explosion										
Previous Damage										
Other	774	22,456		1	2		0.0013	0.0200		0.0039

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Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Outside Force							
Vehicle Damage							
Vandalism							
Fire / Explosion							
Previous Damage							
Other	20	4	3	5	3	7.00	

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Table 5-32: Example – Material, Weld or Joint Failure Threat – Frequency and Trend

Threat / Sub-Threat	Quantity		2010 Leaks Repaired		Frequency of Failure		
	Miles Main	# Services	Mains	Services	Main Leaks/Mile	Service Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	318	19,110	5	21	0.0157	0.2100	0.0818
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	456	3,346	9	8	0.0197	0.0800	0.0373

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	22	25	24	27	26	24.80	
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	29	58	103	42	17	49.80	

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Table 5-33: Equipment Failure Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Quantity: # of Units	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Leaks Repaired: Units	2010 Frequency of Failure: Main Leaks/Mile	2010 Frequency of Failure: Service Leaks/100	2010 Frequency of Failure: Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Equipment Failure										
Valves	774	22,456			70			0.7000		0.0904
Service Regulators	774	22,456			124			1.2400		0.1602
Control/Relief Station	774	22,456			6			0.0600		0.0078
Other	774	22,456		16	279		0.0207	2.7900		0.3811

Threat / Sub-Threat	Leak Ratio: 2006	Leak Ratio: 2007	Leak Ratio: 2008	Leak Ratio: 2009	Leak Ratio: 2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Equipment Failure							
Valves	1	10	5	10	70	19.20	
Service Regulators	5	15	17	65	124	45.20	
Control/Relief Station		1	1	6	6	2.80	
Other		2	8	15	295	64.00	

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Table 5-34: Incorrect Operation Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity			2010 Incidents			2010 Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Incidents/Mile	Service Incidents/ 100	Equip/ Fitting Incidents /100	Total Incidents / Facility Mile (mains & svcs)
Incorrect Operation										
Operating Error										
Service Line bored thru Sewer										
Other	774	22,456			1			0.0100		0.0013

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Incorrect Operation							
Operating Error							
Service Line bored thru Sewer							
Other	20	22	4	1		9.40	

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Table 5-35: Other Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: Number of Services	2010 Quantity: Number Copper Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Frequency of Failure: Main Leaks/ Mile	2010 Frequency of Failure: All Services Leaks / 100	2010 Frequency of Failure: Copper Services Only Leaks / 100	2010 Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Other									
Bell Joint leaks	774	22,456		3		0.0039			0.0039
Copper Pipe Puncture									
Copper Sulfide									
Other	774	22,456		30	363	0.0388		3.6300	0.5078

Threat / Sub-Threat	Leak Ratio: 2006	Leak Ratio: 2007	Leak Ratio: 2008	Leak Ratio: 2009	Leak Ratio: 2010	Leak Ratio: 5-Year Average	Is Leak Frequency Increasing? Y/N
Other							
Bell Joint Leaks	3	11	9	2	3	5.60	
Copper Pipe Puncture							
Copper Sulfide							
Other	210	198	257	198	393	251.20	

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Table 5-2: Summary of System Design by Operating Pressure

Maximum Operating Pressure	Miles of Main
Low-Pressure (1 psig or less)	35
Intermediate Pressure – 60 psig or less	810
High Pressure – greater than 60 psig	555

Table 5-3: Summary of Material Types and Years Installed

Material Type	2010 Mains Current Miles of Main	2010 Mains Years Installed (of remaining)	2010 Services Number of Services	2010 Services Years Installed (of remaining)
Cast Iron	3	1950-1959		
Wrought Iron				
Bare Steel – with CP				
Bare Steel – No CP	70	1960-1969	2,822	1940-1959
Coated Steel – with CP	750	1970-CURRENT	6,321	1970-CURRENT
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	533	1970-CURRENT	29,760	1970-CURRENT
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

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Table 5-4: Summary of Construction Practices

Material Type	Year first deployed	Year Ceased
Replacement via insertion of Copper		
Replacement via Insertion of Plastic		
Replacement via insertion and pipe bursting/splitting		
Internal lining / slip-lining		
Joint Trench with other utilities		
Unguided Bore – soil displacement		
Unguided Bore – Ram		
Guided Directional Bore / Drill		
Blasting		
Plow-in		

Division 04 (Orlando)

Table 5-5: Miles of Mains and Number of Services by Material Type

Material Type	2010	
	Mains	Services
	Current Miles of Main	Number of Services
Bare unprotected steel	70	2,822
Coated unprotected steel		
Bare cathodically protected steel		
Coated cathodically protected steel	750	6,321
Plastic	533	29,760
Cast iron/Wrought iron	3	
Other		

Table 5-6: Miles of Mains and Number of Service lines by material and nominal diameter

Material & Nominal Diameter	2010			
	Mains		Services	
	Current Miles of Main	Years Installed (of remaining)	Number of Services	Years Installed (of remaining)
Unkown steel			8,410	1959-CURRENT
1" or less steel			453	1962-CURRENT
1" or less cast iron				
1" or less plastic			26,107	1968-CURRENT
Other				
Over 1" – 2" steel			195	1962-CURRENT
Over 1" – 2" cast iron				
Over 1" – 2" plastic			3,652	1969-CURRENT
Other				
2" or less steel	371	1959-CURRENT		
2" or less cast iron				
2" or less plastic	496	1966-2010		
Over 2" – 4" steel	282	1959-CURRENT	80	1963-CURRENT
Over 2" – 4" cast iron	2	1950-1959		
Over 2" – 4" plastic	37	1966-CURRENT	1	1971-CURRENT
Over 4" – 8" steel	167	1959-2010	5	1984-2000
Over 4" – 8" cast iron				
Over 4" – 8" plastic				
Over 8" – 12" steel				
Over 8" – 12" cast iron	1	1950-1959		
Over 12" steel				
Over 12" cast iron				
Plastic				
Plastic – Aldyl-A				
Plastic – HDPE 3306				
Plastic – All Others				

Table 5-7: Miles of Mains and Number of Services by material and decade

Material Type	2010 Mains		Services	
	Decade Installed	Current Miles of Main	Decade Installed	Number of Services
Cast Iron	1950-1959	3		
Wrought Iron				
Bare Steel – with CP				
Bare Steel – No CP	1960-1969	70	1940-1959	2,822
Coated Steel – with CP	1970-CURRENT	750	1970-CURRENT	6,321
Coated Steel – no CP				
Steel				
Copper				
Plastic	1970-CURRENT	533	1970-CURRENT	29,760
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

Table 5-8: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized

Cause of Leak	Number of Hazardous Leaks – 2010 *
Corrosion	19
Natural Forces	7
Excavation	1
Other Outside Force	
Material, Weld or Joint Failure	31
Equipment Failure	61
Incorrect Operation	4
Other	26

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Table 5-9: Number of Excavation Damages

Year	Number of Excavation Damages
2010	28
2009	33
2008	45
2007	24
2006	28
2005	42

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Table 5-10: Number of Excavation Tickets

Year	Number of Excavation Tickets
2010	33,648
2009	38,402
2008	48,402
2007	54,801
2006	64,499
2005	86,170

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Table 5-11: Number of leaks either eliminated or repaired, categorized by cause

Cause of Leak	Number of leaks eliminated or repaired– 2010
Corrosion	31
Natural Forces	12
Excavation	28
Other Outside Force	3
Material, Weld or Joint Failure	58
Equipment Failure	83
Incorrect Operation	5
Other	44

Table 5-12: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by material

Material	Number of leaks eliminated or repaired–2010
Bare Steel	52
Cast Iron / Wrought Iron	2
Coated Steel	10
Plastic	51
Copper	1
Other	

Table 5-13: State Specific Reports

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Table 5-14: Number of EFVs Installed

Year	EFVs Installed
2010	158
2009	
2008	
2007	
2006	
2005	
System Total	554

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Table 5-15: District Regulators, Security Valves and Relief Valves

Manufacturer and Type	System Count 2010

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Table 5-16: Service regulators

Regulator Manufacturer and Type	System Count 2010

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Table 5-17: Mechanical Couplings

Mechanical Coupling Type	Estimated System Count 2010

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Table 5-18: Plastic piping

Plastic Piping Type	Estimated System miles 2010
PVC	
ABS	
CAB	
PB	
Aldyl A	
MDPE 2306	
HDPE 3306	
Other PE	
Other	

Table 5-19: MAOP of Systems

Material	High – Pressure > 60 psi	Intermediate Pressure 60 psi or less	Low Pressure Same as delivered to customer	Unknown
Miles of Main	555	810	35	
Number of Services	2,285	39,513	167	12,732

Division 04 (Orlando)

Table 5-21: Reportable/Significant Gas Incidents Summary by Year

Year	Miles of Main	Number of Incidents	Fatalities	Injuries	Property Damage
2010					
2009					
2008					
2007					
2006					
2005					
2004					
2003					
2002					
2001					
2000					
1999					
1998					
1997					
1996					
1995					
1994					
1993					
1992					
1991					
1990					
Total					
5- Year Average (2006-2010)					
10- Year Average (2006-2010)					
20- Year Average (2006-2010)					

Note: The criteria for significant gas incidents that must be reported to PHMSA are established in 49 CFR Part 191 and in-patient hospitalization, or $50,000 or more in total costs, measured in 1984 dollars. Significant Incident include incidents that result in fatalities, summary statistics for the U.Swebsite. are also provided on the PHMSA

Table 5-22: Reportable/Significant Gas Incidents by Cause

Year	Corrosion	Natural Forces	Excavation Damage	Outside Force	Material, Weld or Joint Failure	Equipment Failure	Incorrect Operation	Other
2010								
2009								
2008								
2007								
2006								
2005								
2004								
2003								
2002								
2001								
2000								
1999								
1998								
1997								
1996								
1995								
1994								
1993								
1992								
1991								
1990								
20-Yr Total								

Table 5-28: Corrosion Threat – Frequency and Trend

Threat / Sub-Threat	2010						
	Quantity		Leaks Repaired		Frequency of Failure		
	Miles Main	# Services	Mains	Services	Main Leaks/Mile	Service Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Corrosion							
Cast Iron							
Bare Steel	70	2,822	12	15	0.1714	0.1500	0.3857
Ductile Iron							
Copper							
Coated Steel (with CP)	750	6,321		4		0.0400	0.0053
Coated Steel (No CP)							
Other							

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Corrosion							
Cast Iron							
Bare Steel	11	21	15	26	27	20.00	
Ductile Iron							
Copper							
Coated Steel (with CP)	6	2	10	4	4	5.20	
Coated Steel (No CP)							
Other							

Table 5-29: Natural Forces Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	# Services	# of Units	Leaks Repaired: Mains	Services	Units	Frequency of Failure: Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Natural Forces										
Seismic										
Earth Movement / Landslide										
Tree Roots										
Frost Heave / Temperature										
Flood										
Ice/Snow Blockage of Control Equip										
Other	1,356	38,903		6	6		0.0044	0.0600		0.0088

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Natural Forces							
Seismic							
Earth Movement / Landslide							
Tree Roots							
Frost Heave / Temperature							
Flood							
Ice/Snow Blockage of Control Equip							
Other	7	7	3	14	12	8.60	

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Table 5-30: Excavation Damage Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: System Miles of Main	2010 Quantity: System Number of Services	2010 Quantity: System Number of Tickets	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Leaks Repaired: Total System Miles	2010 Frequency of Failure: Leaks per Ticket	2010 Frequency of Failure: Leaks per System Mile
Excavation Damage - All	1,356	38,903	33,648	4	24	1,356	**0.0008**	**0.0206**

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Excavation Damage							
Miles of Main	1,303	1,313	1,329	1,346	1,356		
Tickets	64,499	54,801	48,342	38,402	33,648	**47,938**	
Leaks	28	24	45	33	28	**32**	
Leaks per Ticket	**0.0004**	**0.0004**	**0.0009**	**0.0009**	**0.0008**	**0.0007**	
Leaks per System Mile	0.0215	0.0183	0.0339	0.0245	0.0206	**0.0238**	

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Table 5-31: Outside Force Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity			Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Outside Force										
Vehicle Damage										
Vandalism										
Fire / Explosion										
Previous Damage										
Other	1,356	38,903		1	2		0.0007	0.0200		0.0022

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Outside Force							
Vehicle Damage							
Vandalism							
Fire / Explosion							
Previous Damage							
Other	2	6	14	7	3	6.40	

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Table 5-32: Example – Material, Weld or Joint Failure Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity Miles Main	# Services	Leaks Repaired Mains	Services	Frequency of Failure Main Leaks/Mile	Service Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	533	29,760	12	16	0.0225	0.1600	0.0525
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	823	9,143	10	20	0.0122	0.2000	0.0365

Threat / Sub-Threat	Leak Ratio 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	37	69	26	76	28	47.20	
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	36	46	138	171	30	84.20	

Table 5-33: Equipment Failure Threat – Frequency and Trend

Threat / Sub-Threat	Quantity			2010 Leaks Repaired			Frequency of Failure			Total Leaks / Facility Mile (mains & svcs)
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fittin g Leaks/100	
Equipment Failure										
Valves	1,356	38,903			16			**0.1600**		**0.0118**
Service Regulators	1,356	38,903			14			**0.1400**		**0.0103**
Control/Relief Station										
Other	1,356	38,903		8	45		**0.0059**	**0.4500**		**0.0391**

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Equipment Failure							
Valves		1	1	2	16	4.00	
Service Regulators		6	25	30	14	15.00	
Control/Relief Station			3	1		0.80	
Other			5	3	53	12.20	

Table 5-34: Incorrect Operation Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Quantity: # of Units	2010 Incidents: Mains	2010 Incidents: Services	2010 Incidents: Units	2010 Frequency of Failure: Main Incidents/Mile	2010 Frequency of Failure: Service Incidents/100	2010 Frequency of Failure: Equip/Fitting Incidents/100	Total Incidents / Facility Mile (mains & svcs)
Incorrect Operation										
Operating Error										
Service Line bored thru Sewer										
Other	1,356	38,903		1	4		0.0007	0.0400		0.0037

Threat / Sub-Threat	Leak Ratio: 2006	Leak Ratio: 2007	Leak Ratio: 2008	Leak Ratio: 2009	Leak Ratio: 2010	Leak Ratio: 5-Year Average	Is Leak Frequency Increasing? Y/N
Incorrect Operation							
Operating Error							
Service Line bored thru Sewer							
Other	4	1		3	5	2.60	

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Table 5-35: Other Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: Number of Services	2010 Quantity: Number Copper Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Frequency of Failure: Main Leaks/ Mile	2010 Frequency of Failure: All Services Leaks / 100	2010 Frequency of Failure: Copper Services Only Leaks / 100	Total Leaks / Facility Mile (mains & svcs)
Other									
Bell Joint leaks	1,356	38,903		1		0.0007			0.0007
Copper Pipe Puncture									
Copper Sulfide									
Other	1,356	38,903		11	32	0.0081		0.3200	0.0317

Threat / Sub-Threat	Leak Ratio: 2006	Leak Ratio: 2007	Leak Ratio: 2008	Leak Ratio: 2009	Leak Ratio: 2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Other							
Bell Joint Leaks					1	0.2000	
Copper Pipe Puncture							
Copper Sulfide							
Other	339	316	112	187	43	199.40	

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Division 05 (Eustis)

Table 5-2: Summary of System Design by Operating Pressure

Maximum Operating Pressure	Miles of Main
Low-Pressure (1 psig or less)	
Intermediate Pressure – 60 psig or less	186
High Pressure – greater than 60 psig	48

Division 05 (Eustis)

Table 5-3: Summary of Material Types and Years Installed

Material Type	2010 Mains Current Miles of Main	Years Installed (of remaining)	Services Number of Services	Years Installed (of remaining)
Cast Iron				
Wrought Iron				
Bare Steel – with CP				
Bare Steel – No CP	27	1950-1959	287	1950-1959
Coated Steel – with CP	78	1960-CURRENT	990	1960-CURRENT
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	112	1970-CURRENT	5,234	1970-CURRENT
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk
Other	Unk	Unk	129	1950-CURRENT

Division 05 (Eustis)

Table 5-4: Summary of Construction Practices

Material Type	Year first deployed	Year Ceased
Replacement via insertion of Copper		
Replacement via Insertion of Plastic		
Replacement via insertion and pipe bursting/splitting		
Internal lining / slip-lining		
Joint Trench with other utilities		
Unguided Bore – soil displacement		
Unguided Bore – Ram		
Guided Directional Bore / Drill		
Blasting		
Plow-in		

Division 05 (Eustis)

Table 5-5: Miles of Mains and Number of Services by Material Type

Material Type	2010 Mains Current Miles of Main	2010 Services Number of Services
Bare unprotected steel	28	287
Coated unprotected steel		
Bare cathodically protected steel		
Coated cathodically protected steel	78	990
Plastic	112	5,235
Cast iron/Wrought iron		
Other		129

Division 05 (Eustis)

Table 5-6: Miles of Mains and Number of Service lines by material and nominal diameter

Material & Nominal Diameter	2010 Mains: Current Miles of Main	2010 Mains: Years Installed (of remaining)	Services: Number of Services	Services: Years Installed (of remaining)
1" or less steel			1,230	1960-CURRENT
1" or less cast iron				
1" or less plastic			4,988	1963-CURRENT
Other			124	1958-CURRENT
Over 1" – 2" steel			43	1960-2010
Over 1" – 2" cast iron				
Over 1" – 2" plastic			246	1963-CURRENT
Other			5	1958-CURRENT
2" or less steel	52	1958-CURRENT		
2" or less cast iron				
2" or less plastic	90	1963-CURRENT		
Over 2" – 4" steel	35	1958-CURRENT	4	1960-2009
Over 2" – 4" cast iron				
Over 2" – 4" plastic	15	1968-CURRENT	1	1973-CURRENT
Over 4" – 8" steel	18	1958-2009		
Over 4" – 8" cast iron				
Over 4" – 8" plastic	7	1993-CURRENT		
Over 8" – 12" steel				
Over 8" – 12" cast iron				
Over 12" steel				
Over 12" cast iron				
Plastic				
Plastic – Aldyl-A				
Plastic – HDPE 3306				
Plastic – All Others				

Division 05 (Eustis)

Table 5-7: Miles of Mains and Number of Services by material and decade

Material Type	2010 Mains Decade Installed	Current Miles of Main	Services Decade Installed	Number of Services
Cast Iron				
Wrought Iron				
Bare Steel – with CP				
Bare Steel – No CP	1950-1959	27	1950-1959	287
Coated Steel – with CP	1960-CURRENT	78	1960-CURRENT	990
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	1970-CURRENT	112	1970-CURRENT	5,234
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk
Other	Unk	Unk	1950-CURRENT	129

Division 05 (Eustis)

Table 5-8: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized

Cause of Leak	Number of Hazardous Leaks – 2010 *
Corrosion	
Natural Forces	1
Excavation	13
Other Outside Force	
Material, Weld or Joint Failure	6
Equipment Failure	
Incorrect Operation	
Other	1

Division 05 (Eustis)

Table 5-9: Number of Excavation Damages

Year	Number of Excavation Damages
2010	13
2009	11
2008	17
2007	21
2006	31
2005	27

Division 05 (Eustis)

Table 5-10: Number of Excavation Tickets

Year	Number of Excavation Tickets
2010	2,878
2009	3,062
2008	4,111
2007	7,719
2006	9,370
2005	8,642

Division 05 (Eustis)

Table 5-11: Number of leaks either eliminated or repaired, categorized by cause

Cause of Leak	Number of leaks eliminated or repaired– 2010
Corrosion	
Natural Forces	1
Excavation	13
Other Outside Force	
Material, Weld or Joint Failure	39
Equipment Failure	
Incorrect Operation	
Other	10

Division 05 (Eustis)

Table 5-12: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by material

Material	Number of leaks eliminated or repaired–2010
Bare Steel	3
Cast Iron / Wrought Iron	
Coated Steel	
Plastic	18
Other	

Division 05 (Eustis)

Table 5-13: State Specific Reports

Division 05 (Eustis)

Table 5-14: Number of EFVs Installed

Year	EFVs Installed
2010	51
2009	
2008	
2007	
2006	
2005	
System Total	352

Division 05 (Eustis)

Table 5-15: District Regulators, Security Valves and Relief Valves

Manufacturer and Type	System Count 2010

Division 05 (Eustis)

Table 5-16: Service regulators

Regulator Manufacturer and Type	System Count 2010

Division 05 (Eustis)

Table 5-17: Mechanical Couplings

Mechanical Coupling Type	Estimated System Count 2010

Division 05 (Eustis)

Table 5-18: Plastic piping

Plastic Piping Type	Estimated System miles 2010
PVC	
ABS	
CAB	
PB	
Aldyl A	
MDPE 2306	
HDPE 3306	
Other PE	
Other	

Division 05 (Eustis)

Table 5-19: MAOP of Systems

Material	High – Pressure > 60 psi	Intermediate Pressure 60 psi or less	Low Pressure Same as delivered to customer	Unknown
Miles of Main	48	186		
Number of Services	65	6,191		416

Division 05 (Eustis)

Table 5-21: Reportable/Significant Gas Incidents Summary by Year

Year	Miles of Main	Number of Incidents	Fatalities	Injuries	Property Damage
2010					
2009					
2008					
2007					
2006					
2005					
2004					
2003					
2002					
2001					
2000					
1999					
1998					
1997					
1996					
1995					
1994					
1993					
1992					
1991					
1990					
Total					
5- Year Average (2006-2010)					
10- Year Average (2006-2010)					
20- Year Average (2006-2010)					

Note: The criteria for significant gas incidents that must be reported to PHMSA are established in 49 CFR Part 191 and in-patient hospitalization, or $50,000 or more in total costs, measured in 1984 dollars. Significant Incident include incidents that result in fatalities, summary statistics for the U.Swebsite. are also provided on the PHMSA

Table 5-22: Reportable/Significant Gas Incidents by Cause

Year	Corrosion	Natural Forces	Excavation Damage	Outside Force	Material, Weld or Joint Failure	Equipment Failure	Incorrect Operation	Other
2010								
2009								
2008								
2007								
2006								
2005								
2004								
2003								
2002								
2001								
2000								
1999								
1998								
1997								
1996								
1995								
1994								
1993								
1992								
1991								
1990								
20-Yr Total								

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Table 5-28: Corrosion Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	Frequency of Failure: Main Leaks/Mile	Frequency of Failure: Service Leaks/100	Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Corrosion							
Cast Iron							
Bare Steel							
Ductile Iron							
Copper							
Coated Steel (with CP)							
Coated Steel (No CP)							
Other							

Threat / Sub-Threat	Leak Ratio 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Corrosion							
Cast Iron							
Bare Steel	5	3	4	7		3.80	
Ductile Iron							
Copper							
Coated Steel (with CP)							
Coated Steel (No CP)							
Other							

Table 5-29: Natural Forces Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	# Services	# of Units	Leaks Repaired: Mains	Services	Units	Frequency of Failure: Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Natural Forces										
Seismic										
Earth Movement / Landslide										
Tree Roots										
Frost Heave / Temperature										
Flood										
Ice/Snow Blockage of Control Equip										
Other	217	6,641			1			0.0100		0.005

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Natural Forces							
Seismic							
Earth Movement / Landslide							
Tree Roots							
Frost Heave / Temperature							
Flood							
Ice/Snow Blockage of Control Equip							
Other	3	3		4	1	2.20	

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Table 5-30: Excavation Damage Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: System Miles of Main	2010 Quantity: System Number of Services	2010 Quantity: System Number of Tickets	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Leaks Repaired: Total System Miles	Frequency of Failure: Leaks per Ticket	Frequency of Failure: Leaks per System Mile
Excavation Damage - All	217	6,641	2,878	3	10	217	**0.005**	**0.0599**

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Excavation Damage							
Miles of Main	202	214	219	213	217		
Tickets	9,370	7,719	4,111	3,062	2,878	**5,428**	
Leaks	31	21	17	11	13	**19**	
Leaks per Ticket	**0.0033**	**0.0027**	**0.0041**	**0.0036**	**0.0045**	**0.0037**	
Leaks per System Mile	0.1535	0.0981	0.0776	0.0516	0.0599	**0.0881**	

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Table 5-31: Outside Force Threat – Frequency and Trend

Threat / Sub-Threat	2010									
	Quantity			Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Outside Force										
Vehicle Damage										
Vandalism										
Fire / Explosion										
Previous Damage										
Other										

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Outside Force							
Vehicle Damage							
Vandalism							
Fire / Explosion							
Previous Damage							
Other	4		4			1.60	

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Table 5-32: Example – Material, Weld or Joint Failure Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	Frequency of Failure: Main Leaks/Mile	Frequency of Failure: Service Leaks/100	Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	111	5,235	3	6	0.0270	0.0600	0.0811
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	106	1,406	1	29	0.0094	0.2900	0.2830

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	3	1	1	2	9	3.20	
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	1	2		2	30	7.00	

Table 5-33: Equipment Failure Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity			2010 Leaks Repaired			2010 Frequency of Failure			Total Leaks / Facility Mile (mains & svcs)
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	
Equipment Failure										
Valves										
Service Regulators										
Control/Relief Station										
Other										

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Equipment Failure							
Valves							
Service Regulators							
Control/Relief Station							
Other		1				0.20	

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Table 5-34: Incorrect Operation Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	# Services	# of Units	Incidents: Mains	Services	Units	Frequency of Failure: Main Incidents/Mile	Service Incidents/100	Equip/Fitting Incidents/100	Total Incidents / Facility Mile (mains & svcs)
Incorrect Operation										
Operating Error										
Service Line bored thru Sewer										
Other										

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Incorrect Operation							
Operating Error							
Service Line bored thru Sewer							
Other							

Table 5-35: Other Threat – Frequency and Trend

Threat / Sub-Threat	Quantity			2010 Leaks Repaired		Frequency of Failure			
	Miles Main	Number of Services	Number Copper Services	Mains	Services	Main Leaks/ Mile	All Services Leaks / 100	Copper Services Only Leaks / 100	Total Leaks / Facility Mile (mains & svcs)
Other									
Bell Joint leaks									
Copper Pipe Puncture									
Copper Sulfide									
Other	217	6,641		5	5	0.0230		0.0500	0.0461

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing ?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Other							
Bell Joint Leaks							
Copper Pipe Puncture							
Copper Sulfide							
Other	6	4	6		10	5.20	

Division 06 (Jacksonville)

Table 5-2: Summary of System Design by Operating Pressure

Maximum Operating Pressure	Miles of Main
Low-Pressure (1 psig or less)	0.13
Intermediate Pressure – 60 psig or less	843
High Pressure – greater than 60 psig	452

Division 06 (Jacksonville)

Table 5-3: Summary of Material Types and Years Installed

Material Type	2010			
	Mains		Services	
	Current Miles of Main	Years Installed (of remaining)	Number of Services	Years Installed (of remaining)
Cast Iron				
Wrought Iron				
Bare Steel – with CP			990	1940-1959
Bare Steel – No CP	12	Pre1940-1959	445	1940-1959
Coated Steel – with CP	547	1959-CURRENT	1,050	1950-1959
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	646	1970-CURRENT	22,791	1970-CURRENT
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

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Table 5-4: Summary of Construction Practices

Material Type	Year first deployed	Year Ceased
Replacement via insertion of Copper		
Replacement via Insertion of Plastic		
Replacement via insertion and pipe bursting/splitting		
Internal lining / slip-lining		
Joint Trench with other utilities		
Unguided Bore – soil displacement		
Unguided Bore – Ram		
Guided Directional Bore / Drill		
Blasting		
Plow-in		

Division 06 (Jacksonville)

Table 5-5: Miles of Mains and Number of Services by Material Type

Material Type	2010 Mains	Services
	Current Miles of Main	Number of Services
Bare unprotected steel	12	445
Coated unprotected steel		
Bare cathodically protected steel		990
Coated cathodically protected steel	547	1,050
Plastic	646	22,791
Cast iron/Wrought iron		
Other		372

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Table 5-6: Miles of Mains and Number of Service lines by material and nominal diameter

Material & Nominal Diameter	2010 Mains Current Miles of Main	Mains Years Installed (of remaining)	Services Number of Services	Services Years Installed (of remaining)
Unkown Steel			10	1958-CURRENT
Unkown Plastic			180	1963-CURRENT
Unkown Other			372	1958-CURRENT
1" or less steel			2,122	1960-2010
1" or less cast iron				
1" or less plastic			20,916	1963-CURRENT
Other				
Over 1" – 2" steel			316	1960-2010
Over 1" – 2" cast iron				
Over 1" – 2" plastic			1,673	1963-CURRENT
Other				
2" or less steel	158	1958-CURRENT		
2" or less cast iron				
2" or less plastic	492	1963-CURRENT		
Over 2" – 4" steel	173	1958-2010	23	1960-2009
Over 2" – 4" cast iron				
Over 2" – 4" plastic	145	1968-CURRENT	21	1973-CURRENT
Over 4" – 8" steel	212	1958-2009	140	1967-2002
Over 4" – 8" cast iron				
Over 4" – 8" plastic	9	1993-CURRENT	1	1993-CURRENT
Over 8" – 12" steel	16	1993		
Over 8" – 12" cast iron				
Over 12" steel				
Over 12" cast iron				
Plastic				
Plastic – Aldyl-A				
Plastic – HDPE 3306				
Plastic – All Others				

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Table 5-7: Miles of Mains and Number of Services by material and decade

Material Type	2010 Mains Decade Installed	Current Miles of Main	Services Decade Installed	Number of Services
Cast Iron				
Wrought Iron				
Bare Steel – with CP			1940-1959	990
Bare Steel – No CP	Pre1940-1959	12	1940-1959	445
Coated Steel – with CP	1959-CURRENT	547	1950-1959	1,050
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	1970-CURRENT	646	1970-CURRENT	22,791
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

Division 06 (Jacksonville)

Table 5-8: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized

Cause of Leak	Number of Hazardous Leaks – 2010 *
Corrosion	10
Natural Forces	4
Excavation	90
Other Outside Force	9
Material, Weld or Joint Failure	60
Equipment Failure	66
Incorrect Operation	
Other	2

Division 06 (Jacksonville)

Table 5-9: Number of Excavation Damages

Year	Number of Excavation Damages
2010	92
2009	93
2008	166
2007	151
2006	249
2005	265

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Table 5-10: Number of Excavation Tickets

Year	Number of Excavation Tickets
2010	27,881
2009	30,739
2008	34,956
2007	42,113
2006	54,196
2005	57,849

Division 06 (Jacksonville)

Table 5-11: Number of leaks either eliminated or repaired, categorized by cause

Cause of Leak	Number of leaks eliminated or repaired– 2010
Corrosion	35
Natural Forces	19
Excavation	92
Other Outside Force	15
Material, Weld or Joint Failure	330
Equipment Failure	211
Incorrect Operation	
Other	1,102

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Table 5-12: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by material

Material	Number of leaks eliminated or repaired–2010
Bare Steel	96
Cast Iron / Wrought Iron	1
Coated Steel	13
Plastic	131
Other	

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Table 5-13: State Specific Reports

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Table 5-14: Number of EFVs Installed

Year	EFVs Installed
2010	314
2009	
2008	
2007	
2006	
2005	
System Total	1,667

Division 06 (Jacksonville)

Table 5-15: District Regulators, Security Valves and Relief Valves

Manufacturer and Type	System Count 2010

Division 06 (Jacksonville)

Table 5-16: Service regulators

Regulator Manufacturer and Type	System Count 2010

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Table 5-17: Mechanical Couplings

Mechanical Coupling Type	Estimated System Count 2010

Division 06 (Jacksonville)

Table 5-18: Plastic piping

Plastic Piping Type	Estimated System miles 2010
PVC	
ABS	
CAB	
PB	
Aldyl A	
MDPE 2306	
HDPE 3306	
Other PE	
Other	

Division 06 (Jacksonville)

Table 5-19: MAOP of Systems

Material	High – Pressure > 60 psi	Intermediate Pressure 60 psi or less	Low Pressure Same as delivered to customer	Unknown
Miles of Main	452	843	0.13	
Number of Services	628	18,022	419	6,270

Division 06 (Jacksonville)

Table 5-21: Reportable/Significant Gas Incidents Summary by Year

Year	Miles of Main	Number of Incidents	Fatalities	Injuries	Property Damage
2010					
2009					
2008					
2007					
2006					
2005					
2004		1	0	1	0
2003					
2002					
2001					
2000					
1999					
1998					
1997					
1996					
1995					
1994					
1993					
1992					
1991					
1990					
Total					
5- Year Average (2006-2010)					
10- Year Average (2006-2010)					
20- Year Average (2006-2010)					

Note: The criteria for significant gas incidents that must be reported to PHMSA are established in 49 CFR Part 191 and in-patient hospitalization, or $50,000 or more in total costs, measured in 1984 dollars. Significant Incident include incidents that result in fatalities, summary statistics for the U.Swebsite. are also provided on the PHMSA

Table 5-22: Reportable/Significant Gas Incidents by Cause

Year	Corrosion	Natural Forces	Excavation Damage	Outside Force	Material, Weld or Joint Failure	Equipment Failure	Incorrect Operation	Other
2010								
2009								
2008								
2007								
2006								
2005								
2004			1					
2003								
2002								
2001								
2000								
1999								
1998								
1997								
1996								
1995								
1994								
1993								
1992								
1991								
1990								
20-Yr Total								

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Table 5-28: Corrosion Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	Quantity: # Services	Leaks Repaired: Mains	Leaks Repaired: Services	Frequency of Failure: Main Leaks/Mile	Service Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Corrosion							
Cast Iron							
Bare Steel	12	1,435	13	19	1.0833	0.1900	2.6667
Ductile Iron							
Copper							
Coated Steel (with CP)	547	1,050		3		0.0300	0.0055
Coated Steel (No CP)							
Other		372					

Threat / Sub-Threat	Leak Ratio 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Corrosion							
Cast Iron							
Bare Steel	5	3	6	9	32	11.00	
Ductile Iron							
Copper							
Coated Steel (with CP)	4		5	2	3	2.80	
Coated Steel (No CP)							
Other		4	1			1.00	

Table 5-29: Natural Forces Threat – Frequency and Trend

Threat / Sub-Threat	2010									
	Quantity			Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Natural Forces										
Seismic										
Earth Movement / Landslide										
Tree Roots										
Frost Heave / Temperature										
Flood										
Ice/Snow Blockage of Control Equip										
Other	1,205	25,648		6	13		0.0050	0.1300		0.0158

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Natural Forces							
Seismic							
Earth Movement / Landslide							
Tree Roots							
Frost Heave / Temperature							
Flood							
Ice/Snow Blockage of Control Equip							
Other	6	12	23	11	19	14.20	

Table 5-30: Excavation Damage Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: System Miles of Main	2010 Quantity: System Number of Services	2010 Quantity: System Number of Tickets	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Leaks Repaired: Total System Miles	2010 Frequency of Failure: Leaks per Ticket	2010 Frequency of Failure: Leaks per System Mile
Excavation Damage - All	1,205	25,648	27,881	19	73	1,205	**0.0033**	**0.0763**

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Excavation Damage							
Miles of Main	1,054	1,102	1,138	1,175	1,205		
Tickets	54,196	42,113	34,956	30,739	27,881	**37,977**	
Leaks	249	151	166	93	92	**150**	
Leaks per Ticket	**0.0046**	**0.0036**	**0.0047**	**0.0030**	**0.0033**	**0.0039**	
Leaks per System Mile	0.2362	0.1370	0.1459	0.0791	0.0763	**0.1349**	

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Table 5-31: Outside Force Threat – Frequency and Trend

Threat / Sub-Threat	2010									
	Quantity			Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Outside Force										
Vehicle Damage										
Vandalism										
Fire / Explosion										
Previous Damage										
Other	1,205	25,648		6	9		0.0050	0.0900		0.0124

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Outside Force							
Vehicle Damage							
Vandalism							
Fire / Explosion							
Previous Damage							
Other	7	18	9	18	15	13.40	

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Table 5-32: Example – Material, Weld or Joint Failure Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity Miles Main	# Services	Leaks Repaired Mains	Services	Main Leaks/Mile	Frequency of Failure Service Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	646	22,791	49	58	**0.0759**	**0.5800**	**0.1656**
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	559	2,857	41	182	**0.0733**	**1.8200**	**0.3989**

Threat / Sub-Threat	Leak Ratio 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	5	52	99	30	107	**58.60**	
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	2	53	102	31	223	**82.20**	

Table 5-33: Equipment Failure Threat – Frequency and Trend

Threat / Sub-Threat	2010									
	Quantity			Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fittin g Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Equipment Failure										
Valves	1,205	25,648		4	54		**0.0033**	**0.5400**		**0.0481**
Service Regulators	1,205	25,648		2	100		**0.0017**	**1.0000**		**0.0846**
Control/Relief Station	1,205	25,648			9			**0.0900**		**0.0075**
Other	1,205	25,648		6	36		**0.0050**	**0.3600**		**0.0349**

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Equipment Failure							
Valves	38	21	14	35	58	**33.20**	
Service Regulators	27	7	24	55	101	**42.80**	
Control/Relief Station	1		3	13	10	**5.40**	
Other	112	108	11	3	42	**55.20**	

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Table 5-34: Incorrect Operation Threat – Frequency and Trend

Threat / Sub-Threat	2010									
	Quantity			Incidents			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Incidents/Mile	Service Incidents/100	Equip/Fitting Incidents /100	Total Incidents / Facility Mile (mains & svcs)
Incorrect Operation										
Operating Error										
Service Line bored thru Sewer										
Other										

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Incorrect Operation							
Operating Error							
Service Line bored thru Sewer							
Other		2	2	2		1.20	

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Table 5-35: Other Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: Number of Services	2010 Quantity: Number Copper Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Frequency of Failure: Main Leaks/ Mile	2010 Frequency of Failure: All Services Leaks / 100	2010 Frequency of Failure: Copper Services Only Leaks / 100	2010 Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Other									
Bell Joint leaks									
Copper Pipe Puncture									
Copper Sulfide									
Other	1,205	25,648		37	1,065	0.0307		10.6500	0.9145

Threat / Sub-Threat	Leak Ratio: 2006	Leak Ratio: 2007	Leak Ratio: 2008	Leak Ratio: 2009	Leak Ratio: 2010	Leak Ratio: 5-Year Average	Is Leak Frequency Increasing ? Y/N
Other							
Bell Joint Leaks							
Copper Pipe Puncture							
Copper Sulfide							
Other	5	9	38	470	1,102	324.80	

Division 08 (Lakeland)

Table 5-2: Summary of System Design by Operating Pressure

Maximum Operating Pressure	Miles of Main
Low-Pressure (1 psig or less)	18
Intermediate Pressure – 60 psig or less	210
High Pressure – greater than 60 psig	70

Division 08 (Lakeland)

Table 5-3: Summary of Material Types and Years Installed

Material Type	2010			
	Mains		Services	
	Current Miles of Main	Years Installed (of remaining)	Number of Services	Years Installed (of remaining)
Cast Iron	26	1950-1959		
Wrought Iron				
Bare Steel – with CP	1	1950-1959	588	1950-1959
Bare Steel – No CP	3	1960-1969	60	1960-1969
Coated Steel – with CP	95	1969-CURRENT	611	1969-CURRENT
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	134	1970-CURRENT	5,100	1970-CURRENT
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

Division 08 (Lakeland)

Table 5-4: Summary of Construction Practices

Material Type	Year first deployed	Year Ceased
Replacement via insertion of Copper		
Replacement via Insertion of Plastic		
Replacement via insertion and pipe bursting/splitting		
Internal lining / slip-lining		
Joint Trench with other utilities		
Unguided Bore – soil displacement		
Unguided Bore – Ram		
Guided Directional Bore / Drill		
Blasting		
Plow-in		

Division 08 (Lakeland)

Table 5-5: Miles of Mains and Number of Services by Material Type

Material Type	2010 Mains Current Miles of Main	Services Number of Services
Bare unprotected steel	3	60
Coated unprotected steel		
Bare cathodically protected steel	1	588
Coated cathodically protected steel	95	611
Plastic	134	5,100
Cast iron/Wrought iron	26	
Other		

Division 08 (Lakeland)

Table 5-6: Miles of Mains and Number of Service lines by material and nominal diameter

Material & Nominal Diameter	2010 Mains		Services	
	Current Miles of Main	Years Installed (of remaining)	Number of Services	Years Installed (of remaining)
1" or less steel			945	1964-CURRENT
1" or less cast iron				
1" or less plastic			4,322	1969-CURRENT
Other				
Over 1" – 2" steel			310	1964-CURRENT
Over 1" – 2" cast iron				
Over 1" – 2" plastic			777	1969-CURRENT
Other				
2" or less steel	29	1959-2010		
2" or less cast iron				
2" or less plastic	120	1968-CURRENT		
Over 2" – 4" steel	42	1959-2010	3	1959-2009
Over 2" – 4" cast iron	26	1950-1959		
Over 2" – 4" plastic	14	1969-2010	1	1968-2007
Over 4" – 8" steel	28	1959-2009	1	1982-1994
Over 4" – 8" cast iron				
Over 4" – 8" plastic				
Over 8" – 12" steel				
Over 8" – 12" cast iron				
Over 12" steel				
Over 12" cast iron				
Plastic				
Plastic – Aldyl-A				
Plastic – HDPE 3306				
Plastic – All Others				

Division 08 (Lakeland)

Table 5-7: Miles of Mains and Number of Services by material and decade

Material Type	2010 Mains Decade Installed	Current Miles of Main	Services Decade Installed	Number of Services
Cast Iron	1950-1959	26		
Wrought Iron				
Bare Steel – with CP	1950-1959	1	1950-1959	588
Bare Steel – No CP	1960-1969	3	1960-1969	60
Coated Steel – with CP	1969-CURRENT	95	1969-CURRENT	611
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	1970-CURRENT	134	1970-CURRENT	5,100
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

Division 08 (Lakeland)

Table 5-8: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized

Cause of Leak	Number of Hazardous Leaks – 2010 *
Corrosion	4
Natural Forces	
Excavation	25
Other Outside Force	
Material, Weld or Joint Failure	4
Equipment Failure	2
Incorrect Operation	
Other	12

Division 08 (Lakeland)

Table 5-9: Number of Excavation Damages

Year	Number of Excavation Damages
2010	25
2009	32
2008	34
2007	38
2006	34
2005	51

Division 08 (Lakeland)

Table 5-10: Number of Excavation Tickets

Year	Number of Excavation Tickets
2010	6,032
2009	5,008
2008	7,943
2007	7,373
2006	9,649
2005	12,196

Division 08 (Lakeland)

Table 5-11: Number of leaks either eliminated or repaired, categorized by cause

Cause of Leak	Number of leaks eliminated or repaired– 2010
Corrosion	10
Natural Forces	
Excavation	25
Other Outside Force	1
Material, Weld or Joint Failure	58
Equipment Failure	3
Incorrect Operation	
Other	39

Division 08 (Lakeland)

Table 5-12: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by material

Material	Number of leaks eliminated or repaired–2010
Bare Steel	20
Cast Iron / Wrought Iron	
Coated Steel	1
Plastic	26
Other	

Table 5-13: State Specific Reports

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Table 5-14: Number of EFVs Installed

Year	EFVs Installed
2010	246
2009	
2008	
2007	
2006	
2005	
System Total	1,526

Division 08 (Lakeland)

Table 5-15: District Regulators, Security Valves and Relief Valves

Manufacturer and Type	System Count 2010

Division 08 (Lakeland)

Table 5-16: Service regulators

Regulator Manufacturer and Type	System Count 2010

Division 08 (Lakeland)

Table 5-17: Mechanical Couplings

Mechanical Coupling Type	Estimated System Count 2010

Division 08 (Lakeland)

Table 5-18: Plastic piping

Plastic Piping Type	Estimated System miles 2010
PVC	
ABS	
CAB	
PB	
Aldyl A	
MDPE 2306	
HDPE 3306	
Other PE	
Other	

Division 08 (Lakeland)

Table 5-19: MAOP of Systems

Material	High – Pressure > 60 psi	Intermediate Pressure 60 psi or less	Low Pressure Same as delivered to customer	Unknown
Miles of Main	70	210	18	
Number of Services	105	6,178	1,088	449

Division 08 (Lakeland)

Table 5-21: Reportable/Significant Gas Incidents Summary by Year

Year	Miles of Main	Number of Incidents	Fatalities	Injuries	Property Damage
2010					
2009					
2008					
2007					
2006					
2005					
2004					
2003					
2002					
2001					
2000					
1999					
1998					
1997					
1996					
1995					
1994					
1993					
1992					
1991					
1990					
Total					
5- Year Average (2006-2010)					
10- Year Average (2006-2010)					
20- Year Average (2006-2010)					

Note: The criteria for significant gas incidents that must be reported to PHMSA are established in 49 CFR Part 191 and in-patient hospitalization, or $50,000 or more in total costs, measured in 1984 dollars. Significant Incident include incidents that result in fatalities, summary statistics for the U.Swebsite. are also provided on the PHMSA

Division 08 (Lakeland)

Table 5-22: Reportable/Significant Gas Incidents by Cause

Year	Corrosion	Natural Forces	Excavation Damage	Outside Force	Material, Weld or Joint Failure	Equipment Failure	Incorrect Operation	Other
2010								
2009								
2008								
2007								
2006								
2005								
2004								
2003								
2002								
2001								
2000								
1999								
1998								
1997								
1996								
1995								
1994								
1993								
1992								
1991								
1990								
20-Yr Total								

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Table 5-28: Corrosion Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Frequency of Failure: Main Leaks/Mile	2010 Frequency of Failure: Service Leaks/100	2010 Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Corrosion							
Cast Iron							
Bare Steel	4	648	4	6	1.0000	0.0600	2.5000
Ductile Iron							
Copper							
Coated Steel (with CP)							
Coated Steel (No CP)							
Other							

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Corrosion							
Cast Iron			1			0.20	
Bare Steel	25	8	11	16	10	14.00	
Ductile Iron							
Copper	1					0.20	
Coated Steel (with CP)	1	1	1	1		0.80	
Coated Steel (No CP)							
Other							

Table 5-29: Natural Forces Threat – Frequency and Trend

Threat / Sub-Threat	2010									
	Quantity			Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Natural Forces										
Seismic										
Earth Movement / Landslide										
Tree Roots										
Frost Heave / Temperature										
Flood										
Ice/Snow Blockage of Control Equip										
Other										

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Natural Forces							
Seismic							
Earth Movement / Landslide							
Tree Roots							
Frost Heave / Temperature							
Flood							
Ice/Snow Blockage of Control Equip							
Other	28	31	1	2		12.40	

Table 5-30: Excavation Damage Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: System Miles of Main	2010 Quantity: System Number of Services	2010 Quantity: System Number of Tickets	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Leaks Repaired: Total System Miles	Frequency of Failure: Leaks per Ticket	Frequency of Failure: Leaks per System Mile
Excavation Damage - All	259	6,359	6,032	5	20	259	**0.0041**	**0.0965**

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Excavation Damage							
Miles of Main	261	258	262	263	259		
Tickets	9,649	7,373	7,943	5,008	6,032	**7,201**	
Leaks	34	38	34	32	25	**33**	
Leaks per Ticket	0.0035	0.0052	0.0043	0.0064	0.0041	**0.0047**	
Leaks per System Mile	0.1303	0.1473	0.1298	0.1217	0.0965	**0.1251**	

Table 5-31: Outside Force Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity			2010 Leaks Repaired			2010 Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Outside Force										
Vehicle Damage										
Vandalism										
Fire / Explosion										
Previous Damage										
Other	259	6,359			1			0.0100		0.0039

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Outside Force							
Vehicle Damage							
Vandalism							
Fire / Explosion							
Previous Damage							
Other	4	3	4	6	1	3.60	

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Table 5-32: Example – Material, Weld or Joint Failure Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity Miles Main	Quantity # Services	Leaks Repaired Mains	Leaks Repaired Services	Frequency of Failure Main Leaks/Mile	Service Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	134	5,100	2	3	0.0149	0.0300	0.0373
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other							

Threat / Sub-Threat	Leak Ratio 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	13	6	4	14	5	8.40	
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	10	13	19	35	53	26.00	

Table 5-33: Equipment Failure Threat – Frequency and Trend

Threat / Sub-Threat	Quantity			2010 Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Equipment Failure										
Valves										
Service Regulators	259	6,359			3			0.0300		0.0116
Control/Relief Station										
Other										

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Equipment Failure							
Valves	2	3	4	2		2.20	
Service Regulators	3	3	13	9	3	6.20	
Control/Relief Station							
Other		2	5	3		2.00	

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Table 5-34: Incorrect Operation Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	# Services	# of Units	Incidents: Mains	Services	Units	Frequency of Failure: Main Incidents/Mile	Service Incidents/100	Equip/Fitting Incidents/100	Total Incidents / Facility Mile (mains & svcs)
Incorrect Operation										
Operating Error										
Service Line bored thru Sewer										
Other										

Note: Operators may wish to track equipment failure by overall facility mile if they do not have data on equipment unit counts

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Incorrect Operation							
Operating Error							
Service Line bored thru Sewer							
Other	7		3			2.00	

Table 5-35: Other Threat – Frequency and Trend

Threat / Sub-Threat	Quantity: Miles Main	Quantity: Number of Services	Quantity: Number Copper Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	Frequency of Failure: Main Leaks/ Mile	Frequency of Failure: All Services Leaks / 100	Frequency of Failure: Copper Services Only Leaks / 100	Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Other									
Bell Joint leaks	259	6,359		1		0.0039			0.0039
Copper Pipe Puncture									
Copper Sulfide									
Other	259	6,359		5	33	0.0193		0.3300	0.1467

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing ? Y/N
Other							
Bell Joint Leaks	1	2		1	1	1.00	
Copper Pipe Puncture							
Copper Sulfide							
Other	52	29	44	51	38	42.80	

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Division 09 (Daytona)

Table 5-2: Summary of System Design by Operating Pressure

Maximum Operating Pressure	Miles of Main
Low-Pressure (1 psig or less)	3
Intermediate Pressure – 60 psig or less	228
High Pressure – greater than 60 psig	111

Division 09 (Daytona)

Table 5-3: Summary of Material Types and Years Installed

Material Type	2010			
	Mains		Services	
	Current Miles of Main	Years Installed (of remaining)	Number of Services	Years Installed (of remaining)
Cast Iron	6	1950-1959		
Wrought Iron				
Bare Steel – with CP	1	1959-1960	15	1959-1960
Bare Steel – No CP	8	1960-1969	484	1960-1969
Coated Steel – with CP	192	1960-CURRENT	1,292	1960-CURRENT
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	146	1970-CURRENT	5,734	1970-CURRENT
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

Division 09 (Daytona)

Table 5-4: Summary of Construction Practices

Material Type	Year first deployed	Year Ceased
Replacement via insertion of Copper		
Replacement via Insertion of Plastic		
Replacement via insertion and pipe bursting/splitting		
Internal lining / slip-lining		
Joint Trench with other utilities		
Unguided Bore – soil displacement		
Unguided Bore – Ram		
Guided Directional Bore / Drill		
Blasting		
Plow-in		

Division 09 (Daytona)

Table 5-5: Miles of Mains and Number of Services by Material Type

Material Type	2010 Mains Current Miles of Main	2010 Services Number of Services
Bare unprotected steel	8	484
Coated unprotected steel		
Bare cathodically protected steel	1	15
Coated cathodically protected steel	192	1,292
Plastic	146	5,734
Cast iron/Wrought iron	6	
Other		

Division 09 (Daytona)

Table 5-6: Miles of Mains and Number of Service lines by material and nominal diameter

Material & Nominal Diameter	2010 Mains Current Miles of Main	Years Installed (of remaining)	Services Number of Services	Years Installed (of remaining)
1" or less steel			1,341	1958-CURRENT
1" or less cast iron				
1" or less plastic			5,308	1968-CURRENT
Other				
Over 1" – 2" steel			441	1958-CURRENT
Over 1" – 2" cast iron				
Over 1" – 2" plastic			425	1968-CURRENT
Other				
2" or less steel	69	1958-CURRENT		
2" or less cast iron				
2" or less plastic	121	1968-2010		
Over 2" – 4" steel	43	1958-CURRENT	9	1958-2010
Over 2" – 4" cast iron	5	1950-1959		
Over 2" – 4" plastic	12	1968-2010		
Over 4" – 8" steel	89	1958-CURRENT		
Over 4" – 8" cast iron	1	1950-1959		
Over 4" – 8" plastic	13	1996-2009	1	1967
Over 8" – 12" steel				
Over 8" – 12" cast iron				
Over 12" steel				
Over 12" cast iron				
Plastic				
Plastic – Aldyl-A				
Plastic – HDPE 3306				
Plastic – All Others				

Division 09 (Daytona)

Table 5-7: Miles of Mains and Number of Services by material and decade

Material Type	2010 Mains Decade Installed	Current Miles of Main	Services Decade Installed	Number of Services
Cast Iron	1950-1959	6		
Wrought Iron				
Bare Steel – with CP	1959-1960	1	1959-1960	15
Bare Steel – No CP	1960-1969	8	1960-1969	484
Coated Steel – with CP	1960-CURRENT	192	1960-CURRENT	1,292
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	1970-CURRENT	146	1970-CURRENT	5,734
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

Division 09 (Daytona)

Table 5-8: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized

Cause of Leak	Number of Hazardous Leaks – 2010 *
Corrosion	12
Natural Forces	
Excavation	8
Other Outside Force	1
Material, Weld or Joint Failure	3
Equipment Failure	
Incorrect Operation	2
Other	1

Division 09 (Daytona)

Table 5-9: Number of Excavation Damages

Year	Number of Excavation Damages
2010	8
2009	14
2008	17
2007	19
2006	28
2005	22

Division 09 (Daytona)

Table 5-10: Number of Excavation Tickets

Year	Number of Excavation Tickets
2010	7,091
2009	7,586
2008	8,553
2007	10,776
2006	12,573
2005	13,849

Division 09 (Daytona)

Table 5-11: Number of leaks either eliminated or repaired, categorized by cause

Cause of Leak	Number of leaks eliminated or repaired– 2010
Corrosion	24
Natural Forces	
Excavation	8
Other Outside Force	1
Material, Weld or Joint Failure	31
Equipment Failure	12
Incorrect Operation	6
Other	7

Division 09 (Daytona)

Table 5-12: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by material

Material	Number of leaks eliminated or repaired–2010
Bare Steel	8
Cast Iron / Wrought Iron	
Coated Steel	8
Plastic	11
Other	

Division 09 (Daytona)

Table 5-13: State Specific Reports

Division 09 (Daytona)

Table 5-14: Number of EFVs Installed

Year	EFVs Installed
2010	200
2009	
2008	
2007	
2006	
2005	
System Total	675

Division 09 (Daytona)

Table 5-15: District Regulators, Security Valves and Relief Valves

Manufacturer and Type	System Count 2010

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Table 5-16: Service regulators

Regulator Manufacturer and Type	System Count 2010

Division 09 (Daytona)

Table 5-17: Mechanical Couplings

Mechanical Coupling Type	Estimated System Count 2010

Division 09 (Daytona)

Table 5-18: Plastic piping

Plastic Piping Type	Estimated System miles 2010
PVC	
ABS	
CAB	
PB	
Aldyl A	
MDPE 2306	
HDPE 3306	
Other PE	
Other	

Division 09 (Daytona)

Table 5-19: MAOP of Systems

Material	High – Pressure > 60 psi	Intermediate Pressure 60 psi or less	Low Pressure Same as delivered to customer	Unknown
Miles of Main	111	228	3	
Number of Services	98	6,630	4	2,224

Division 09 (Daytona)

Table 5-21: Reportable/Significant Gas Incidents Summary by Year

Year	Miles of Main	Number of Incidents	Fatalities	Injuries	Property Damage
2010					
2009					
2008					
2007					
2006					
2005					
2004					
2003					
2002					
2001					
2000					
1999					
1998					
1997					
1996					
1995					
1994					
1993					
1992					
1991					
1990					
Total					
5- Year Average (2006-2010)					
10- Year Average (2006-2010)					
20- Year Average (2006-2010)					

Note: The criteria for significant gas incidents that must be reported to PHMSA are established in 49 CFR Part 191 and in-patient hospitalization, or $50,000 or more in total costs, measured in 1984 dollars. Significant Incident include incidents that result in fatalities, summary statistics for the U.Swebsite. are also provided on the PHMSA

Table 5-22: Reportable/Significant Gas Incidents by Cause

Year	Corrosion	Natural Forces	Excavation Damage	Outside Force	Material, Weld or Joint Failure	Equipment Failure	Incorrect Operation	Other
2010								
2009								
2008								
2007								
2006								
2005								
2004								
2003								
2002								
2001								
2000								
1999								
1998								
1997								
1996								
1995								
1994								
1993								
1992								
1991								
1990								
20-Yr Total								

Table 5-28: Corrosion Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	Frequency of Failure: Main Leaks/Mile	Frequency of Failure: Service Leaks/100	Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Corrosion							
Cast Iron							
Bare Steel	9	499	2	11	0.2222	0.1100	1.4444
Ductile Iron							
Copper							
Coated Steel (with CP)	192	1,292	1	10	0.0052	0.1000	0.0573
Coated Steel (No CP)							
Other							

Threat / Sub-Threat	Leak Ratio 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Corrosion							
Cast Iron							
Bare Steel	2	2	2	6	13	5.00	
Ductile Iron							
Copper							
Coated Steel (with CP)	1	3	3	2	11	4.00	
Coated Steel (No CP)							
Other							

Table 5-29: Natural Forces Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity			Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Natural Forces										
Seismic										
Earth Movement / Landslide										
Tree Roots										
Frost Heave / Temperature										
Flood										
Ice/Snow Blockage of Control Equip										
Other										

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Natural Forces							
Seismic							
Earth Movement / Landslide							
Tree Roots							
Frost Heave / Temperature							
Flood							
Ice/Snow Blockage of Control Equip							
Other	2	6	1	5		2.80	

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Table 5-30: Excavation Damage Threat – Frequency and Trend

Threat / Sub-Threat	2010							
	Quantity			Leaks Repaired			Frequency of Failure	
	System Miles of Main	System Number of Services	System Number of Tickets	Mains	Services	Total System Miles	Leaks per Ticket	Leaks per System Mile
Excavation Damage - All	353	7,525	7,091	3	5	353	**0.0011**	**0.0227**

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Excavation Damage							
Miles of Main	275	288	290	314	353		
Tickets	12,573	10,776	8,553	7,586	7,091	**9,315.80**	
Leaks	28	19	17	14	8	**17.20**	
Leaks per Ticket	**0.0022**	**0.0018**	**0.0020**	**0.0018**	**0.0011**	**0.0018**	
Leaks per System Mile	0.1018	0.0660	0.0586	0.0446	0.0227	**0.0588**	

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Table 5-31: Outside Force Threat – Frequency and Trend

Threat / Sub-Threat	Quantity: Miles Main	Quantity: # Services	Quantity: # of Units	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Leaks Repaired: Units	Frequency of Failure: Main Leaks/Mile	Frequency of Failure: Service Leaks/100	Frequency of Failure: Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Outside Force										
Vehicle Damage										
Vandalism										
Fire / Explosion										
Previous Damage										
Other		7,525			1			0.0100		

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Outside Force							
Vehicle Damage							
Vandalism							
Fire / Explosion							
Previous Damage							
Other	6	4	5	4	1	4.00	

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Table 5-32: Example – Material, Weld or Joint Failure Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity Miles Main	# Services	Leaks Repaired Mains	Services	Main Leaks/Mile	Frequency of Failure Service Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	146	5,734		28		0.2800	0.1918
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	207	1791	3		0.0145		0.0145

Threat / Sub-Threat	Leak Ratio 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	1		3	4	10	3.60	
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	6	1	5	16	21	9.80	

Table 5-33: Equipment Failure Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Quantity: # of Units	Leaks Repaired: Mains	Leaks Repaired: Services	Leaks Repaired: Units	Frequency of Failure: Main Leaks/Mile	Frequency of Failure: Service Leaks/100	Frequency of Failure: Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Equipment Failure										
Valves	353	7,525			6			0.0600		0.0170
Service Regulators	353	7,525			3			0.0300		0.0085
Control/Relief Station										
Other	353	7,525		1	2		0.0028	0.0200		0.0085

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Equipment Failure							
Valves				1	6	1.40	
Service Regulators					3	0.60	
Control/Relief Station							
Other		1			3	0.80	

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Table 5-34: Incorrect Operation Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity			Incidents			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Incidents/Mile	Service Incidents/100	Equip/Fitting Incidents/100	Total Incidents / Facility Mile (mains & svcs)
Incorrect Operation										
Operating Error										
Service Line bored thru Sewer										
Other	353	7,525			6			0.0600		0.0170

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Incorrect Operation							
Operating Error							
Service Line bored thru Sewer							
Other					6	1.20	

Table 5-35: Other Threat – Frequency and Trend

Threat / Sub-Threat	Quantity: Miles Main	Quantity: Number of Services	Quantity: Number Copper Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	Frequency of Failure: Main Leaks/ Mile	Frequency of Failure: All Services Leaks / 100	Frequency of Failure: Copper Services Only Leaks / 100	Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Other									
Bell Joint leaks									
Copper Pipe Puncture									
Copper Sulfide									
Other	353	7,525		1	6	0.0028		0.0600	0.0198

Threat / Sub-Threat	Leak Ratio: 2006	Leak Ratio: 2007	Leak Ratio: 2008	Leak Ratio: 2009	Leak Ratio: 2010	Leak Ratio: 5-Year Average	Is Leak Frequency Increasing ? Y/N
Other							
Bell Joint Leaks							
Copper Pipe Puncture							
Copper Sulfide							
Other	10	2	1	8	7	5.60	

Division 10 (Avon Park)

Table 5-2: Summary of System Design by Operating Pressure

Maximum Operating Pressure	Miles of Main
Low-Pressure (1 psig or less)	
Intermediate Pressure – 60 psig or less	54
High Pressure – greater than 60 psig	13

Division 10 (Avon Park)

Table 5-3: Summary of Material Types and Years Installed

Material Type	2010			
	Mains		Services	
	Current Miles of Main	Years Installed (of remaining)	Number of Services	Years Installed (of remaining)
Cast Iron				
Wrought Iron				
Bare Steel – with CP				
Bare Steel – No CP				
Coated Steel – with CP	32	1970-1979	204	1970-1979
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	33	1970-CURRENT	416	1970-CURRENT
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

Division 10 (Avon Park)

Table 5-4: Summary of Construction Practices

Material Type	Year first deployed	Year Ceased
Replacement via insertion of Copper		
Replacement via Insertion of Plastic		
Replacement via insertion and pipe bursting/splitting		
Internal lining / slip-lining		
Joint Trench with other utilities		
Unguided Bore – soil displacement		
Unguided Bore – Ram		
Guided Directional Bore / Drill		
Blasting		
Plow-in		

Division 10 (Avon Park)

Table 5-5: Miles of Mains and Number of Services by Material Type

Material Type	2010 Mains Current Miles of Main	2010 Services Number of Services
Bare unprotected steel		
Coated unprotected steel		
Bare cathodically protected steel		
Coated cathodically protected steel	32	204
Plastic	33	416
Cast iron/Wrought iron		
Other		

Division 10 (Avon Park)

Table 5-6: Miles of Mains and Number of Service lines by material and nominal diameter

Material & Nominal Diameter	2010 Mains		Services	
	Current Miles of Main	Years Installed (of remaining)	Number of Services	Years Installed (of remaining)
1" or less steel			194	1973-2009
1" or less cast iron				
1" or less plastic			378	1973-CURRENT
Other				
Over 1" – 2" steel			4	1973-1998
Over 1" – 2" cast iron				
Over 1" – 2" plastic			38	1974-CURRENT
Other				
2" or less steel	4	1997-2006		
2" or less cast iron				
2" or less plastic	16	1973-2007		
Over 2" – 4" steel	17	1997-2006	6	1973-1976
Over 2" – 4" cast iron				
Over 2" – 4" plastic	17	1993-2007		
Over 4" – 8" steel	11	1993-2007		
Over 4" – 8" cast iron				
Over 4" – 8" plastic				
Over 8" – 12" steel				
Over 8" – 12" cast iron				
Over 12" steel				
Over 12" cast iron				
Plastic				
Plastic – Aldyl-A				
Plastic – HDPE 3306				
Plastic – All Others				

Division 10 (Avon Park)

Table 5-7: Miles of Mains and Number of Services by material and decade

Material Type	2010			
	Mains		Services	
	Decade Installed	Current Miles of Main	Decade Installed	Number of Services
Cast Iron				
Wrought Iron				
Bare Steel – with CP				
Bare Steel – No CP				
Coated Steel – with CP	1970-1979	32	1970-1979	204
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	1970-CURRENT	33	1970-CURRENT	416
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

Division 10 (Avon Park)

Table 5-8: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized

Cause of Leak	Number of Hazardous Leaks – 2010 *
Corrosion	
Natural Forces	
Excavation	
Other Outside Force	
Material, Weld or Joint Failure	
Equipment Failure	
Incorrect Operation	
Other	

Division 10 (Avon Park)

Table 5-9: Number of Excavation Damages

Year	Number of Excavation Damages
2010	
2009	3
2008	2
2007	1
2006	
2005	

Division 10 (Avon Park)

Table 5-10: Number of Excavation Tickets

Year	Number of Excavation Tickets
2010	801
2009	1,050
2008	1,128
2007	1,891
2006	2,041
2005	2,812

Division 10 (Avon Park)

Table 5-11: Number of leaks either eliminated or repaired, categorized by cause

Cause of Leak	Number of leaks eliminated or repaired– 2010
Corrosion	
Natural Forces	
Excavation	
Other Outside Force	
Material, Weld or Joint Failure	
Equipment Failure	1
Incorrect Operation	
Other	

Division 10 (Avon Park)

Table 5-12: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by material

Material	Number of leaks eliminated or repaired–2010
Bare Steel	
Cast Iron / Wrought Iron	
Coated Steel	
Plastic	
Other	

Division 10 (Avon Park)

Table 5-13: State Specific Reports

Division 10 (Avon Park)

Table 5-14: Number of EFVs Installed

Year	EFVs Installed
2010	1
2009	
2008	
2007	
2006	
2005	
System Total	2

Division 10 (Avon Park)

Table 5-15: District Regulators, Security Valves and Relief Valves

Manufacturer and Type	System Count 2010

Division 10 (Avon Park)

Table 5-16: Service regulators

Regulator Manufacturer and Type	System Count 2010

Division 10 (Avon Park)

Table 5-17: Mechanical Couplings

Mechanical Coupling Type	Estimated System Count 2010

Division 10 (Avon Park)

Table 5-18: Plastic piping

Plastic Piping Type	Estimated System miles 2010
PVC	
ABS	
CAB	
PB	
Aldyl A	
MDPE 2306	
HDPE 3306	
Other PE	
Other	

Division 10 (Avon Park)

Table 5-19: MAOP of Systems

Material	High – Pressure > 60 psi	Intermediate Pressure 60 psi or less	Low Pressure Same as delivered to customer	Unknown
Miles of Main	13	54		
Number of Services	21	623	1	45

Division 10 (Avon Park)

Table 5-21: Reportable/Significant Gas Incidents Summary by Year

Year	Miles of Main	Number of Incidents	Fatalities	Injuries	Property Damage
2010					
2009					
2008					
2007					
2006					
2005					
2004					
2003					
2002					
2001					
2000					
1999					
1998					
1997					
1996					
1995					
1994					
1993					
1992					
1991					
1990					
Total					
5- Year Average (2006-2010)					
10- Year Average (2006-2010)					
20- Year Average (2006-2010)					

Note: The criteria for significant gas incidents that must be reported to PHMSA are established in 49 CFR Part 191 and in-patient hospitalization, or $50,000 or more in total costs, measured in 1984 dollars. Significant Incident include incidents that result in fatalities, summary statistics for the U.Swebsite. are also provided on the PHMSA

Table 5-22: Reportable/Significant Gas Incidents by Cause

Year	Corrosion	Natural Forces	Excavation Damage	Outside Force	Material, Weld or Joint Failure	Equipment Failure	Incorrect Operation	Other
2010								
2009								
2008								
2007								
2006								
2005								
2004								
2003								
2002								
2001								
2000								
1999								
1998								
1997								
1996								
1995								
1994								
1993								
1992								
1991								
1990								
20-Yr Total								

341

Table 5-28: Corrosion Threat – Frequency and Trend

Threat / Sub-Threat	2010						
	Quantity		Leaks Repaired		Frequency of Failure		
	Miles Main	# Services	Mains	Services	Main Leaks/Mile	Service Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Corrosion							
Cast Iron							
Bare Steel							
Ductile Iron							
Copper							
Coated Steel (with CP)							
Coated Steel (No CP)							
Other							

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Corrosion							
Cast Iron							
Bare Steel			2			0.40	
Ductile Iron							
Copper							
Coated Steel (with CP)							
Coated Steel (No CP)							
Other							

Table 5-29: Natural Forces Threat – Frequency and Trend

Threat / Sub-Threat	2010									
	Quantity			Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Natural Forces										
Seismic										
Earth Movement / Landslide										
Tree Roots										
Frost Heave / Temperature										
Flood										
Ice/Snow Blockage of Control Equip										
Other										

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Natural Forces							
Seismic							
Earth Movement / Landslide							
Tree Roots							
Frost Heave / Temperature							
Flood							
Ice/Snow Blockage of Control Equip							
Other		1	1			0.40	

Table 5-30: Excavation Damage Threat – Frequency and Trend

Threat / Sub-Threat	2010							
	Quantity			Leaks Repaired			Frequency of Failure	
	System Miles of Main	System Number of Services	System Number of Tickets	Mains	Services	Total System Miles	Leaks per Ticket	Leaks per System Mile
Excavation Damage - All								

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Excavation Damage							
Miles of Main	85	65	65	65	65		
Tickets	2,041	1,891	1,128	1,050		1,222	
Leaks		1	2	3		1	
Leaks per Ticket		0.0005	0.0018	0.0029		0.0010	
Leaks per System Mile							

Table 5-31: Outside Force Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Quantity: # of Units	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Leaks Repaired: Units	2010 Frequency of Failure: Main Leaks/Mile	2010 Frequency of Failure: Service Leaks/100	2010 Frequency of Failure: Equip/Fitting Leaks/100	2010 Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Outside Force										
Vehicle Damage										
Vandalism										
Fire / Explosion										
Previous Damage										
Other										

Threat / Sub-Threat	Leak Ratio: 2006	Leak Ratio: 2007	Leak Ratio: 2008	Leak Ratio: 2009	Leak Ratio: 2010	Leak Ratio: 5-Year Average	Is Leak Frequency Increasing? Y/N
Outside Force							
Vehicle Damage							
Vandalism							
Fire / Explosion							
Previous Damage							
Other		1	1			0.40	

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Table 5-32: Example – Material, Weld or Joint Failure Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity Miles Main	# Services	Leaks Repaired Mains	Services	Main Leaks/Mile	Frequency of Failure Service Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe							
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other							

Threat / Sub-Threat	Leak Ratio 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe			1			**0.20**	
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other		4	1	1		**1.20**	

Table 5-33: Equipment Failure Threat – Frequency and Trend

Threat / Sub-Threat	Quantity: Miles Main	Quantity: # Services	Quantity: # of Units	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Leaks Repaired: Units	Frequency of Failure: Main Leaks/Mile	Frequency of Failure: Service Leaks/100	Frequency of Failure: Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Equipment Failure										
Valves										
Service Regulators										
Control/Relief Station										
Other	65	620			1			0.0100		0.0154

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Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Equipment Failure							
Valves							
Service Regulators			1	1		0.40	
Control/Relief Station			1			0.20	
Other					1	0.20	

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Table 5-34: Incorrect Operation Threat – Frequency and Trend

Threat / Sub-Threat	2010									
	Quantity			Incidents			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Incidents/Mile	Service Incidents/100	Equip/Fitting Incidents /100	Total Incidents / Facility Mile (mains & svcs)
Incorrect Operation										
Operating Error										
Service Line bored thru Sewer										
Other										

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Incorrect Operation							
Operating Error							
Service Line bored thru Sewer							
Other							

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Table 5-35: Other Threat – Frequency and Trend

Threat / Sub-Threat	Quantity			2010 Leaks Repaired		Frequency of Failure			
	Miles Main	Number of Services	Number Copper Services	Mains	Services	Main Leaks/ Mile	All Services Leaks / 100	Copper Services Only Leaks / 100	Total Leaks / Facility Mile (mains & svcs)
Other									
Bell Joint leaks									
Copper Pipe Puncture									
Copper Sulfide									
Other									

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing ?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Other							
Bell Joint Leaks							
Copper Pipe Puncture							
Copper Sulfide							
Other			1			0.20	

Division 11 (Sarasota)

Table 5-2: Summary of System Design by Operating Pressure

Maximum Operating Pressure	Miles of Main
Low-Pressure (1 psig or less)	
Intermediate Pressure – 60 psig or less	1,037
High Pressure – greater than 60 psig	117

Division 11 (Sarasota)

Table 5-3: Summary of Material Types and Years Installed

Material Type	2010 Mains Current Miles of Main	2010 Mains Years Installed (of remaining)	2010 Services Number of Services	2010 Services Years Installed (of remaining)
Cast Iron				
Wrought Iron				
Bare Steel – with CP				
Bare Steel – No CP	41	1960-1969	461	1960-1969
Coated Steel – with CP	179	1969-CURRENT	448	1969-CURRENT
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	872	1970-CURRENT	28,846	1970-CURRENT
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

Division 11 (Sarasota)

Table 5-4: Summary of Construction Practices

Material Type	Year first deployed	Year Ceased
Replacement via insertion of Copper		
Replacement via Insertion of Plastic		
Replacement via insertion and pipe bursting/splitting		
Internal lining / slip-lining		
Joint Trench with other utilities		
Unguided Bore – soil displacement		
Unguided Bore – Ram		
Guided Directional Bore / Drill		
Blasting		
Plow-in		

Division 11 (Sarasota)

Table 5-5: Miles of Mains and Number of Services by Material Type

Material Type	2010 Mains	2010 Services
	Current Miles of Main	Number of Services
Bare unprotected steel	41	461
Coated unprotected steel		
Bare cathodically protected steel		
Coated cathodically protected steel	179	448
Plastic	872	28,846
Cast iron/Wrought iron		

Division 11 (Sarasota)

Table 5-6: Miles of Mains and Number of Service lines by material and nominal diameter

Material & Nominal Diameter	2010 Mains		Services	
	Current Miles of Main	Years Installed (of remaining)	Number of Services	Years Installed (of remaining)
1" or less steel			892	1971-2010
1" or less cast iron				
1" or less plastic			27,593	1976-CURRENT
Other				
Over 1" – 2" steel			9	1971-2009
Over 1" – 2" cast iron				
Over 1" – 2" plastic			1,241	1976-CURRENT
Other				
2" or less steel	41	1971-CURRENT		
2" or less cast iron				
2" or less plastic	591	1975-2010		
Over 2" – 4" steel	43	1971-2010	4	1971-2009
Over 2" – 4" cast iron				
Over 2" – 4" plastic	261	1975-2010	12	1977-CURRENT
Over 4" – 8" steel	130	1971-2010	3	1971-2007
Over 4" – 8" cast iron				
Over 4" – 8" plastic	21	1979-2010		
Over 8" – 12" steel	5	1971-1996	1	1971
Over 8" – 12" cast iron				
Over 12" steel				
Over 12" cast iron				
Plastic				
Plastic – Aldyl-A				
Plastic – HDPE 3306				
Plastic – All Others				

Division 11 (Sarasota)

Table 5-7: Miles of Mains and Number of Services by material and decade

Material Type	2010 Mains Decade Installed	Current Miles of Main	Services Decade Installed	Number of Services
Cast Iron				
Wrought Iron				
Bare Steel – with CP				
Bare Steel – No CP				
Coated Steel – with CP				
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic				
Plastic – Aldyl-A				
Plastic – HDPE 3306				
Plastic – All Others				

Division 11 (Sarasota)

Table 5-8: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized

Cause of Leak	Number of Hazardous Leaks – 2010 *
Corrosion	7
Natural Forces	3
Excavation	77
Other Outside Force	3
Material, Weld or Joint Failure	7
Equipment Failure	29
Incorrect Operation	2
Other	108

Division 11 (Sarasota)

Table 5-9: Number of Excavation Damages

Year	Number of Excavation Damages
2010	80
2009	70
2008	120
2007	144
2006	217
2005	108

Division 11 (Sarasota)

Table 5-10: Number of Excavation Tickets

Year	Number of Excavation Tickets
2010	25,541
2009	27,785
2008	39,462
2007	54,900
2006	72,714
2005	68,788

Division 11 (Sarasota)

Table 5-11: Number of leaks either eliminated or repaired, categorized by cause

Cause of Leak	Number of leaks eliminated or repaired– 2010
Corrosion	22
Natural Forces	5
Excavation	80
Other Outside Force	3
Material, Weld or Joint Failure	17
Equipment Failure	62
Incorrect Operation	9
Other	243

Division 11 (Sarasota)

Table 5-12: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by material

Material	Number of leaks eliminated or repaired–2010
Bare Steel	121
Cast Iron / Wrought Iron	
Coated Steel	5
Plastic	103
Other	7

Table 5-13: State Specific Reports

Division 11 (Sarasota)

Table 5-14: Number of EFVs Installed

Year	EFVs Installed
2010	275
2009	
2008	
2007	
2006	
2005	
System Total	2,601

Division 11 (Sarasota)

Table 5-15: District Regulators, Security Valves and Relief Valves

Manufacturer and Type	System Count 2010

Division 11 (Sarasota)

Table 5-16: Service regulators

Regulator Manufacturer and Type	System Count 2010

Division 11 (Sarasota)

Table 5-17: Mechanical Couplings

Mechanical Coupling Type	Estimated System Count 2010

Division 11 (Sarasota)

Table 5-18: Plastic piping

Plastic Piping Type	Estimated System miles 2010
PVC	
ABS	
CAB	
PB	
Aldyl A	
MDPE 2306	
HDPE 3306	
Other PE	
Other	

Division 11 (Sarasota)

Table 5-19: MAOP of Systems

Material	High – Pressure > 60 psi	Intermediate Pressure 60 psi or less	Low Pressure Same as delivered to customer	Unknown
Miles of Main	117	1,037		
Number of Services	4	30,003	1	1,397

Division 11 (Sarasota)

Table 5-21: Reportable/Significant Gas Incidents Summary by Year

Year	Miles of Main	Number of Incidents	Fatalities	Injuries	Property Damage
2010					
2009					
2008					
2007					
2006					
2005					
2004					
2003		1	0	1	59,896
2002					
2001					
2000					
1999					
1998					
1997					
1996					
1995					
1994					
1993					
1992					
1991					
1990					
Total					
5- Year Average (2006-2010)					
10- Year Average (2006-2010)					
20- Year Average (2006-2010)					

Note: The criteria for significant gas incidents that must be reported to PHMSA are established in 49 CFR Part 191 and in-patient hospitalization, or $50,000 or more in total costs, measured in 1984 dollars. Significant Incident include incidents that result in fatalities, summary statistics for the U.Swebsite. are also provided on the PHMSA

Table 5-22: Reportable/Significant Gas Incidents by Cause

Year	Corrosion	Natural Forces	Excavation Damage	Outside Force	Material, Weld or Joint Failure	Equipment Failure	Incorrect Operation	Other
2010								
2009								
2008								
2007								
2006								
2005								
2004								
2003			1					
2002								
2001								
2000								
1999								
1998								
1997								
1996								
1995								
1994								
1993								
1992								
1991								
1990								
20-Yr Total								

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Table 5-28: Corrosion Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Frequency of Failure: Main Leaks/Mile	2010 Frequency of Failure: Service Leaks/100	2010 Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Corrosion							
Cast Iron							
Bare Steel	41	461	9	12	0.2195	0.1200	0.5122
Ductile Iron							
Copper							
Coated Steel (with CP)	179	448	1		0.0056		0.0056
Coated Steel (No CP)							
Other							

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Threat / Sub-Threat	Leak Ratio 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Corrosion							
Cast Iron							
Bare Steel	25	27	30	12	21	23.00	
Ductile Iron							
Copper	4	5	1			2.00	
Coated Steel (with CP)	4	3	2		1	2.00	
Coated Steel (No CP)							
Other	4	1	1	2		1.60	

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Table 5-29: Natural Forces Threat – Frequency and Trend

Threat / Sub-Threat	2010									
	Quantity			Leaks Repaired			Frequency of Failure			Total Leaks / Facility Mile (mains & svcs)
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	
Natural Forces										
Seismic										
Earth Movement / Landslide										
Tree Roots										
Frost Heave / Temperature										
Flood										
Ice/Snow Blockage of Control Equip										
Other	1,092	29,755		1	4		0.0009	0.0400		0.0046

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Natural Forces							
Seismic							
Earth Movement / Landslide							
Tree Roots							
Frost Heave / Temperature							
Flood							
Ice/Snow Blockage of Control Equip							
Other	161	11	4	3	5	36.80	

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Table 5-30: Excavation Damage Threat – Frequency and Trend

Threat / Sub-Threat	2010							
	Quantity			Leaks Repaired			Frequency of Failure	
	System Miles of Main	System Number of Services	System Number of Tickets	Mains	Services	Total System Miles	Leaks per Ticket	Leaks per System Mile
Excavation Damage - All	1,092	29,755	25,541	24	56	1,092	**0.0031**	**0.0733**

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Excavation Damage							
Miles of Main	1,008	1,036	1,067	1,077	1,092		
Tickets	72,714	54,900	39,462	27,785	25,541	**44,080**	
Leaks	217	144	120	70	80	**126**	
Leaks per Ticket	0.003	0.0026	0.003	0.0025	0.0031	**0.0028**	
Leaks per System Mile	0.2153	0.1390	0.1125	0.0650	0.0733	**0.1210**	

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Table 5-31: Outside Force Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity			Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Outside Force										
Vehicle Damage										
Vandalism										
Fire / Explosion										
Previous Damage										
Other					3			0.0300		

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Outside Force							
Vehicle Damage							
Vandalism							
Fire / Explosion							
Previous Damage							
Other	3	3	4	2	3	3.00	

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Table 5-32: Example – Material, Weld or Joint Failure Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity		Leaks Repaired		Frequency of Failure		
	Miles Main	# Services	Mains	Services	Main Leaks/Mile	Service Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	872	28,846	6	6	0.0069	0.0600	0.0138
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	220	990		5		0.0500	0.0227

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	27	39	29	25	12	26.40	
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	52	64	108	38	5	53.40	

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Table 5-33: Equipment Failure Threat – Frequency and Trend

Threat / Sub-Threat	Quantity			2010 Leaks Repaired			Frequency of Failure			Total Leaks / Facility Mile (mains & svcs)
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	
Equipment Failure										
Valves	1,092	29,755			9			0.0900		0.0082
Service Regulators	1,092	29,755			19			0.1900		0.0174
Control/Relief Station	1,092	29,755			2			0.0200		0.0018
Other	1,092	29,755		5	27		0.0046	0.2700		0.0293

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Equipment Failure							
Valves	2	4	9	1	9	5.00	
Service Regulators	13	19	23	18	19	18.40	
Control/Relief Station		1	1		2	0.80	
Other	7	13	31	18	32	20.20	

Table 5-34: Incorrect Operation Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	# Services	# of Units	Incidents: Mains	Services	Units	Frequency of Failure: Main Incidents/Mile	Service Incidents/100	Equip/Fitting Incidents/100	Total Incidents / Facility Mile (mains & svcs)
Incorrect Operation										
Operating Error										
Service Line bored thru Sewer										
Other	1,092	29,755		4	5		0.0037	0.0500		0.0082

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Incorrect Operation							
Operating Error							
Service Line bored thru Sewer							
Other	8	19	42	6	9	16.80	

Table 5-35: Other Threat – Frequency and Trend

Threat / Sub-Threat	Quantity: Miles Main	Quantity: Number of Services	Quantity: Number Copper Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	Frequency of Failure: Main Leaks/ Mile	Frequency of Failure: All Services Leaks / 100	Frequency of Failure: Copper Services Only Leaks / 100	Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Other									
Bell Joint leaks									
Copper Pipe Puncture									
Copper Sulfide									
Other	1,092	29,755		25	218	0.0229		2.1800	0.2225

Threat / Sub-Threat	Leak Ratio: 2006	Leak Ratio: 2007	Leak Ratio: 2008	Leak Ratio: 2009	Leak Ratio: 2010	Leak Ratio: 5-Year Average	Is Leak Frequency Increasing ? Y/N
Other							
Bell Joint Leaks							
Copper Pipe Puncture							
Copper Sulfide							
Other	98	48	51	165	243	121.00	

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Table 5-2: Summary of System Design by Operating Pressure

Maximum Operating Pressure	Miles of Main
Low-Pressure (1 psig or less)	
Intermediate Pressure – 60 psig or less	353
High Pressure – greater than 60 psig	1

Division 13 (Jupiter)

Table 5-3: Summary of Material Types and Years Installed

Material Type	2010 Mains		Services	
	Current Miles of Main	Years Installed (of remaining)	Number of Services	Years Installed (of remaining)
Cast Iron				
Wrought Iron				
Bare Steel – with CP				
Bare Steel – No CP				
Coated Steel – with CP	5	1990-Present	26	1981-Present
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	342	1990-Present	11,622	1991-Present
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

Division 13 (Jupiter)

Table 5-4: Summary of Construction Practices

Material Type	Year first deployed	Year Ceased
Replacement via insertion of Copper		
Replacement via Insertion of Plastic		
Replacement via insertion and pipe bursting/splitting		
Internal lining / slip-lining		
Joint Trench with other utilities		
Unguided Bore – soil displacement		
Unguided Bore – Ram		
Guided Directional Bore / Drill		
Blasting		
Plow-in		

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Table 5-5: Miles of Mains and Number of Services by Material Type

Material Type	2010 Mains	Services
	Current Miles of Main	Number of Services
Bare unprotected steel		
Coated unprotected steel		
Bare cathodically protected steel		
Coated cathodically protected steel	5	26
Plastic	342	11,622
Cast iron/Wrought iron		
Other		

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Table 5-6: Miles of Mains and Number of Service lines by material and nominal diameter

Material & Nominal Diameter	2010 Mains Current Miles of Main	Years Installed (of remaining)	Services Number of Services	Years Installed (of remaining)
1" or less steel			11	1983-Current
1" or less cast iron				
1" or less plastic			11,393	1991-Present
Other				
Over 1" – 2" steel			15	1981-Current
Over 1" – 2" cast iron				
Over 1" – 2" plastic			223	1991-Present
Other				
2" or less steel	1	1991-Present		
2" or less cast iron				
2" or less plastic	241	1990-Present		
Over 2" – 4" steel				
Over 2" – 4" cast iron				
Over 2" – 4" plastic	79	1990-Present	6	1991-Present
Over 4" – 8" steel	4	1993-Present		
Over 4" – 8" cast iron				
Over 4" – 8" plastic	22	1990-Present		
Over 8" – 12" steel				
Over 8" – 12" cast iron				
Over 12" steel				
Over 12" cast iron				
Plastic				
Plastic – Aldyl-A				
Plastic – HDPE 3306				
Plastic – All Others				

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Table 5-7: Miles of Mains and Number of Services by material and decade

Material Type	2010 Mains Decade Installed	Current Miles of Main	Services Decade Installed	Number of Services
Cast Iron				
Wrought Iron				
Bare Steel – with CP				
Bare Steel – No CP				
Coated Steel – with CP	1990-Present	5	1981-Present	26
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	1990-Present	342	1991-Present	11,622
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

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Table 5-8: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized

Cause of Leak	Number of Hazardous Leaks – 2010 *
Corrosion	
Natural Forces	
Excavation	5
Other Outside Force	
Material, Weld or Joint Failure	1
Equipment Failure	
Incorrect Operation	
Other	

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Table 5-9: Number of Excavation Damages

Year	Number of Excavation Damages
2010	5
2009	11
2008	25
2007	44
2006	47
2005	70

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Table 5-10: Number of Excavation Tickets

Year	Number of Excavation Tickets
2010	8,579
2009	8,703
2008	10,526
2007	12,553
2006	17,941
2005	22,623

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Table 5-11: Number of leaks either eliminated or repaired, categorized by cause

Cause of Leak	Number of leaks eliminated or repaired– 2010
Corrosion	
Natural Forces	
Excavation	5
Other Outside Force	
Material, Weld or Joint Failure	14
Equipment Failure	
Incorrect Operation	
Other	

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Table 5-12: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by material

Material	Number of leaks eliminated or repaired–2010
Bare Steel	
Cast Iron / Wrought Iron	
Coated Steel	
Plastic	6
Other	

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Table 5-13: State Specific Reports

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Table 5-14: Number of EFVs Installed

Year	EFVs Installed
2010	12
2009	
2008	
2007	
2006	
2005	
System Total	163

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Table 5-15: District Regulators, Security Valves and Relief Valves

Manufacturer and Type	System Count 2010

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Table 5-16: Service regulators

Regulator Manufacturer and Type	System Count 2010

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Table 5-17: Mechanical Couplings

Mechanical Coupling Type	Estimated System Count 2010

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Table 5-18: Plastic piping

Plastic Piping Type	Estimated System miles 2010
PVC	
ABS	
CAB	
PB	
Aldyl A	
MDPE 2306	
HDPE 3306	
Other PE	
Other	

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Table 5-19: MAOP of Systems

Material	High – Pressure > 60 psi	Intermediate Pressure 60 psi or less	Low Pressure Same as delivered to customer	Unknown
Miles of Main	1	353		
Number of Services		21,087		1,587

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Table 5-21: Reportable/Significant Gas Incidents Summary by Year

Year	Miles of Main	Number of Incidents	Fatalities	Injuries	Property Damage
2010					
2009					
2008					
2007					
2006					
2005					
2004					
2003					
2002					
2001					
2000					
1999					
1998					
1997					
1996					
1995					
1994					
1993					
1992					
1991					
1990					
Total					
5- Year Average (2006-2010)					
10- Year Average (2006-2010)					
20- Year Average (2006-2010)					

Note: The criteria for significant gas incidents that must be reported to PHMSA are established in 49 CFR Part 191 and in-patient hospitalization, or $50,000 or more in total costs, measured in 1984 dollars. Significant Incident include incidents that result in fatalities, summary statistics for the U.Swebsite. are also provided on the PHMSA

Table 5-22: Reportable/Significant Gas Incidents by Cause

Year	Corrosion	Natural Forces	Excavation Damage	Outside Force	Material, Weld or Joint Failure	Equipment Failure	Incorrect Operation	Other
2010								
2009								
2008								
2007								
2006								
2005								
2004								
2003								
2002								
2001								
2000								
1999								
1998								
1997								
1996								
1995								
1994								
1993								
1992								
1991								
1990								
20-Yr Total								

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Table 5-28: Corrosion Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Frequency of Failure: Main Leaks/Mile	2010 Frequency of Failure: Service Leaks/100	2010 Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Corrosion							
Cast Iron							
Bare Steel							
Ductile Iron							
Copper							
Coated Steel (with CP)							
Coated Steel (No CP)							
Other							

Threat / Sub-Threat	Leak Ratio: 2006	Leak Ratio: 2007	Leak Ratio: 2008	Leak Ratio: 2009	Leak Ratio: 2010	Leak Ratio: 5-Year Average	Is Leak Frequency Increasing? Y/N
Corrosion							
Cast Iron							
Bare Steel			1			0.20	
Ductile Iron							
Copper							
Coated Steel (with CP)	4	1				1.00	
Coated Steel (No CP)							
Other			2			0.40	

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Table 5-29: Natural Forces Threat – Frequency and Trend

Threat / Sub-Threat	2010									
	Quantity			Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Natural Forces										
Seismic										
Earth Movement / Landslide										
Tree Roots										
Frost Heave / Temperature										
Flood										
Ice/Snow Blockage of Control Equip										
Other										

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Natural Forces							
Seismic							
Earth Movement / Landslide							
Tree Roots							
Frost Heave / Temperature							
Flood							
Ice/Snow Blockage of Control Equip							
Other							

Table 5-30: Excavation Damage Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: System Miles of Main	2010 Quantity: System Number of Services	2010 Quantity: System Number of Tickets	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Leaks Repaired: Total System Miles	2010 Frequency of Failure: Leaks per Ticket	2010 Frequency of Failure: Leaks per System Mile
Excavation Damage - All	347	11,648	8,579	3	2	347	**0.0006**	**0.0144**

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Excavation Damage							
Miles of Main	289	283	292	329	347		
Tickets	17,941	12,553	10,526	8,703	8,579	**11,660**	
Leaks	47	44	25	11	5	**26**	
Leaks per Ticket	0.0026	0.0035	0.0024	0.0013	0.0006	**0.0021**	
Leaks per System Mile	0.1626	0.1555	0.0856	0.0334	0.0144	**0.0903**	

Table 5-31: Outside Force Threat – Frequency and Trend

Threat / Sub-Threat	2010									
	Quantity			Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Outside Force										
Vehicle Damage										
Vandalism										
Fire / Explosion										
Previous Damage										
Other										

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Outside Force							
Vehicle Damage							
Vandalism							
Fire / Explosion							
Previous Damage							
Other		1				0.20	

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Table 5-32: Example – Material, Weld or Joint Failure Threat – Frequency and Trend

Threat / Sub-Threat	Quantity		2010 Leaks Repaired			Frequency of Failure	
	Miles Main	# Services	Mains	Services	Main Leaks/Mile	Service Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	342	11,622	11	2	0.0322	0.0200	0.0380
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	5	26		1		0.0100	0.2000

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	10	8	3	4	13	7.60	
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	8		1	2	1	2.40	

Table 5-33: Equipment Failure Threat – Frequency and Trend

Threat / Sub-Threat	2010									
	Quantity			Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Equipment Failure										
Valves										
Service Regulators										
Control/Relief Station										
Other										

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Equipment Failure							
Valves							
Service Regulators							
Control/Relief Station							
Other							

Table 5-34: Incorrect Operation Threat – Frequency and Trend

Threat / Sub-Threat	2010									
	Quantity			Incidents			Frequency of Failure			Total Incidents / Facility Mile (mains & svcs)
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Incidents/Mile	Service Incidents/100	Equip/Fitting Incidents /100	
Incorrect Operation										
Operating Error										
Service Line bored thru Sewer										
Other										

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Incorrect Operation							
Operating Error							
Service Line bored thru Sewer							
Other							

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Table 5-35: Other Threat – Frequency and Trend

	2010								
	Quantity			Leaks Repaired		Frequency of Failure			
Threat / Sub-Threat	Miles Main	Number of Services	Number Copper Services	Mains	Services	Main Leaks/ Mile	All Services Leaks / 100	Copper Services Only Leaks / 100	Total Leaks / Facility Mile (mains & svcs)
Other									
Bell Joint leaks									
Copper Pipe Puncture									
Copper Sulfide									
Other									

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing ?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Other							
Bell Joint Leaks							
Copper Pipe Puncture							
Copper Sulfide							
Other	3	2				1.00	

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Table 5-2: Summary of System Design by Operating Pressure

Maximum Operating Pressure	Miles of Main
Low-Pressure (1 psig or less)	
Intermediate Pressure – 60 psig or less	625
High Pressure – greater than 60 psig	48

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Table 5-3: Summary of Material Types and Years Installed

Material Type	2010 Mains: Current Miles of Main	Mains: Years Installed (of remaining)	Services: Number of Services	Services: Years Installed (of remaining)
Cast Iron				
Wrought Iron				
Bare Steel – with CP				
Bare Steel – No CP				
Coated Steel – with CP	195	1975-Present	3,692	1991-Present
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	476	1965-Current	19,861	1963-Present
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

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Table 5-4: Summary of Construction Practices

Material Type	Year first deployed	Year Ceased
Replacement via insertion of Copper		
Replacement via Insertion of Plastic		
Replacement via insertion and pipe bursting/splitting		
Internal lining / slip-lining		
Joint Trench with other utilities		
Unguided Bore – soil displacement		
Unguided Bore – Ram		
Guided Directional Bore / Drill		
Blasting		
Plow-in		

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Table 5-5: Miles of Mains and Number of Services by Material Type

Material Type	2010 Mains Current Miles of Main	Services Number of Services
Bare unprotected steel		
Coated unprotected steel		
Bare cathodically protected steel		
Coated cathodically protected steel	195	3,692
Plastic	476	19,861
Cast iron/Wrought iron		
Other		

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Table 5-6: Miles of Mains and Number of Service lines by material and nominal diameter

2010				
	Mains		Services	
Material & Nominal Diameter	Current Miles of Main	Years Installed (of remaining)	Number of Services	Years Installed (of remaining)
1" or less steel			3,629	1991-Present
1" or less cast iron				
1" or less plastic			18,948	1976-Present
Other				
Over 1" – 2" steel			62	1991-Present
Over 1" – 2" cast iron				
Over 1" – 2" plastic			903	1976-Present
Other				
2" or less steel	109	1991-Present		
2" or less cast iron				
2" or less plastic	402	1965-Present		
Over 2" – 4" steel	49	1991-Present		
Over 2" – 4" cast iron				
Over 2" – 4" plastic	47	1965-Present	10	1976-Present
Over 4" – 8" steel	37	1975-Current	1	1961-Present
Over 4" – 8" cast iron				
Over 4" – 8" plastic	27	1976-Current		
Over 8" – 12" steel				
Over 8" – 12" cast iron				
Over 12" steel				
Over 12" cast iron				
Plastic				
Plastic – Aldyl-A				
Plastic – HDPE 3306				
Plastic – All Others				

Division 14 (Panama City)

Table 5-8: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized

Cause of Leak	Number of Hazardous Leaks – 2010 *
Corrosion	56
Natural Forces	1
Excavation	49
Other Outside Force	6
Material, Weld or Joint Failure	10
Equipment Failure	215
Incorrect Operation	
Other	

Division 14 (Panama City)

Table 5-7: Miles of Mains and Number of Services by material and decade

Material Type	2010 Mains: Decade Installed	Mains: Current Miles of Main	Services: Decade Installed	Services: Number of Services
Cast Iron				
Wrought Iron				
Bare Steel – with CP				
Bare Steel – No CP				
Coated Steel – with CP	1975-Present	195	1991-Present	3,692
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	1965-Current	476	1963-Present	19,861
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

Division 14 (Panama City)

Table 5-9: Number of Excavation Damages

Year	Number of Excavation Damages
2010	50
2009	45
2008	75
2007	133
2006	116
2005	105

Division 14 (Panama City)

Table 5-10: Number of Excavation Tickets

Year	Number of Excavation Tickets
2010	10,948
2009	11,558
2008	13,256
2007	16,237
2006	19,766
2005	20,556

Division 14 (Panama City)

Table 5-11: Number of leaks either eliminated or repaired, categorized by cause

Cause of Leak	Number of leaks eliminated or repaired– 2010
Corrosion	98
Natural Forces	1
Excavation	50
Other Outside Force	9
Material, Weld or Joint Failure	20
Equipment Failure	446
Incorrect Operation	2
Other	

Division 14 (Panama City)

Table 5-12: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by material

Material	Number of leaks eliminated or repaired–2010
Bare Steel	186
Cast Iron / Wrought Iron	2
Coated Steel	20
Plastic	129
Other	

Table 5-13: State Specific Reports

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Table 5-14: Number of EFVs Installed

Year	EFVs Installed
2010	204
2009	
2008	
2007	
2006	
2005	
System Total	3,403

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Table 5-15: District Regulators, Security Valves and Relief Valves

Manufacturer and Type	System Count 2010

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Table 5-16: Service regulators

Regulator Manufacturer and Type	System Count 2010

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Table 5-17: Mechanical Couplings

Mechanical Coupling Type	Estimated System Count 2010

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Table 5-18: Plastic piping

Plastic Piping Type	Estimated System miles 2010
PVC	
ABS	
CAB	
PB	
Aldyl A	
MDPE 2306	
HDPE 3306	
Other PE	
Other	

Division 14 (Panama City)

Table 5-19: MAOP of Systems

Material	High – Pressure > 60 psi	Intermediate Pressure 60 psi or less	Low Pressure Same as delivered to customer	Unknown
Miles of Main	48	625		
Number of Services	1	9,585		12,338

Division 14 (Panama City)

Table 5-21: Reportable/Significant Gas Incidents Summary by Year

Year	Miles of Main	Number of Incidents	Fatalities	Injuries	Property Damage
2010					
2009					
2008					
2007					
2006					
2005					
2004					
2003					
2002					
2001					
2000					
1999					
1998					
1997					
1996					
1995					
1994					
1993					
1992					
1991					
1990					
Total					
5- Year Average (2006-2010)					
10- Year Average (2006-2010)					
20- Year Average (2006-2010)					

Note: The criteria for significant gas incidents that must be reported to PHMSA are established in 49 CFR Part 191 and in-patient hospitalization, or $50,000 or more in total costs, measured in 1984 dollars. Significant Incident include incidents that result in fatalities, summary statistics for the U.Swebsite. are also provided on the PHMSA

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Table 5-22: Reportable/Significant Gas Incidents by Cause

Year	Corrosion	Natural Forces	Excavation Damage	Outside Force	Material, Weld or Joint Failure	Equipment Failure	Incorrect Operation	Other
2010								
2009								
2008								
2007								
2006								
2005								
2004								
2003								
2002								
2001								
2000								
1999								
1998								
1997								
1996								
1995								
1994								
1993								
1992								
1991								
1990								
20-Yr Total								

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Table 5-28: Corrosion Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity		Leaks Repaired		Frequency of Failure		
	Miles Main	# Services	Mains	Services	Main Leaks/Mile	Service Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Corrosion							
Cast Iron							
Bare Steel			5	79		0.7900	
Ductile Iron							
Copper							
Coated Steel (with CP)	195	3,692	4	10	0.0205	0.1000	0.0718
Coated Steel (No CP)							
Other							

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Corrosion							
Cast Iron				1		0.20	
Bare Steel	83	55	79	123	84	84.80	
Ductile Iron							
Copper							
Coated Steel (with CP)	1	2	10	4	14	6.20	
Coated Steel (No CP)							
Other	3	3	9			3.00	

Table 5-29: Natural Forces Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	Quantity: # Services	Quantity: # of Units	Leaks Repaired: Mains	Leaks Repaired: Services	Leaks Repaired: Units	Frequency of Failure: Main Leaks/Mile	Frequency of Failure: Service Leaks/100	Frequency of Failure: Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Natural Forces										
Seismic										
Earth Movement / Landslide										
Tree Roots										
Frost Heave / Temperature										
Flood										
Ice/Snow Blockage of Control Equip										
Other	671	23,553		1			0.0015			0.0015

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Natural Forces							
Seismic							
Earth Movement / Landslide							
Tree Roots							
Frost Heave / Temperature							
Flood							
Ice/Snow Blockage of Control Equip							
Other	1	6		5	1	2.60	

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Table 5-30: Excavation Damage Threat – Frequency and Trend

Threat / Sub-Threat	2010							
	Quantity			Leaks Repaired			Frequency of Failure	
	System Miles of Main	System Number of Services	System Number of Tickets	Mains	Services	Total System Miles	Leaks per Ticket	Leaks per System Mile
Excavation Damage - All	671	23,553	10,948	9	41	671	**0.005**	**0.0745**

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Excavation Damage							
Miles of Main	621	644	656	628	671		
Tickets	19,766	16,237	13,256	11,558	10,948	**14,353**	
Leaks	116	133	75	45	50	**84**	
Leaks per Ticket	**0.0059**	**0.0082**	**0.0057**	**0.0039**	**0.0046**	**0.0056**	
Leaks per System Mile	0.1868	0.2065	0.1143	0.0717	0.0745	**0.1308**	

Table 5-31: Outside Force Threat – Frequency and Trend

Threat / Sub-Threat	Quantity: Miles Main	Quantity: # Services	Quantity: # of Units	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Leaks Repaired: Units	Frequency of Failure: Main Leaks/Mile	Frequency of Failure: Service Leaks/100	Frequency of Failure: Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Outside Force										
Vehicle Damage										
Vandalism										
Fire / Explosion										
Previous Damage										
Other	671	23,553		2	7		0.0030	0.0700		0.0134

Threat / Sub-Threat	Leak Ratio: 2006	Leak Ratio: 2007	Leak Ratio: 2008	Leak Ratio: 2009	Leak Ratio: 2010	Leak Ratio: 5-Year Average	Is Leak Frequency Increasing? Y/N
Outside Force							
Vehicle Damage							
Vandalism							
Fire / Explosion							
Previous Damage							
Other	6	9	4	3	9	6.20	

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Table 5-32: Example – Material, Weld or Joint Failure Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity Miles Main	2010 Quantity # Services	2010 Leaks Repaired Mains	2010 Leaks Repaired Services	Frequency of Failure Main Leaks/Mile	Frequency of Failure Service Leaks/100	Frequency of Failure Total Leaks / Facility Mile (mains & svcs)
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	476	19,861	12	6	0.0252	0.0600	0.0378
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	195	3,692	1	1	0.0051	0.0100	0.0103

Threat / Sub-Threat	Leak Ratio 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	211	203	161	106	18	139.80	
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	57	63	101	120	2	68.60	

Table 5-33: Equipment Failure Threat – Frequency and Trend

Threat / Sub-Threat	Quantity			2010 Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Equipment Failure										
Valves	671	23,553		7	70		**0.0104**	**0.7000**		**0.1148**
Service Regulators	671	23,553			146			**1.4600**		**0.2176**
Control/Relief Station										
Other	671	23,553		15	208		**0.0224**	**2.0800**		**0.3323**

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Equipment Failure							
Valves	1	1	2	9	77	**18.00**	
Service Regulators	2	5	5	12	146	**34.00**	
Control/Relief Station							
Other		2	1	11	223	**47.40**	

Table 5-34: Incorrect Operation Threat – Frequency and Trend

Threat / Sub-Threat	Quantity 2010: Miles Main	Quantity 2010: # Services	Quantity 2010: # of Units	Incidents 2010: Mains	Incidents 2010: Services	Incidents 2010: Units	Frequency of Failure 2010: Main Incidents/Mile	Frequency of Failure 2010: Service Incidents/100	Frequency of Failure 2010: Equip/Fitting Incidents /100	Total Incidents / Facility Mile (mains & svcs)
Incorrect Operation										
Operating Error										
Service Line bored thru Sewer										
Other	671	23,553		2			**0.0030**			**0.0030**

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Incorrect Operation							
Operating Error							
Service Line bored thru Sewer							
Other	1		1		2	**0.80**	

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Table 5-35: Other Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: Number of Services	2010 Quantity: Number Copper Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Frequency of Failure: Main Leaks/ Mile	2010 Frequency of Failure: All Services Leaks / 100	2010 Frequency of Failure: Copper Services Only Leaks / 100	2010 Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Other									
Bell Joint leaks									
Copper Pipe Puncture									
Copper Sulfide									
Other									

Threat / Sub-Threat	Leak Ratio: 2006	Leak Ratio: 2007	Leak Ratio: 2008	Leak Ratio: 2009	Leak Ratio: 2010	Leak Ratio: 5-Year Average	Is Leak Frequency Increasing ? Y/N
Other							
Bell Joint Leaks							
Copper Pipe Puncture							
Copper Sulfide							
Other	6	9	23	11		9.80	

Division 15 (Ocala)

Table 5-2: Summary of System Design by Operating Pressure

Maximum Operating Pressure	Miles of Main
Low-Pressure (1 psig or less)	
Intermediate Pressure – 60 psig or less	392
High Pressure – greater than 60 psig	567

Division 15 (Ocala)

Table 5-3: Summary of Material Types and Years Installed

Material Type	2010 Mains: Current Miles of Main	2010 Mains: Years Installed (of remaining)	2010 Services: Number of Services	2010 Services: Years Installed (of remaining)
Cast Iron				
Wrought Iron				
Bare Steel – with CP	4	1972-Present	42	1972-Present
Bare Steel – No CP	4	1972-Present	20	1972-Present
Coated Steel – with CP	200	1991-Present	76	1972-Present
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	623	1976-Present	43,166	1976-Present
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

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Table 5-4: Summary of Construction Practices

Material Type	Year first deployed	Year Ceased
Replacement via insertion of Copper		
Replacement via Insertion of Plastic		
Replacement via insertion and pipe bursting/splitting		
Internal lining / slip-lining		
Joint Trench with other utilities		
Unguided Bore – soil displacement		
Unguided Bore – Ram		
Guided Directional Bore / Drill		
Blasting		
Plow-in		

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Table 5-5: Miles of Mains and Number of Services by Material Type

Material Type	2010 Mains Current Miles of Main	Services Number of Services
Bare unprotected steel	4	20
Coated unprotected steel		
Bare cathodically protected steel	4	42
Coated cathodically protected steel	200	76
Plastic	623	43,166
Cast iron/Wrought iron		
Cast iron/Wrought iron		

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Table 5-6: Miles of Mains and Number of Service lines by material and nominal diameter

Material & Nominal Diameter	2010 Mains: Current Miles of Main	Mains: Years Installed (of remaining)	Services: Number of Services	Services: Years Installed (of remaining)
1" or less steel			138	1976-Present
1" or less cast iron				
1" or less plastic			42,889	1976-Present
Other				
Over 1" – 2" steel				
Over 1" – 2" cast iron				
Over 1" – 2" plastic			269	1976-Present
Other				
2" or less steel	129	1972-Present		
2" or less cast iron				
2" or less plastic	485	Unk		
Over 2" – 4" steel	17	1972-Present		
Over 2" – 4" cast iron				
Over 2" – 4" plastic	70	Unk		
Over 4" – 8" steel	56	1972-Present		
Over 4" – 8" cast iron				
Over 4" – 8" plastic	68	1976-Present	8	1976-Present
Over 8" – 12" steel				
Over 8" – 12" cast iron				
Over 12" steel	6	1994-Present		
Over 12" cast iron				
Plastic				
Plastic – Aldyl-A				
Plastic – HDPE 3306				
Plastic – All Others				

Division 15 (Ocala)

Table 5-7: Miles of Mains and Number of Services by material and decade

Material Type	2010 Mains Decade Installed	Current Miles of Main	Services Decade Installed	Number of Services
Cast Iron		.		
Wrought Iron				
Bare Steel – with CP	1972-Present	4		
Bare Steel – No CP	1972-Present	4		
Coated Steel – with CP	1991-Present	200		
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	1976-Present	623		
Plastic – Aldyl-A	Unk	Unk		
Plastic – HDPE 3306	Unk	Unk		
Plastic – All Others	Unk	Unk		

Division 15 (Ocala)

Table 5-8: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized

Cause of Leak	Number of Hazardous Leaks – 2010 *
Corrosion	7
Natural Forces	
Excavation	57
Other Outside Force	1
Material, Weld or Joint Failure	2
Equipment Failure	34
Incorrect Operation	10
Other	19

Division 15 (Ocala)

Table 5-9: Number of Excavation Damages

Year	Number of Excavation Damages
2010	58
2009	56
2008	89
2007	72
2006	82
2005	79

Division 15 (Ocala)

Table 5-10: Number of Excavation Tickets

Year	Number of Excavation Tickets
2010	16,903
2009	14,832
2008	17,171
2007	23,493
2006	33,545
2005	34,064

Division 15 (Ocala)

Table 5-11: Number of leaks either eliminated or repaired, categorized by cause

Cause of Leak	Number of leaks eliminated or repaired– 2010
Corrosion	16
Natural Forces	
Excavation	58
Other Outside Force	2
Material, Weld or Joint Failure	32
Equipment Failure	70
Incorrect Operation	27
Other	26

Division 15 (Ocala)

Table 5-13: State Specific Reports

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Table 5-12: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by material

Material	Number of leaks eliminated or repaired–2010
Bare Steel	33
Cast Iron / Wrought Iron	
Coated Steel	11
Plastic	86
Other	

Division 15 (Ocala)

Table 5-14: Number of EFVs Installed

Year	EFVs Installed
2010	200
2009	
2008	
2007	
2006	
2005	
System Total	2,909

Division 15 (Ocala)

Table 5-15: District Regulators, Security Valves and Relief Valves

Manufacturer and Type	System Count 2010

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Table 5-16: Service regulators

Regulator Manufacturer and Type	System Count 2010

Division 15 (Ocala)

Table 5-17: Mechanical Couplings

Mechanical Coupling Type	Estimated System Count 2010

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Table 5-18: Plastic piping

Plastic Piping Type	Estimated System miles 2010
PVC	
ABS	
CAB	
PB	
Aldyl A	
MDPE 2306	
HDPE 3306	
Other PE	
Other	

Division 15 (Ocala)

Table 5-19: MAOP of Systems

Material	High – Pressure > 60 psi	Intermediate Pressure 60 psi or less	Low Pressure Same as delivered to customer	Unknown
Miles of Main	567	392		
Number of Services	1,119	16,865		24,850

Division 15 (Ocala)

Table 5-21: Reportable/Significant Gas Incidents Summary by Year

Year	Miles of Main	Number of Incidents	Fatalities	Injuries	Property Damage
2010					
2009					
2008					
2007					
2006					
2005					
2004					
2003					
2002					
2001					
2000					
1999					
1998					
1997					
1996					
1995					
1994					
1993					
1992					
1991					
1990					
Total					
5- Year Average (2006-2010)					
10- Year Average (2006-2010)					
20- Year Average (2006-2010)					

Note: The criteria for significant gas incidents that must be reported to PHMSA are established in 49 CFR Part 191 and in-patient hospitalization, or $50,000 or more in total costs, measured in 1984 dollars. Significant Incident include incidents that result in fatalities, summary statistics for the U.Swebsite. are also provided on the PHMSA

Table 5-22: Reportable/Significant Gas Incidents by Cause

Year	Corrosion	Natural Forces	Excavation Damage	Outside Force	Material, Weld or Joint Failure	Equipment Failure	Incorrect Operation	Other
2010								
2009								
2008								
2007								
2006								
2005								
2004								
2003								
2002								
2001								
2000								
1999								
1998								
1997								
1996								
1995								
1994								
1993								
1992								
1991								
1990								
20-Yr Total								

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Table 5-28: Corrosion Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Frequency of Failure: Main Leaks/Mile	2010 Frequency of Failure: Service Leaks/100	2010 Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Corrosion							
Cast Iron							
Bare Steel	8	62	2	9	0.2500	0.0900	1.3750
Ductile Iron							
Copper							
Coated Steel (with CP)	200	76	1	4	0.0050	0.0400	0.0250
Coated Steel (No CP)							
Other							

Threat / Sub-Threat	Leak Ratio 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Corrosion							
Cast Iron				1		0.20	
Bare Steel	9	177	4	2	11	40.60	
Ductile Iron							
Copper							
Coated Steel (with CP)		2	3	1	5	2.20	
Coated Steel (No CP)							
Other			2			0.40	

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Table 5-29: Natural Forces Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Quantity: # of Units	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Leaks Repaired: Units	2010 Frequency of Failure: Main Leaks/Mile	2010 Frequency of Failure: Service Leaks/100	2010 Frequency of Failure: Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Natural Forces										
Seismic										
Earth Movement / Landslide										
Tree Roots										
Frost Heave / Temperature										
Flood										
Ice/Snow Blockage of Control Equip										
Other										

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Natural Forces							
Seismic							
Earth Movement / Landslide							
Tree Roots							
Frost Heave / Temperature							
Flood							
Ice/Snow Blockage of Control Equip							
Other	24	58	2	6		18.00	

Table 5-30: Excavation Damage Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity			Leaks Repaired			Frequency of Failure	
	System Miles of Main	System Number of Services	System Number of Tickets	Mains	Services	Total System Miles	Leaks per Ticket	Leaks per System Mile
Excavation Damage - All	831	43,304	16,903	11	47	831	**0.003**	**0.0698**

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Excavation Damage							
Miles of Main	754	766	790	796	831		
Tickets	33,545	23,493	17,171	14,832	16,903	**21,189**	
Leaks	82	72	89	56	58	**71**	
Leaks per Ticket	**0.0024**	**0.0031**	**0.0052**	**0.0038**	**0.0034**	**0.0036**	
Leaks per System Mile	0.1088	0.0940	0.1127	0.0704	0.0698	**0.0911**	

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Table 5-31: Outside Force Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity			Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Outside Force										
Vehicle Damage										
Vandalism										
Fire / Explosion										
Previous Damage										
Other	831	43,304			2			0.0200		0.0024

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Outside Force							
Vehicle Damage							
Vandalism							
Fire / Explosion							
Previous Damage							
Other	120	38	5		2	33.00	

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Table 5-32: Example – Material, Weld or Joint Failure Threat – Frequency and Trend

Threat / Sub-Threat	Quantity		2010 Leaks Repaired		Frequency of Failure		
	Miles Main	# Services	Mains	Services	Main Leaks/Mile	Service Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	623	43,166	6	15	0.0096	0.1500	0.0337
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	208	138	4	7	0.0192	0.0700	0.0529

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	3	12	15	25	21	15.20	
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	21	24	19	7	11	16.40	

Table 5-33: Equipment Failure Threat – Frequency and Trend

Threat / Sub-Threat	Quantity			2010 Leaks Repaired			Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Equipment Failure										
Valves	831	43,304		1	15		0.0012	0.1500		0.0193
Service Regulators	831	43,304			25			0.2500		0.0301
Control/Relief Station	831	43,304			1			0.0100		0.0012
Other	831	43,304			28			0.2800		0.0337

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Equipment Failure							
Valves	1	3	22	27	16	13.80	
Service Regulators	10	15	71	12	25	26.60	
Control/Relief Station			1		1	0.40	
Other	9	10	140	49	28	47.20	

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Table 5-34: Incorrect Operation Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Quantity: # of Units	2010 Incidents: Mains	2010 Incidents: Services	2010 Incidents: Units	2010 Frequency of Failure: Main Incidents/Mile	2010 Frequency of Failure: Service Incidents/100	2010 Frequency of Failure: Equip/Fitting Incidents /100	Total Incidents / Facility Mile (mains & svcs)
Incorrect Operation										
Operating Error										
Service Line bored thru Sewer										
Other	831	43,304		1	26		0.0012	0.2600		0.0325

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Incorrect Operation							
Operating Error							
Service Line bored thru Sewer							
Other	11	8	39	181	27	53.20	

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Table 5-35: Other Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: Number of Services	2010 Quantity: Number Copper Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Frequency of Failure: Main Leaks/ Mile	2010 Frequency of Failure: All Services Leaks / 100	2010 Frequency of Failure: Copper Services Only Leaks / 100	2010 Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Other									
Bell Joint leaks									
Copper Pipe Puncture									
Copper Sulfide									
Other	831	43,304		1	25	**0.0012**	**0.2500**		**0.0313**

Threat / Sub-Threat	Leak Ratio: 2006	Leak Ratio: 2007	Leak Ratio: 2008	Leak Ratio: 2009	Leak Ratio: 2010	Leak Ratio: 5-Year Average	Is Leak Frequency Increasing ? Y/N
Other							
Bell Joint Leaks							
Copper Pipe Puncture							
Copper Sulfide							
Other	160	140	108	10	26	**88.80**	

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Table 5-2: Summary of System Design by Operating Pressure

Maximum Operating Pressure	Miles of Main
Low-Pressure (1 psig or less)	
Intermediate Pressure – 60 psig or less	436
High Pressure – greater than 60 psig	134

Division 16 (Ft Myers)

Table 5-3: Summary of Material Types and Years Installed

Material Type	2010			
	Mains		Services	
	Current Miles of Main	Years Installed (of remaining)	Number of Services	Years Installed (of remaining)
Cast Iron				
Wrought Iron				
Bare Steel – with CP				
Bare Steel – No CP				
Coated Steel – with CP	169	2000-Present	4	1999-Present
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	412	2000-Present	8,654	1999-Present
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

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Table 5-4: Summary of Construction Practices

Material Type	Year first deployed	Year Ceased
Replacement via insertion of Copper		
Replacement via Insertion of Plastic		
Replacement via insertion and pipe bursting/splitting		
Internal lining / slip-lining		
Joint Trench with other utilities		
Unguided Bore – soil displacement		
Unguided Bore – Ram		
Guided Directional Bore / Drill		
Blasting		
Plow-in		

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Table 5-5: Miles of Mains and Number of Services by Material Type

Material Type	2010 Mains Current Miles of Main	2010 Services Number of Services
Bare unprotected steel		
Coated unprotected steel		
Bare cathodically protected steel		
Coated cathodically protected steel	169	4
Plastic	412	8,654
Cast iron/Wrought iron		
Other		

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Table 5-7: Miles of Mains and Number of Services by material and decade

Material Type	2010 Mains: Decade Installed	Mains: Current Miles of Main	Services: Decade Installed	Services: Number of Services
Cast Iron				
Wrought Iron				
Bare Steel – with CP				
Bare Steel – No CP				
Coated Steel – with CP	2000-Present	169	1999-Present	4
Coated Steel – no CP				
Ductile Iron				
Copper				
Plastic	2000-Present	412	1999-Present	8,654
Plastic – Aldyl-A	Unk	Unk	Unk	Unk
Plastic – HDPE 3306	Unk	Unk	Unk	Unk
Plastic – All Others	Unk	Unk	Unk	Unk

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Table 5-6: Miles of Mains and Number of Service lines by material and nominal diameter

Material & Nominal Diameter	2010 Mains Current Miles of Main	Mains Years Installed (of remaining)	Services Number of Services	Services Years Installed (of remaining)
1" or less steel				
1" or less cast iron				
1" or less plastic			7,672	1999-Present
Other				
Over 1" – 2" steel			2	1999-Present
Over 1" – 2" cast iron				
Over 1" – 2" plastic			954	1999-Present
Other				
2" or less steel	1	1999-Present		
2" or less cast iron				
2" or less plastic	201	1999-Present		
Over 2" – 4" steel	26	1999-Present		
Over 2" – 4" cast iron				
Over 2" – 4" plastic	124	1999-Present	27	1999-Present
Over 4" – 8" steel	142	1999-Present	2	1999-Present
Over 4" – 8" cast iron				
Over 4" – 8" plastic	87	1999-Present	1	1999-Present
Over 8" – 12" steel				
Over 8" – 12" cast iron				
Over 12" steel				
Over 12" cast iron				
Plastic				
Plastic – Aldyl-A				
Plastic – HDPE 3306				
Plastic – All Others				

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Table 5-8: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized

Cause of Leak	Number of Hazardous Leaks – 2010 *
Corrosion	2
Natural Forces	1
Excavation	11
Other Outside Force	
Material, Weld or Joint Failure	9
Equipment Failure	
Incorrect Operation	
Other	1

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Table 5-9: Number of Excavation Damages

Year	Number of Excavation Damages
2010	11
2009	14
2008	34
2007	56
2006	77
2005	52

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Table 5-10: Number of Excavation Tickets

Year	Number of Excavation Tickets
2010	18,499
2009	20,592
2008	23,752
2007	32,915
2006	35,921
2005	47,824

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Table 5-11: Number of leaks either eliminated or repaired, categorized by cause

Cause of Leak	Number of leaks eliminated or repaired– 2010
Corrosion	9
Natural Forces	2
Excavation	11
Other Outside Force	1
Material, Weld or Joint Failure	48
Equipment Failure	1
Incorrect Operation	
Other	7

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Table 5-12: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by material

Material	Number of leaks eliminated or repaired–2010
Bare Steel	11
Cast Iron / Wrought Iron	
Coated Steel	2
Plastic	11
Other	

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Table 5-13: State Specific Reports

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Table 5-14: Number of EFVs Installed

Year	EFVs Installed
2010	67
2009	
2008	
2007	
2006	
2005	
System Total	2,511

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Table 5-15: District Regulators, Security Valves and Relief Valves

Manufacturer and Type	System Count 2010

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Table 5-16: Service regulators

Regulator Manufacturer and Type	System Count 2010

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Table 5-17: Mechanical Couplings

Mechanical Coupling Type	Estimated System Count 2010

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Table 5-18: Plastic piping

Plastic Piping Type	Estimated System miles 2010
PVC	
ABS	
CAB	
PB	
Aldyl A	
MDPE 2306	
HDPE 3306	
Other PE	
Other	

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Table 5-19: MAOP of Systems

Material	High – Pressure > 60 psi	Intermediate Pressure 60 psi or less	Low Pressure Same as delivered to customer	Unknown
Miles of Main	134	436		
Number of Services	2	8,799		1,015

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Table 5-21: Reportable/Significant Gas Incidents Summary by Year

Year	Miles of Main	Number of Incidents	Fatalities	Injuries	Property Damage
2010					
2009					
2008					
2007					
2006					
2005					
2004					
2003		1	0	0	598,960
2002					
2001					
2000					
1999					
1998					
1997					
1996					
1995					
1994					
1993					
1992					
1991					
1990					
Total					
5- Year Average (2006-2010)					
10- Year Average (2006-2010)					
20- Year Average (2006-2010)					

Note: The criteria for significant gas incidents that must be reported to PHMSA are established in 49 CFR Part 191 and in-patient hospitalization, or $50,000 or more in total costs, measured in 1984 dollars. Significant Incident include incidents that result in fatalities, summary statistics for the U.Swebsite. are also provided on the PHMSA

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Table 5-22: Reportable/Significant Gas Incidents by Cause

Year	Corrosion	Natural Forces	Excavation Damage	Outside Force	Material, Weld or Joint Failure	Equipment Failure	Incorrect Operation	Other
2010								
2009								
2008								
2007								
2006								
2005								
2004								
2003			1					
2002								
2001								
2000								
1999								
1998								
1997								
1996								
1995								
1994								
1993								
1992								
1991								
1990								
20-Yr Total								

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Table 5-28: Corrosion Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Frequency of Failure: Main Leaks/Mile	2010 Frequency of Failure: Service Leaks/100	2010 Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Corrosion							
Cast Iron							
Bare Steel				8		0.0800	
Ductile Iron							
Copper							
Coated Steel (with CP)	169	4	1		0.0059		0.0059
Coated Steel (No CP)							
Other							

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Corrosion							
Cast Iron							
Bare Steel	2	2	4	2	8	3.60	
Ductile Iron							
Copper							
Coated Steel (with CP)					1	0.20	
Coated Steel (No CP)							
Other			2			0.40	

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Table 5-29: Natural Forces Threat – Frequency and Trend

Threat / Sub-Threat	2010									
	Quantity			Leaks Repaired			Frequency of Failure			Total Leaks / Facility Mile (mains & svcs)
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	
Natural Forces										
Seismic										
Earth Movement / Landslide										
Tree Roots										
Frost Heave / Temperature										
Flood										
Ice/Snow Blockage of Control Equip										
Other	581	8,658			2			0.02		0.003

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Natural Forces							
Seismic							
Earth Movement / Landslide							
Tree Roots							
Frost Heave / Temperature							
Flood							
Ice/Snow Blockage of Control Equip							
Other	1	4	2	2	2	2.20	

Table 5-30: Excavation Damage Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity			Leaks Repaired			Frequency of Failure	
	System Miles of Main	System Number of Services	System Number of Tickets	Mains	Services	Total System Miles	Leaks per Ticket	Leaks per System Mile
Excavation Damage - All	581	8,658	18,499	6	5	581	**0.001**	**0.0189**

Threat / Sub-Threat	Leak Ratio						Is Leak Frequency Increasing?
	2006	2007	2008	2009	2010	5-Year Average	Y/N
Excavation Damage							
Miles of Main	490	527	551	568	581		
Tickets	35,921	32,915	23,752	20,592	18,499	**26,336**	
Leaks	77	56	34	14	11	**38**	
Leaks per Ticket	**0.0021**	**0.0017**	**0.0014**	**0.0007**	**0.0006**	**0.0013**	
Leaks per System Mile	0.1571	0.1063	0.0617	0.0246	0.0189	**0.0737**	

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Table 5-31: Outside Force Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity			2010 Leaks Repaired			2010 Frequency of Failure			
	Miles Main	# Services	# of Units	Mains	Services	Units	Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Outside Force										
Vehicle Damage										
Vandalism										
Fire / Explosion										
Previous Damage										
Other	581	8,658		1			0.002			0.002

Threat / Sub-Threat	Leak Ratio 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Outside Force							
Vehicle Damage							
Vandalism							
Fire / Explosion							
Previous Damage							
Other	12	1	2		1	3.20	

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Table 5-32: Example – Material, Weld or Joint Failure Threat – Frequency and Trend

Threat / Sub-Threat	Quantity: Miles Main	Quantity: # Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	Main Leaks/Mile	Frequency of Failure: Service Leaks/100	Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	412	8,654		3		0.0300	0.0073
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	169	4		45		0.4500	0.2663

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Material, Weld or Joint Failure							
PVC							
ABS							
Aldyl A							
Century Products (incl PE 2306)							
PE 3306							
Other Plastic Pipe	1	4	6	4	3	3.60	
Delrin Insert Tap Tees							
Plexco Service Tee Celcon Caps							
Pre 1940 OA girth welds							
Mechanical Couplings							
Other	56	18	29	15	45	32.60	

Table 5-33: Equipment Failure Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	# Services	# of Units	Leaks Repaired: Mains	Services	Units	Frequency of Failure: Main Leaks/Mile	Service Leaks/100	Equip/Fitting Leaks/100	Total Leaks / Facility Mile (mains & svcs)
Equipment Failure										
Valves										
Service Regulators										
Control/Relief Station										
Other										

Threat / Sub-Threat	Leak Ratio: 2006	2007	2008	2009	2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Equipment Failure							
Valves		1				0.20	
Service Regulators	10	2	2	1	1	3.20	
Control/Relief Station							
Other	3		1	1		1.00	

Table 5-34: Incorrect Operation Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: # Services	2010 Quantity: # of Units	2010 Incidents: Mains	2010 Incidents: Services	2010 Incidents: Units	2010 Frequency of Failure: Main Incidents/Mile	2010 Frequency of Failure: Service Incidents/100	2010 Frequency of Failure: Equip/Fitting Incidents/100	Total Incidents / Facility Mile (mains & svcs)
Incorrect Operation										
Operating Error										
Service Line bored thru Sewer										
Other										

Threat / Sub-Threat	Leak Ratio: 2006	Leak Ratio: 2007	Leak Ratio: 2008	Leak Ratio: 2009	Leak Ratio: 2010	5-Year Average	Is Leak Frequency Increasing? Y/N
Incorrect Operation							
Operating Error							
Service Line bored thru Sewer							
Other	1					0.20	

Table 5-35: Other Threat – Frequency and Trend

Threat / Sub-Threat	2010 Quantity: Miles Main	2010 Quantity: Number of Services	2010 Quantity: Number Copper Services	2010 Leaks Repaired: Mains	2010 Leaks Repaired: Services	2010 Frequency of Failure: Main Leaks/ Mile	2010 Frequency of Failure: All Services Leaks / 100	2010 Frequency of Failure: Copper Services Only Leaks / 100	2010 Frequency of Failure: Total Leaks / Facility Mile (mains & svcs)
Other									
Bell Joint leaks									
Copper Pipe Puncture									
Copper Sulfide									
Other	581	8,658			7			0.0700	0.0120

Threat / Sub-Threat	Leak Ratio: 2006	Leak Ratio: 2007	Leak Ratio: 2008	Leak Ratio: 2009	Leak Ratio: 2010	Leak Ratio: 5-Year Average	Is Leak Frequency Increasing ? Y/N
Other							
Bell Joint Leaks							
Copper Pipe Puncture							
Copper Sulfide							
Other	5	3	5	18	7	7.60	

APPENDIX B
THREAT IDENTIFICATION

Table 6-2: Threats Applicable to Gas Distribution System

System Leak Analysis 2006-2010			
Cause	Leak Totals by Cause Leaks	5 Year Leak Total	% of Total
Excavation	6050	22784	26.55%
Material and Welds	4562	22784	20.02%
Equipment	4044	22784	17.75%
Corrosion	3315	22784	14.55%
Other *(Excluding Leaks on Meter Sets)**	2131	22784	9.35%
Natural Forces	1731	22784	7.60%
Operations	496	22784	2.18%
Other Outside Force Damage	455	22784	2.00%

* Upon review of meter set leaks many were found to be non-hazardous releases that were alleviated by tightening, adjusting or lubrication and were improperly reported as "Other". These leaks have been excluded from this table.

Breakdown of Other Leaks			
System Part	Leaks 06-10	All Other Leaks 06-10	% of Other
Meter Set	5625	7756	72.52%
Service Line	1024	7756	13.20%
Main	625	7756	8.06%
Regulator Station	147	7756	1.90%
Other	335	7756	4.32%

APPENDIX C
EVALUATION AND RANKING OF RISK

APPENDIX D
IDENTIFICATION AND IMPLEMENTATION OF MEASURES TO ADDRESS RISKS

APPENDIX E
MEASUREMENT OF PERFORMANCE, MONITORING RESULTS, AND EVALUATION EFFECTIVENESS

Table 9-1: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by cause

Performance Measure Hazardous Leaks	2010 5-Year Average From 2006-2010	Leaks in Year	Miles of Main	Established Baseline		Criteria for Re-evaluation of Threats and Risks	Re-Evaluation Required? Y / N
Leaks Eliminated or Repaired - Corrosion	259	251	11,164	5-Yr Average Leaks/Mile/Yr	0.0232	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – Natural Forces	73	22	11,164	5-Yr Average Leaks/Mile/Yr	0.0065	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – Excavation Damage	1,159	801	11,164	5-Yr Average Leaks/Mile/Yr	0.1038	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – Other Outside Force Damage	72	27	11,164	5-Yr Average Leaks/Mile/Yr	0.0064	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – Material, Weld or Joint Failure	232	178	11,164	5-Yr Average Leaks/Mile/Yr	0.0208	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – Equipment Failure	223	554	11,164	5-Yr Average Leaks/Mile/Yr	0.0200	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – Incorrect Operation	21	16	11,164	5-Yr Average Leaks/Mile/Yr	0.0019	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – Other	292	349	11,164	5-Yr Average Leaks/Mile/Yr	0.0262	Moving 5-Yr Average is an increase of 5% or more from established baseline	

Table 9-2: Number of Excavation Damages

2010						
Performance Measure	5-Year Average From 2006-2010	Leaks In Year	Established Baseline		Criteria for Re-evaluation of Threats and Risks	Re-Evaluation Required? Y / N
Number of Excavation Damages	1,210	835	2010 damages resulting in need to repair or replace	835	Increase of 5% or more from established baseline	

Table 9-3: Number of Excavation Tickets

2010						
Performance Measure	5-Year Average From 2006-2010	Tickets In Year	Established Baseline		Criteria for Re-evaluation of Threats and Risks	Re-Evaluation Required? Y / N
Number of Excavation Tickets received from the notification center	411,676	262,183	2010 number of excavation tickets	262,183	Increase of 5% or more from established baseline	

Table 9-4: Number of leaks either eliminated or repaired, categorized by cause

Performance Measure All Leaks	5-Year Average From 2006-2010	2010 Leaks in Year	Miles of Main	Established Baseline		Criteria for Re-evaluation of Threats and Risks	Re-Evaluation Required? Y / N
Leaks Eliminated or Repaired - **Corrosion**	663	582	11,164	5-Yr Average Leaks/Mile/Yr	0.0594	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – **Natural Forces**	346	49	11,164	5-Yr Average Leaks/Mile/Yr	0.0310	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – **Excavation Damage**	1,210	835	11,164	5-Yr Average Leaks/Mile/Yr	0.1084	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – **Other Outside Force Damage**	91	40	11,164	5-Yr Average Leaks/Mile/Yr	0.0082	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – **Material, Weld or Joint Failure**	912	807	11,164	5-Yr Average Leaks/Mile/Yr	0.0817	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – **Equipment Failure**	808	1,706	11,164	5-Yr Average Leaks/Mile/Yr	0.0724	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – **Incorrect Operation**	99	50	11,164	5-Yr Average Leaks/Mile/Yr	0.0089	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – **Other**	1,551	2,574	11,164	5-Yr Average Leaks/Mile/Yr	0.1389	Moving 5-Yr Average is an increase of 5% or more from established baseline	

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Table 9-5: Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by material

Performance Measure Hazardous Leaks	5-Year Average From 2006-2010	2010 Leaks in Year	Miles of Main	Established Baseline		Criteria for Re-evaluation of Threats and Risks	Re-Evaluation Required? Y / N
Leaks Eliminated or Repaired – **Cast Iron**	28	12	156	5-Yr Average Leaks/Mile/Yr	0.1822	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – **Ductile Iron**				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – **Bare Steel**	748	956	402	5-Yr Average Leaks/Mile/Yr	1.8592	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – **Coated Steel with CP**	304	263	4,516	5-Yr Average Leaks/Mile/Yr	0.0673	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – **Coated Steel without CP**				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – **Copper**				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – **Plastic**	1,254	967	6,081	5-Yr Average Leaks/Mile/Yr	0.2063	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – **Plastic ABS**				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – **Plastic Aldyl-A**				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – **Plastic MDPE 3306**				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Leaks Eliminated or Repaired – **Plastic HDPE 3306**				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	

Table 9-6: Corrosion Performance Measures Mains and Services

2010							
Performance Measure	5-Year Average From 2006-2010	Leaks in Year	Miles of Main	Established Baseline		Criteria for Re-evaluation of Threats and Risks	Re-Evaluation Required? Y / N
Cast Iron Leaks Eliminated or Repaired - Mains	10	2	156	5-Yr Average Leaks/Mile/Yr	0.0641	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Bare Steel Leaks Eliminated or Repaired - Mains	63	79	402	5-Yr Average Leaks/Mile/Yr	0.1567	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Coated Steel (with CP) Leaks Eliminated or Repaired - Mains	43	44	4,516	5-Yr Average Leaks/Mile/Yr	0.0095	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Coated Steel (No CP) Leaks Eliminated or Repaired - Mains				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	

2010							
Performance Measure	5-Year Average From 2006-2010	Leaks in Year	Miles of Main	Established Baseline		Criteria for Re-evaluation of Threats and Risks	Re-Evaluation Required? Y / N
Bare Steel Leaks Eliminated or Repaired - Services	377	303	12,479	5-Yr Average Leaks/Svc Count/Yr	0.0302	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Coated Steel (with CP) Leaks Eliminated or Repaired - Services	162	154	70,357	5-Yr Average Leaks/Svc Count/Yr	0.0023	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Coated Steel (No CP) Leaks Eliminated or Repaired - Services				5-Yr Average Leaks/Svc Count/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	

Table 9-7: Natural Forces Performance Measures

2010							
Performance Measure	5-Year Average From 2006-2010	Leaks in Year	Miles of Main	Established Baseline		Criteria for Re-evaluation of Threats and Risks	Re-Evaluation Required? Y / N
Earth Movement / Landslide Leaks Eliminated or Repaired (mains & services)				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Tree Roots Leaks Eliminated or Repaired (mains & services)				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Flood Leaks Eliminated or Repaired or overpressure incidents (mains & services)				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Other Leaks Eliminated or Repaired (mains & services)	346	49	11,164	5-Yr Average Leaks/Mile/Yr	0.0310	Moving 5-Yr Average is an increase of 5% or more from established baseline	

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Table 9-8: Excavation Damage Performance Measures

2010						
Performance Measure	5-Year Average 2006-2010	Leaks In Year	Established Baseline		Criteria for Re-evaluation of Threats and Risks	Re-Evaluation Required? Y / N
Excavation Damage Leaks per Ticket	0.0029	0.0032	5-Yr Average Leaks/Ticket	0.0029	Increase of 5% or more from established baseline	
Excavation Damage Leaks per System Mile	0.1084	0.0748	5-Yr Average Leaks/Mile/Yr	0.0748	Increase of 5% or more from established baseline	

Table 9-9: Other Outside Force Performance Measures

Performance Measure	5-Year Average From 2006-2010	Leaks in Year (2010)	Miles of Main (2010)	Established Baseline		Criteria for Re-evaluation of Threats and Risks	Re-Evaluation Required? Y / N
Vehicle Damage Leaks Eliminated or Repaired (services including riser and meter)				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Vandalism Leaks Eliminated or Repaired (mains & services)				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Fire / Explosion Leaks Eliminated or Repaired (mains & services)				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Previous Damage Leaks Eliminated or Repaired (mains & services)				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Other Leaks Eliminated or Repaired (mains & services)	91	40	11,164	5-Yr Average Leaks/Mile/Yr	0.0082	Moving 5-Yr Average is an increase of 5% or more from established baseline	

Table 9-10: Material, Weld, or Joint Failure Performance Measures

2010							
Performance Measure	5-Year Average From 2006-2010	Leaks in Year	Miles of Main	Established Baseline		Criteria for Re-evaluation of Threats and Risks	Re-Evaluation Required? Y / N
PVC Leaks Eliminated or Repaired (mains & services)				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
ABS Leaks Eliminated or Repaired (mains & services)				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Aldyl A Leaks Eliminated or Repaired (mains & services)				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
MDPE 2306 Leaks Eliminated or Repaired (mains & services)				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
HDPE 3306 Leaks Eliminated or Repaired (mains & services)				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Other Plastic Pipe Leaks Eliminated or Repaired (mains & services)	368	283	11,164	5-Yr Average Leaks/Mile/Yr	0.0330	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Delrin Insert Tap Tees Leaks Eliminated or Repaired				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Plexco Service Tee Celcon Caps Leaks Eliminated or Repaired				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Mechanical Coupling Leaks Eliminated or Repaired (mains)				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Mechanical Coupling Leaks Eliminated or Repaired (services)				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Pre 1940 OA girth welds Leaks Eliminated or Repaired (mains & services)				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Other Material or Weld Failure Leaks Eliminated or Repaired (mains & services)	544	524	11,164	5-Yr Average Leaks/Mile/Yr	0.0487	Moving 5-Yr Average is an increase of 5% or more from established baseline	

Table 9-11: Equipment Failure Performance Measures

2010							
Performance Measure	5-Year Average From 2006-2010	Leaks in Year	Miles of Main	Established Baseline		Criteria for Re-evaluation of Threats and Risks	Re-Evaluation Required? Y / N
Service Regulators Leaks Eliminated or Repaired (services)	265	577	11,164	5-Yr Average Leaks/Svc/Yr	0.4593	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Control/Relief Station Leaks Eliminated or Repaired	12	22	11,164	5-Yr Average Leaks/Station/Yr	0.5455	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Other Leaks Eliminated or Repaired	357	796	11,164	5-Yr Average Leaks/Station/Yr	0.4485	Moving 5-Yr Average is an increase of 5% or more from established baseline	

Table 9-12: Incorrect Operation Performance Measures

2010							
Performance Measure	5-Year Average from 2006-2010	Leaks in Year	Miles of Main	Established Baseline		Criteria for Re-evaluation of Threats and Risks	Re-Evaluation Required? Y / N
Operating Error Leaks Eliminated or Repaired (mains & services)				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Service Line bored thru Sewer Leaks Eliminated or Repaired (mains & services)				5-Yr Average Leaks/Mile/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Other Incorrect Operation Leaks Eliminated or Repaired (mains & services)	99	50	11,164	5-Yr Average Leaks/Mile/Yr	0.0089	Moving 5-Yr Average is an increase of 5% or more from established baseline	

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Table 9-13: Other Failure Performance Measures

2010							
Performance Measure	5-Year Average From 2006-2010	Leaks in Year	Miles of Main	Established Baseline		Criteria for Re-evaluation of Threats and Risks	Re-Evaluation Required? Y / N
Bell Joint Leaks	43	5	11,164	5-Yr Average Leaks/Mile/Yr	0.0039	Moving 5-Yr Average is an increase of 5% or more from established baseline	
Copper Pipe Puncture Leaks Eliminated or Repaired (services)				5-Yr Average Leaks/Svc/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Copper Sulfide overpressure incidents (services)				5-Yr Average incidents/Yr		Moving 5-Yr Average is an increase of 5% or more from established baseline	
Other Leaks Eliminated or Repaired (mains & services)	1,498	2,559	11,164	5-Yr Average Leaks/mile/Yr	0.1342	Moving 5-Yr Average is an increase of 5% or more from established baseline	

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APPENDIX F
PERIODIC EVALUATION AND IMPROVEMENT

APPENDIX G
CROSS REFERENCE OF 49 CFR PART 192, SUBPART P REQUIREMENTS TO THE IM PLAN

The table below provides a cross reference between 49 CFR Part 192, Subpart P (Gas Distribution Pipeline Integrity Management) and this Gas Distribution Integrity Management Plan.

49 CFR Part 192, Subpart P	IM Plan Reference
§192.1005 No later than August 2, 2011 a gas distribution operator must develop and implement an integrity management program that includes a written integrity management plan as specified in § 192.1007.	3.0
§192.1007 A written integrity management plan must contain procedures for developing and implementing the following elements:	
§192.1007 (a) *Knowledge.* An operator must demonstrate an understanding of its gas distribution system developed from reasonably available information.	5.0, 5.1, 5.2, 5.3, 5.4, 5.5
§192.1007 (a) (1) Identify the characteristics of the pipeline's design and operations and the environmental factors that are necessary to assess the applicable threats and risks to its gas distribution pipeline.	5.3
§192.1007 (a) (2) Consider the information gained from past design, operations, and maintenance.	5.2
§192.1007 (a) (3) Identify additional information needed and provide a plan for gaining that information over time through normal activities conducted on the pipeline (for example, design, construction, operations or maintenance activities).	5.4
§192.1007 (a) (4) Develop and implement a process by which the IM program will be reviewed periodically and refined and improved as needed.	10.1, 10.2
§192.1007 (a) (5) Provide for the capture and retention of data on any new pipeline installed. The data must include, at a minimum, the location where the new pipeline is installed and the material of which it is constructed.	5.5
§192.1007 (b) *Identify threats.* The operator must consider the following categories of threats to each gas distribution pipeline: corrosion, natural forces, excavation damage, other outside force damage, material, weld or joint failure, equipment failure, incorrect operation, and other concerns that could threaten the integrity of the pipeline.	6.0
§192.1007 (b) An operator must consider reasonably available information to identify existing and potential threats. Sources of data may include, but are not limited to, incident and leak history, corrosion control records, continuing surveillance records, patrolling records, maintenance history, and excavation damage experience.	5.1, 6.0,
§192.1007 (c) *Evaluate and rank risk.* An operator must evaluate the risks associated with its distribution pipeline. In this evaluation, the operator must determine the relative importance of each threat and estimate and rank the risks posed to its pipeline. This evaluation must consider each applicable current and potential threat, the likelihood of failure associated with each threat, and the potential consequences of such a failure.	7.1, 7.2
§192.1007 (c) …. An operator may subdivide its pipeline into regions with similar characteristics (e.g., contiguous areas within a distribution pipeline consisting of mains, services and other appurtenances; areas with common materials or environmental factors), and for which similar actions likely would be effective in reducing risk.	Non-Mandatory

49 CFR Part 192, Subpart P	IM Plan Reference
§192.1007 (d) *Identify and implement measures to address risks.* Determine and implement measures designed to reduce the risks from failure of its gas distribution pipeline. These measures must include an effective leak management program (unless all leaks are repaired when found).	8.1, 8.2
§192.1007 (e) (1) *Measure performance, monitor results, and evaluate effectiveness.* Develop and monitor performance measures from an established baseline to evaluate the effectiveness of its IM program. …... These performance measures must include the following: (i) Number of hazardous leaks either eliminated or repaired, per § 192.703(c), categorized by cause; (ii) Number of excavation damages; (iii) Number of excavation tickets (receipt of information by the underground facility operator from the notification center); (iv) Total number of leaks either eliminated or repaired, categorized by cause; (v) Number of hazardous leaks either eliminated or repaired per § 192.703(c), categorized by material; and (vi) Any additional measures the operator determines are needed to evaluate the effectiveness of the operator's IM program in controlling each identified threat.	9.1 – 9.6
§192.1007 (e) (1) *Measure performance, monitor results, and evaluate effectiveness.* …. An operator must consider the results of its performance monitoring in periodically re-evaluating the threats and risks.	10.2
§192.1007 (f) *Periodic Evaluation and Improvement.* An operator must re-evaluate threats and risks on its entire pipeline and consider the relevance of threats in one location to other areas.	7.1, 10.1
§192.1007 (f) Each operator must determine the appropriate period for conducting complete program evaluations based on the complexity of its system and changes in factors affecting the risk of failure. The operator must conduct a complete program reevaluation at least every five years. The operator must consider the results of the performance monitoring in these evaluations.	10.2
§192.1007 (g) *Report results.* Report, on an annual basis, the four measures listed in paragraphs (e)(1)(i) through (e)(1)(iv) of this section, as part of the annual report required by § 191.11. An operator also must report the four measures to the state pipeline safety authority if a state exercises jurisdiction over the operator's pipeline.	11.1
§192.1009 Each operator must report, on an annual basis, information related to failure of compression couplings, excluding those that result only in nonhazardous leaks, as part of the annual report required by §191.11 beginning with the report submitted March 15, 2011. This information must 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, coupling manufacturer, lot number and date of manufacture, and other information that can be found in markings on the failed coupling. An operator also must report this information to the state pipeline safety authority if a state exercises jurisdiction over the operator's pipeline.	11.1
§192.1011 An operator must maintain records demonstrating compliance with the requirements of this subpart for at least 10 years. The records must include copies of superseded integrity management plans developed under this subpart.	12.0

49 CFR Part 192, Subpart P	IM Plan Reference
§192.1013 (a) An operator may propose to reduce the frequency of periodic inspections and tests required in this part on the basis of the engineering analysis and risk assessment required by this subpart. (b) An operator must submit its proposal to the PHMSA Associate Administrator for Pipeline Safety or, in the case of an intrastate pipeline facility regulated by the State, the appropriate State agency. The applicable oversight agency may accept the proposal on its own authority, with or without conditions and limitations, on a showing that the operator's proposal, which includes the adjusted interval, will provide an equal or greater overall level of safety. (c) An operator may implement an approved reduction in the frequency of a periodic inspection or test only where the operator has developed and implemented an integrity management program that provides an equal or improved overall level of safety despite the reduced frequency of periodic inspections.	Not covered by IM Plan

APPENDIX H
COPY OF 49 CFR PART 192, SUBPART P

■ 2. Section 192.383 is revised to read as follows:

§ 192.383 Excess flow valve installation.

■ (a) *Definitions.* As used in this section:

Replaced service line means a natural gas service line where the fitting that connects the service line to the main is replaced or the piping connected to this fitting is replaced.

Service line serving single-family residence means a natural gas service line that begins at the fitting that connects the service line to the main and serves only one single-family residence.

(b) *Installation required.* An excess flow valve (EFV) installation must comply with the performance standards in § 192.381. The operator must install an EFV on any new or replaced service line serving a single-family residence after February 2, 2010, unless one or more of the following conditions is present:

(1) The service line does not operate at a pressure of 10 psig or greater throughout the year;

(2) The operator has prior experience with contaminants in the gas stream that could interfere with the EFV's operation or cause loss of service to a residence;

(3) An EFV could interfere with necessary operation or maintenance activities, such as blowing liquids from the line; or

(4) An EFV meeting performance standards in § 192.381 is not commercially available to the operator.

(c) *Reporting.* Each operator must, on an annual basis, report the number of EFVs installed pursuant to this section as part of the annual report required by § 191.11.

■ 3. In Part 192, a new subpart P is added to read as follows:

Subpart P—Gas Distribution Pipeline Integrity Management (IM)

Sec.

Subpart P—Gas Distribution Pipeline Integrity Management (IM)

§ 192.1001 What definitions apply to this subpart?

The following definitions apply to this subpart:

Excavation Damage means 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.

Hazardous Leak means 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.

Integrity Management Plan or *IM Plan* means a written explanation of the mechanisms or procedures the operator will use to implement its integrity management program and to ensure compliance with this subpart.

Integrity Management Program or *IM Program* means an overall approach by an operator to ensure the integrity of its gas distribution system.

Small LPG Operator means an operator of a liquefied petroleum gas (LPG) distribution pipeline that serves fewer than 100 customers from a single source.

§ 192.1003 What do the regulations in this subpart cover?

General. This subpart prescribes minimum requirements for an IM program for any gas distribution pipeline covered under this part, including liquefied petroleum gas systems. A gas distribution operator, other than a master meter operator or a small LPG operator, must follow the requirements in §§ 192.1005–192.1013 of this subpart. A master meter operator or small LPG operator of a gas distribution pipeline must follow the requirements in § 192.1015 of this subpart.

§ 192.1005 What must a gas distribution operator (other than a master meter or small LPG operator) do to implement this subpart?

No later than August 2, 2011 a gas distribution operator must develop and implement an integrity management program that includes a written integrity management plan as specified in § 192.1007.

§ 192.1007 What are the required elements of an integrity management plan?

A written integrity management plan must contain procedures for developing and implementing the following elements:

(a) *Knowledge.* An operator must demonstrate an understanding of its gas distribution system developed from reasonably available information.

(1) Identify the characteristics of the pipeline's design and operations and the environmental factors that are necessary to assess the applicable threats and risks to its gas distribution pipeline.

(2) Consider the information gained from past design, operations, and maintenance.

(3) Identify additional information needed and provide a plan for gaining that information over time through normal activities conducted on the pipeline (for example, design, construction, operations or maintenance activities).

(4) Develop and implement a process by which the IM program will be reviewed periodically and refined and improved as needed.

(5) Provide for the capture and retention of data on any new pipeline installed. The data must include, at a minimum, the location where the new pipeline is installed and the material of which it is constructed.

(b) *Identify threats.* The operator must consider the following categories of threats to each gas distribution pipeline: Corrosion, natural forces, excavation damage, other outside force damage, material, weld or joint failure (including compression coupling), equipment failure, incorrect operation, and other concerns that could threaten the integrity of its pipeline. An operator must consider reasonably available information to identify existing and potential threats. Sources of data may include, but are not limited to, incident and leak history, corrosion control records, continuing surveillance records, patrolling records, maintenance history, and excavation damage experience.

(c) *Evaluate and rank risk.* An operator must evaluate the risks associated with its distribution pipeline. In this evaluation, the operator must determine the relative importance of each threat and estimate and rank the risks posed to its pipeline. This evaluation must consider each applicable current and potential threat, the likelihood of failure associated with each threat, and the potential consequences of such a failure. An operator may subdivide its pipeline into regions with similar characteristics (e.g., contiguous areas within a distribution pipeline consisting of mains, services and other appurtenances; areas with common materials or environmental factors), and for which similar actions likely would be effective in reducing risk.

(d) *Identify and implement measures to address risks.* Determine and implement measures designed to reduce the risks from failure of its gas distribution pipeline. These measures must include an effective leak management program (unless all leaks are repaired when found).

(e) *Measure performance, monitor results, and evaluate effectiveness.*

(1) Develop and monitor performance measures from an established baseline to evaluate the effectiveness of its IM program. An operator must consider the results of its performance monitoring in periodically re-evaluating the threats and risks. These performance measures must include the following:

(i) Number of hazardous leaks either eliminated or repaired as required by § 192.703(c) of this subchapter (or total number of leaks if all leaks are repaired when found), categorized by cause;

(ii) Number of excavation damages;

(iii) Number of excavation tickets (receipt of information by the underground facility operator from the notification center);

(iv) Total number of leaks either eliminated or repaired, categorized by cause;

(v) Number of hazardous leaks either eliminated or repaired as required by § 192.703(c) (or total number of leaks if all leaks are repaired when found), categorized by material; and

(vi) Any additional measures the operator determines are needed to evaluate the effectiveness of the operator's IM program in controlling each identified threat.

(f) *Periodic Evaluation and Improvement.* An operator must re-evaluate threats and risks on its entire pipeline and consider the relevance of threats in one location to other areas. Each operator must determine the appropriate period for conducting complete program evaluations based on the complexity of its system and changes in factors affecting the risk of failure. An operator must conduct a complete program re-evaluation at least every five years. The operator must consider the results of the performance monitoring in these evaluations.

(g) *Report results.* Report, on an annual basis, the four measures listed in paragraphs (e)(1)(i) through (e)(1)(iv) of this section, as part of the annual report required by § 191.11. An operator also must report the four measures to the state pipeline safety authority if a state exercises jurisdiction over the operator's pipeline.

§ 192.1009 What must an operator report when compression couplings fail?

Each operator must report, on an annual basis, information related to failure of compression couplings, excluding those that result only in non-hazardous leaks, as part of the annual report required by § 191.11 beginning with the report submitted March 15, 2011. This information must 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, coupling manufacturer, lot number and date of manufacture, and other information that can be found in markings on the failed coupling. An operator also must report this information to the state pipeline safety authority if a state exercises jurisdiction over the operator's pipeline.

§ 192.1011 What records must an operator keep?

An operator must maintain records demonstrating compliance with the requirements of this subpart for at least 10 years. The records must include copies of superseded integrity management plans developed under this subpart.

§ 192.1013 When may an operator deviate from required periodic inspections under this part?

(a) An operator may propose to reduce the frequency of periodic inspections and tests required in this part on the basis of the engineering analysis and risk assessment required by this subpart.

(b) An operator must submit its proposal to the PHMSA Associate Administrator for Pipeline Safety or, in the case of an intrastate pipeline facility regulated by the State, the appropriate State agency. The applicable oversight agency may accept the proposal on its own authority, with or without conditions and limitations, on a showing that the operator's proposal, which includes the adjusted interval, will provide an equal or greater overall level of safety.

(c) An operator may implement an approved reduction in the frequency of a periodic inspection or test only where the operator has developed and implemented an integrity management program that provides an equal or improved overall level of safety despite the reduced frequency of periodic inspections.

§ 192.1015 What must a master meter or small liquefied petroleum gas (LPG) operator do to implement this subpart?

(a) *General.* No later than August 2, 2011 the operator of a master meter system or a small LPG operator must develop and implement an IM program that includes a written IM plan as specified in paragraph (b) of this section. The IM program for these pipelines should reflect the relative simplicity of these types of pipelines.

(b) *Elements.* A written integrity management plan must address, at a minimum, the following elements:

(1) *Knowledge.* The operator must demonstrate knowledge of its pipeline, which, to the extent known, should include the approximate location and material of its pipeline. The operator must identify additional information needed and provide a plan for gaining knowledge over time through normal activities conducted on the pipeline (for example, design, construction, operations or maintenance activities).

(2) *Identify threats.* The operator must consider, at minimum, the following categories of threats (existing and potential): Corrosion, natural forces, excavation damage, other outside force damage, material or weld failure, equipment failure, and incorrect operation.

(3) *Rank risks.* The operator must evaluate the risks to its pipeline and estimate the relative importance of each identified threat.

(4) *Identify and implement measures to mitigate risks.* The operator must determine and implement measures designed to reduce the risks from failure of its pipeline.

(5) *Measure performance, monitor results, and evaluate effectiveness.* The operator must monitor, as a performance measure, the number of leaks eliminated or repaired on its pipeline and their causes.

(6) *Periodic evaluation and improvement.* The operator must determine the appropriate period for conducting IM program evaluations based on the complexity of its pipeline and changes in factors affecting the risk of failure. An operator must re-evaluate its entire program at least every five years. The operator must consider the results of the performance monitoring in these evaluations.

(c) *Records.* The operator must maintain, for a period of at least 10 years, the following records:

(1) A written IM plan in accordance with this section, including superseded IM plans;

(2) Documents supporting threat identification; and

(3) Documents showing the location and material of all piping and appurtenances that are installed after the effective date of the operator's IM program and, to the extent known, the location and material of all pipe and

appurtenances that were existing on the effective date of the operator's program.

Issued in Washington, DC on November 20, 2009 under Authority delegated in Part 1.

Cynthia L. Quarterman,

Administrator.

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19. In response to Question No. 11 above, please provide any documentation that supports the requested 7 million dollar annual increase, i.e., calculations, assumptions, plans, studies, assessments, etc.

A. See attached spreadsheets that identify the estimated main and service line replacement costs for the East and West Regions of Peoples Gas.

East Region Cast Iron/Bare Steel Replacement Analysis

Description	Dade-Broward Units Miles/Svs	Dade-Broward Replacement Costs	Dade-Broward Total Costs	Orlando Units Miles/Svs	Orlando Replacement Costs	Orlando Total Costs	Eustis Units Miles/Svs	Eustis Replacement Costs	Eustis Total Costs	Jacksonville Units Miles/Svs	Jacksonville Replacement Costs	Jacksonville Total Costs	Daytona Units Miles/Svs	Daytona Replacement Costs	Daytona Total Costs	East Region Total Costs
Cast Iron Mains	43.86	170,000	7,456,200	3.00	90,000	270,000	0.00	85,000	0	0.00	97,300	0	6.00	87,000	522,000	8,248,200
Steel Mains-Unprotected																
Bare	17.88	101,300	1,811,244	70.00	90,000	6,300,000	27.55	85,000	2,341,750	12.00	97,300	1,167,600	8.00	87,000	696,000	12,316,594
Coated	7.00	101,300	709,100	0.00	90,000	0	0.00	85,000	0	0.00	97,300	0	0.00	87,000	0	709,100
Total Miles:	**68.74**			**73.00**			**27.55**			**12.00**			**14.00**			**195.29**
Steel Services-Cast Iron																
Bare	*1,300*	*2,650*	*3,445,000*	*0*	*1,350*	*0*	*0*	*960*	*0*	*0*	*1,100*	*0*	*0*	*1,130*	*0*	*3,445,000*
Coated	1,584	2,650	4,197,600	0	1,350	0	0	960	0	0	1,100	0	0	1,130	0	4,197,600
Steel Services-Bare Steel																
Bare	732	1,200	878,400	2,822	1,350	3,809,700	287	1,000	287,000	445	1,100	489,500	484	1,130	546,920	6,011,520
Coated	891	1,200	1,069,200	0	1,350	0	0	1,000	0	0	1,100	0	0	1,130	0	1,069,200
Total Costs			**$19,566,744**			**$10,379,700**			**$2,628,750**			**$1,657,100**			**$1,764,920**	**$35,997,409**
Cost Per Foot Mains			$ 27.49			$ 17.05			$ 16.10			$ 18.43			$ 16.48	**$ 20.63**

Notes: 1) Units for Mains and Services are based on the 2010 DOT Reports
2) Costs per Mile includes Services to be Replaced.
3) Costs Reflected are Not Adjusted for Inflation.

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West Region - Cast Iron & Galv. Main Replacement - 2011

	Pipe Retired In 2011 Cost per L.F.	Cost per Mile
Tampa	$14.61	$77,128.90
St. Pete	$14.66	$77,418.11
Lakeland	$13.08	$69,053.16
Wtd. Average	$14.01	$73,995.59

Note: Cost does not include service replacements

West Region - Service Replacements - 2011

	Services Replaced - 2011 Cost per Svc.
Tampa	$850.19
St. Pete	$909.71
Lakeland	$889.59
Wtd. Average	$876.50

	Main Replace. Cost with 4% inflation	Miles per year		Service Replace. Cost with 4% inflation	Serv. Replace. per year	
2012	$80,000	31	$2,480,000	$900	600	$540,000
2013	$83,200	31	$2,579,200	$936	600	$561,600
2014	$86,528	31	$2,682,368	$973	600	$584,064
2015	$89,989	31	$2,789,663	$1,012	600	$607,427
2016	$93,589	31	$2,901,249	$1,053	600	$631,724
2017	$97,332	31	$3,017,299	$1,095	600	$656,993
2018	$101,226	31	$3,137,991	$1,139	600	$683,272
2019	$105,275	31	$3,263,511	$1,184	600	$710,603
2020	$109,486	31	$3,394,051	$1,232	600	$739,027
2021	$113,865	31	$3,529,813	$1,281	600	$768,588
		310	$29,775,146		6,000	$6,483,298
				West Reg. Total		$36,258,444

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