FLORIDA
PUBLIC SERVICE COMMISSION

NATURAL GAS PIPELINE
ANNUAL
SAFETY REPORT

2019

DIVISION OF ENGINEERING

Table of Contents

Figures and Tables

Gas Safety Background

The federal government establishes minimum pipeline safety performance standards under the United States Code of Federal Regulations (CFR), Title 49 "Transportation," Parts 190, 191, 192, and 199. The Office of Pipeline Safety, within the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA), has overall regulatory responsibility for hazardous liquid and gas pipelines in the United States. PHMSA's goal is to improve industry performance and communications to prevent hazardous material transportation incidents, accidents, injuries, and fatalities. PHMSA pipeline safety regulations assure safety in design, construction, inspection, testing, operation, and maintenance of pipeline facilities, and in the siting, construction, operation, and maintenance of facilities. Additionally, PHMSA sets the parameters for administering the pipeline safety program.

The Florida Public Service Commission (FPSC or Commission) is certified through PHMSA to inspect intrastate transmission and distribution pipelines. Chapter 368, Florida Statutes, authorizes the FPSC to inspect pipelines and adopt rules for governing pipeline safety. The FPSC has adopted the federal standards as well as more stringent regulations found in Chapter 25-12, Florida Administrative Code (F.A.C.). PHMSA authorizes state agencies, such as the FPSC, to conduct oversight and enforcement of pipeline operators through PHMSA's State Pipeline Safety Program.[1]

At the March 5, 1984, Internal Affairs meeting, the FPSC voted to require staff to prepare an annual summary report of the previous year's natural gas pipeline safety activities. Any questions concerning this report should be directed to:

Mr. Robert Graves, Chief of Safety
Division of Engineering
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850
Email: rgraves@psc.state.fl.us

[1] Federal Statutes provide for state assumption of all or part of the intrastate regulatory and enforcement responsibility of utility companies through annual certifications and agreements issued under this program.

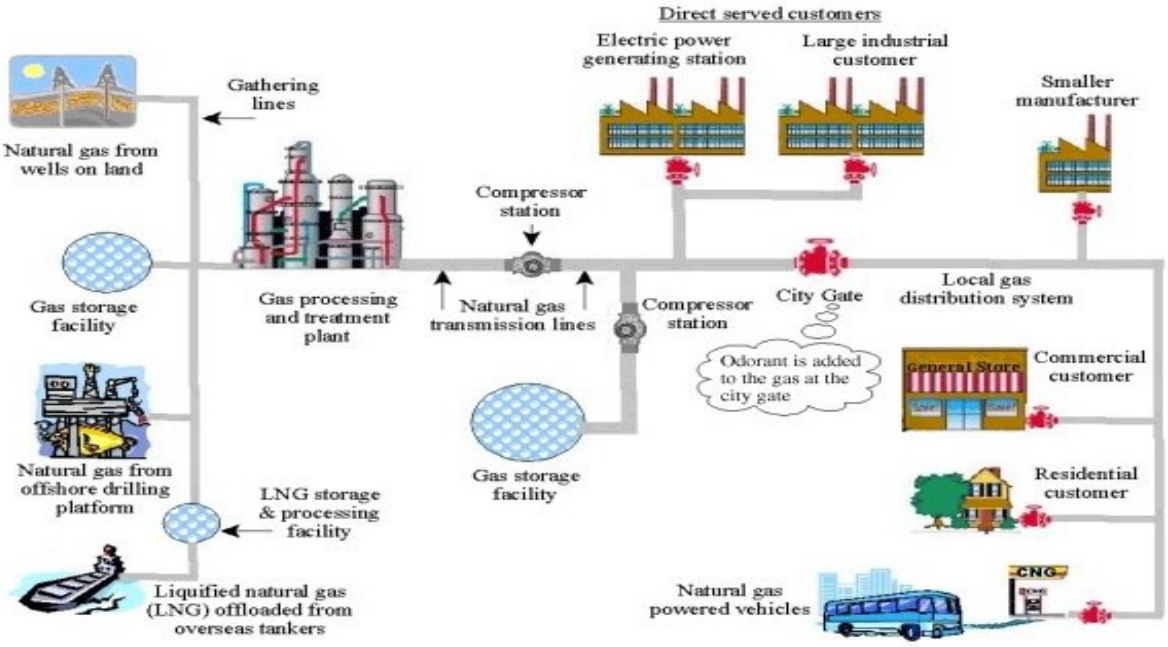
FPSC's Natural Gas Pipeline Safety Program

Gas Safety 2019 Overview

The FPSC's Bureau of Safety evaluates transmission and distribution pipeline and sub-metered master meter locations to ensure that construction, repairs, and maintenance are performed in accordance with specific test procedures using proper materials. The diagram of natural gas flow illustrated below provides a view of the various stages of the deliverance of natural gas from the wellhead to the consumer. Consumers vary from large industrial plants, such as electric generating stations, to the single-family household.

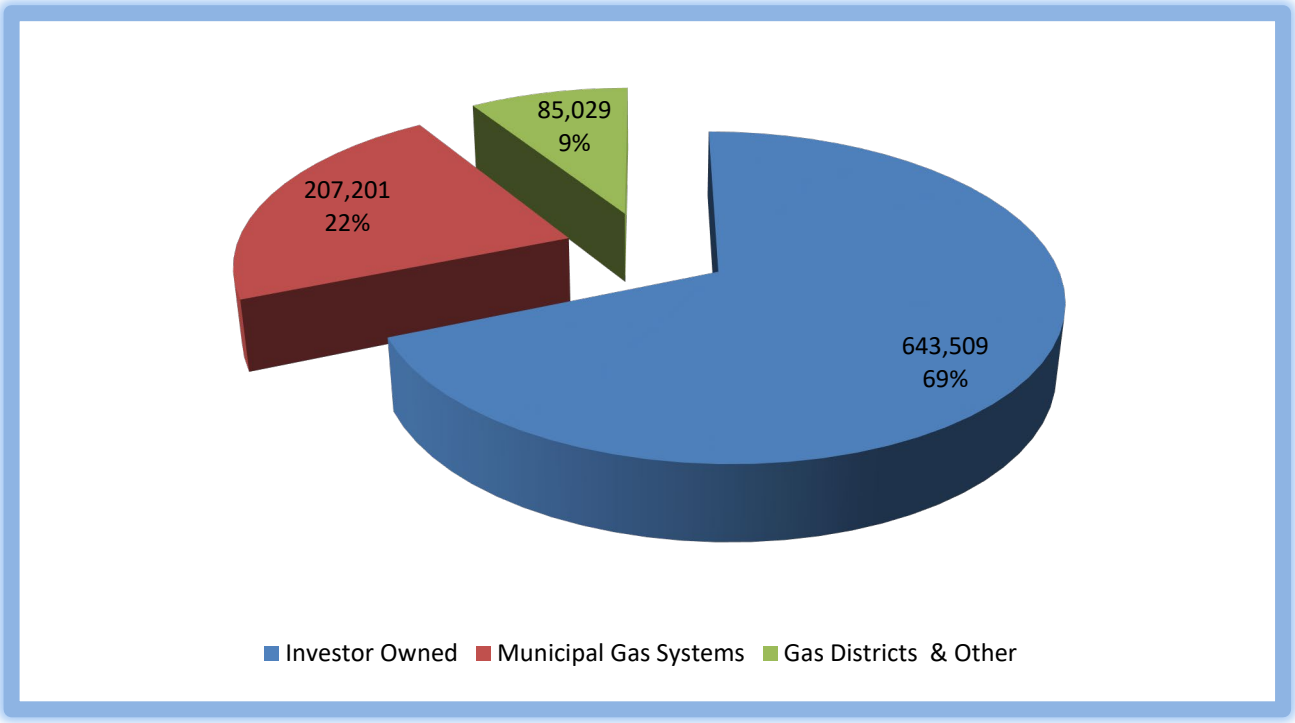
Florida is not a producer of natural gas at this time. Florida relies on gas delivered by high-pressure interstate pipelines from other states. The interstate transmission pipelines use compressor stations to maintain the appropriate pressure of the gas. The gas is distributed to large end users like power generation plants by lateral lines branching off the transmission lines. From the transmission lines, gas is delivered to city gate stations that reduce the pressure for the distribution systems. The pressure is further reduced by regulator stations located within the distribution systems. If a consumer's appliances require further reduction in gas pressure, a regulator is installed at the consumer's location.

Figure 1: Diagram of Natural Gas Flow



There were 43 gas distribution operators and 17 gas transmission operators with a total of 103 inspection units in Florida as of December 31, 2019. These systems are comprised of more than 44,000 miles of pipeline. Figure 2 below shows the total number of customers by utility type providing the service.

Figure 2: Number of Customers by Utility Type as of December 31, 2019



Data source: PHMSA Annual Reports

A major aspect of compliance with state and federal regulations involves regular inspections of pipeline facilities. Safety, reliability, and service monitoring promotes an uninterrupted supply of natural gas service to the public and confirms that such services are provided in a reasonable and timely manner with minimal risks.

Gas Safety Inspector Duties and Training Requirements

The FPSC safety staff has nine inspectors who conduct on-going inspections and review the safety operations of Florida's 103 inspection units. In 2019, FPSC inspectors evaluated all 103 inspection units in Florida to ensure the operator is in compliance with state and federal regulations. All FPSC inspectors must complete training courses provided by PHMSA and/or must be trained by a senior engineer in order to perform safety inspections. The following are the mandatory Safety Evaluation of Gas Pipeline and Systems courses:

- Introduction to Pipeline Safety Inspections
- Safety Evaluation of Gas Pipeline Systems
- Gas Pressure Regulation & Overpressure Protection
- Plastic & Composite Materials
- Welding & Welding Inspection of Pipeline Materials
- Pipeline Failure Investigation Techniques
- Corrosion Control of Pipeline Systems

Inspection Results

As each gas system is evaluated, the inspector prepares a summary of the findings and discusses the results with the system operator's supervisory employees. The information is forwarded to the Bureau of Safety, where a letter is prepared and issued to an officer of the company.

When violations are found, a non-compliance letter is issued to the operator. This letter details the issue(s) found and informs the operator of the date in which their response to the issue(s) is required. During 2019, there were 18 total violations with 12 attributed to PHMSA regulations and 6 to FPSC regulations. All violations have been corrected or are scheduled for corrective action pursuant to the FPSC's enforcement procedures. The violations that have not been corrected by the end of the year are carried over into the following year.

Other Responsibilities

The FPSC Division of Engineering also supports and assists the state's Emergency Operations Center (EOC) in energy related issues, such as energy security, natural gas incidents, natural disasters, and when any utility related threat is detected that threatens life and/or property. Several FPSC employees with the Division of Engineering are also members of the State Emergency Response Team.[2] Their assistance requires regular involvement in coordinating activities of the gas and electric utilities, jointly with government, fire, police, and other public and private agencies. Training exercises and safety drills are held throughout the year to keep members current on existing and upcoming procedures relating to the operations of the EOC and to ensure preparedness should an emergency arise.

State and Federal Safety Actions

Integrity Management and Replacement Programs

In 2002 the Federal Safety Improvement Act introduced the Transmission Integrity Management Program (TIMP). This regulation required a pipeline operator to develop an Integrity Management Program for gas transmission pipelines located in areas where a leak or rupture could cause the most harm, such as high consequence areas. The rule applies to gas transmission operators jurisdictional to 49 CFR Part 192 and this rule became effective February 14, 2004. The objectives are to improve pipeline safety through:

- Accelerating the integrity assessment of pipelines in high consequence areas
- Improving integrity management systems within companies
- Improving the role in reviewing the adequacy of integrity programs and plans
- Providing increased public assurance in pipeline safety

An operator of a gas transmission pipeline is required to continually assess a pipeline's integrity by performing a risk analysis to identify and mathematically rank all threats that could be detrimental to the integrity of the pipeline. The rules governing the Gas Transmission Pipeline Integrity Management Program can be found in 49 CFR, Part 192, Subpart O.

Final rules establishing integrity management requirements for gas distribution pipeline systems were issued on December 4, 2009 (CFR Part 192 Subpart P), with an effective date of February 12, 2010. Operators were given until August 2, 2011, to write and implement their program. The regulation

[2] State Emergency Response Team provides updated information to other agencies and the public, during any emergency.

requires operators, to develop, write, and implement a Distribution Integrity Management Program (DIMP) with the following elements:

- Knowledge
- Identify Threats
- Evaluate and Rank Risks
- Identify and Implement Measures to Address Risks
- Measure Performance, Monitor Results, and Evaluate Effectiveness
- Periodically Evaluate and Improve Program
- Report Results

Staff inspects the DIMP each year to ensure it is updated for any changes in threats to the pipeline that may cause operational changes to protect the pipeline. An example is to replace a pipeline that is found to have excessive leakage history or made of outdated material.

Cast iron pipe is subject to graphitic softening or "graphitization" and bare steel is subject to corrosion. Both hazards can lead to structural failure and the release of gas. Gas utilities have been urged by PHMSA to replace these older facilities as a safety measure. As a result of several meetings with Pensacola Energy, in March 2011, Pensacola Energy voluntarily established a pipeline replacement program to replace its cast iron and bare steel pipelines. In August 2012, the FPSC approved cast iron/bare steel pipe replacement riders for three natural gas utilities, TECO Peoples Gas System, Florida Public Utilities, and the Florida Division of Chesapeake Utilities (Central Florida Gas). Under the approved pipeline replacement program, these three utilities will replace 917 miles of cast iron and bare steel distribution pipe and 8,052 service lines within a 10-year period.

Table 1 below summarizes the progress of the four utilities. In 2019, gas operators replaced approximately 39 miles of cast iron pipeline and 68 miles of unprotected bare steel pipeline. For 2020, the monthly bill impacts for a residential customer that uses 20 therms per month, is $1.84 for TECO Peoples Gas System customers, $4.46 for Florida Public Utilities customers, and $2.12 for customers of the Florida Division of Chesapeake Utilities Corporation.

Table 1: Pipeline Replacement Program

Company Name	Total Miles of Bare Steel (BS) Pipe Needing Replacement as of September 2012	Total Miles of Cast Iron Pipe (CIP) Needing Replacement as of September 2012	Total Remaining BS Mileage as of December 31, 2019	Total Remaining CIP Mileage as of December 31, 2019	Total Mileage Replaced as of December 31, 2019
Chesapeake Utilities* (Central Florida Gas)	152	0	17	0	135
Pensacola Energy**	469	88	334	0	223
Florida Public Utilities	197	1	53	0	145
TECO Peoples Gas	411	156	76	10	481
TOTALS	**1229**	**245**	**480**	**10**	**984**

Data source: PHMSA Annual Reports
*Chesapeake Utilities is the parent company of Central Florida Gas and Florida Public Utilities.
**Pensacola Energy participates in the pipeline replacement programs but as a municipal utility, is not subject to FPSC rate regulation.

Prevention of Damage to Gas Pipelines by Excavators

One of the highest causes of damage to natural gas pipelines in Florida, and the number one cause in the entire United States, is dig-ins (pipelines cut or damaged by those engaged in excavation activities or directional drilling). Underground utilities can sustain damages from just a small nick of the outer lining of the buried facilities, causing leaks, water intrusion, or corrosion. Figure 3 below shows the number of natural gas leaks per year resulting from dig-ins.

Figure 3: Number of Leaks Due to Natural Gas Dig-Ins from 2009-2019

Data source: PHMSA Annual Reports

Chapter 556, Florida Statutes, is the Underground Facility Damage Prevention and Safety Act that requires anyone that will be digging to call 811 first, so underground utility lines can be located and marked. Sunshine State One Call of Florida (Sunshine 811) is Florida's one-call center whose responsibility is to help prevent damages to underground utilities. For an excavator, calling 811 helps prevent fines and repair costs due to utility service outages, injuries, environmental contamination, and property damage. Sunshine 811 has the statutory authority to issue violation penalties that can range from $500 to $5,000.

Effective July 1, 2020, Chapter 556, Florida Statutes, was amended. In summary, the amendments include the following:

- Expansion of the list of entities that may issue citations for violations
- A requirement that each clerk of court submit an annual report to the state fire marshal listing each violation notice which was filed in that county during the preceding calendar year
- Provision of a criminal penalty for knowingly and willfully removing or damaging a permanent marker
- A requirement that sunshine 811 review the reports submitted by the clerks of court to the state fire marshal, and any complaints of alleged violations

Sunshine 811 is part of the Common Ground Alliance (CGA). CGA is a member-driven association dedicated to ensuring public safety, environmental protection, and the integrity of services by promoting effective damage prevention practices. In recent years, the association has established itself as the leading organization in an effort to reduce damages to all underground facilities in North America through shared responsibility among all stakeholders. Other excavation damage prevention organizations can be found at http://www.commongroundalliance.com. While the FPSC does not have direct responsibility for preventing excavation damage, the FPSC does provide call before you dig reminders on our website and brochures.

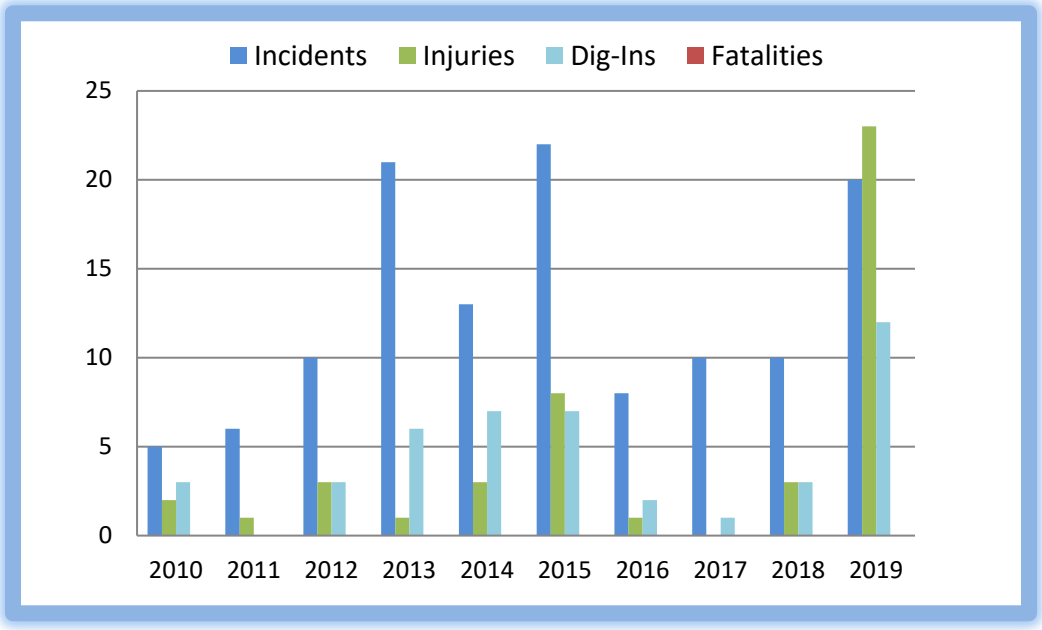
In the state of Florida, natural gas accidents and outages are reported to the FPSC in accordance with Commission Rule 25-12.084, F.A.C. The FPSC defines a reportable incident as any event involving the release of gas from a pipeline that:

a) Caused a death or a personal injury requiring hospitalization;
b) Required the taking of any segment of transmission pipeline out of service;
c) Resulted in gas igniting;
d) Caused estimated damage to the property of the operator, or others, or both, of a total of $10,000 or more; or
e) In the judgment of the operator, was significant even though it did not meet the criteria of subsection (a), (b), (c), or (d).

Also, each operator is required to report any distribution system related accident or failure which interrupts service to either 10 percent or more of its meters or 500 or more meters.

As shown in Figure 4 below, Florida had 20 reportable incidents with 23 injuries and zero fatalities in 2019. There were 12 reportable incidents involving a dig-in. There has not been a natural gas related fatality in Florida since 2007.

Figure 4: FPSC Reportable Incidents 2010-2019



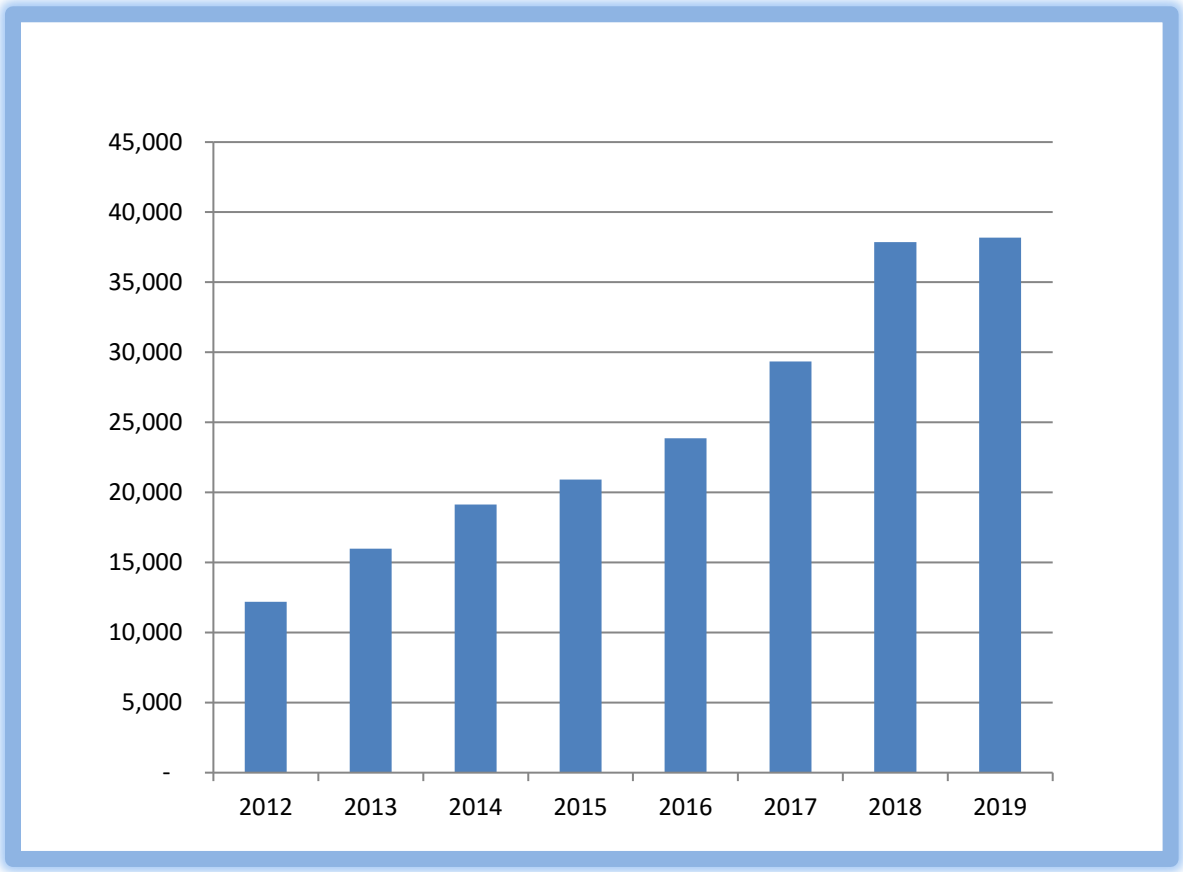
Data source: FPSC Reporting Rule Chapter 25-12.084

Excess Flow Valves

An excess flow valve (EFV) is a safety device designed to automatically shut off the flow of natural gas through a piping service line if it ruptures, thereby mitigating the impact of the rupture. In general, EFVs are an added optional safety device that does not affect the gas flow resulting from a small leak, such as a leak caused by corrosion or a small crack. EFVs do not prevent accidents; instead, they help mitigate the consequences of accidents where there has been a substantial or catastrophic line break. Where installed, EFVs are complementary to damage prevention programs, one-call systems, and other pipeline safety efforts that focus on preventing accidents caused by outside forces.

EFVs became a reportable item during calendar year 2011; however, operators had until 2012 to do an inventory and provide accurate numbers of EFVs placed during the calendar year and balance at the end of the year. Effective 2012, the FPSC began to closely monitor the installation of EFVs to insure proactive responses by the gas operators. Figure 5 below shows the number of EFVs installed since 2012.

Figure 5: Excess Flow Valves Installed Since 2012



Data source: PHMSA Annual Reports

Conclusion

Consumer safety remains the top priority of the FPSC gas safety program. Once again, there were no fatalities caused by natural gas in Florida in 2019. In 2016, staff issued 110 violations, in 2017, staff issued 48 violations, in 2018, staff issued 24 violations and in 2019, staff issued 18 violations. This downward trend in the number of violations is primarily due to the inspectors and gas operators working together to implement practices that meet the regulations.

The FPSC is continuing the replacement programs for unprotected steel and cast iron pipe. Since September 2012, 984 miles of pipeline have been replaced with newer materials such as coated cathodically protected pipeline and polyethylene plastic. Replacing these older types of pipeline reduces the possibility of failures due to age and outdated materials. Finally, the increased installation of EFV's will help mitigate the impact of any rupture on single service line residential customers.