



American Gas Association

DAVE MCCURDY
President & CEO

April 10, 2011

Ms. Cynthia Quarterman
Administrator
U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration
East Building, 2nd Floor
1200 New Jersey Ave., SE
Washington, DC 20590

Re: AGA response to the PHMSA Request for Information, Letter from Quarterman to McCurdy, March 18, 2011

Dear Ms. Quarterman:

The American Gas Association is providing DOT the information requested in the above referenced letter. The information seeks to place pipeline safety data in a context that explains how operators apply integrity management principles in existing regulations and standards to operate what is the safest energy transportation system in America. AGA thought it would be more comprehensive to present data for the entire distribution and gas transmission pipeline sectors because the information from the DOT database is more accurate and consistent than attempting to extrapolate limited data from member companies. AGA views this submission as the beginning of a comprehensive review of pipeline safety data. AGA urges PHMSA to establish a data analysis group comprising all pipeline safety stakeholders because no single entity possesses the perspective needed to objectively analyze the performance of the diverse pipeline safety infrastructure.

Natural Gas Distribution Piping

There are more than 2 million miles of natural gas distribution pipelines in the United States and 300,000 miles of gas transmission pipe. Gas utilities operate all distribution piping and approximately 50,000 miles of transmission pipelines integrated into the distribution system. The pipeline systems of gas utilities are extremely diverse in size, materials and the regulatory funding mechanisms under which they operate. Larger systems, those in areas where gas service has been available for many years, can include thousands of miles of pipeline of various materials and ages. Different regions of the country have higher concentrations of cast iron, bare steel, other materials and couplings. It is important that operators of distribution pipeline systems and the state regulators who oversee their operations customize their integrity management efforts to address their specific systems, threats and issues.

The most comprehensive reports on distribution infrastructure are:

- Integrity Management for Gas Distribution – Report of Phase 1 Investigators, December 2005
- Safety Performance and Integrity of the Natural Gas Distribution Infrastructure, American Gas Foundation, December 2005 (AGF Report)

It is important to note that both of these reports were created by diverse stakeholder groups comprising state and federal regulators, industry and the public. Both reports are in the public domain and may be placed on the DOT website. Exhibit 1 is an excerpt from the AGF report that explains major findings in the report. Exhibit 2 provides more recent information from the DOT database and shows the continued trend of replacement projects that increased the use of plastic, thereby reducing the use of bare steel and cast iron. Exhibit 3 provides more recent information on the downward trend in pipeline incidents. An additional submittal is a study conducted by DOT on low-frequency ERW pipe and lap welded longitudinal seam evaluation.

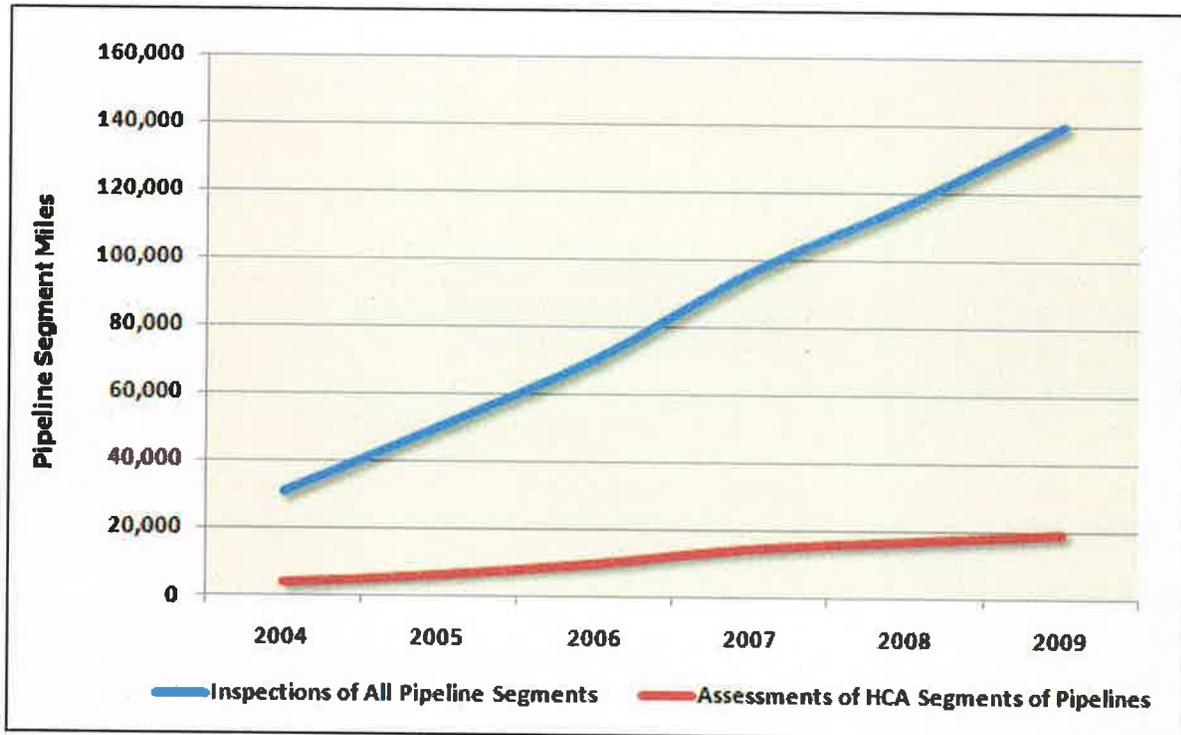
On August 2, 2011, natural gas distribution operators will complete their distribution integrity management plans (DIMP) as required by 49 CFR 192 subpart P. The purpose of the program is to enhance safety by identifying and reducing pipeline integrity risks. The DIMP program is similar to the integrity management programs required for gas transmission pipelines, but tailored to reflect the differences in and among distribution pipelines. The rule's requirements would affect an estimated 9,343 natural gas operators with a combined total of 1,138,000 miles of mains and 60,970,000 services. Of these operators, 201 are large local gas utilities, 1,090 are small local gas utilities, 52 are LPG operators servicing 100 or more customers from a single source, and approximately 8,000 are master meter and small LPG systems. The DIMP program will provide an extra layer of protection to already stringent pipeline safety programs.

Natural Gas Transmission Pipe

AGA's distribution company membership operates approximately 45,000 miles of natural gas transmission pipeline in the United States. These pipelines generally have different operating characteristics from interstate natural gas pipelines. Transmission pipelines operated by distribution companies are often embedded within the distribution network that serves residential, commercial and industrial customers. As a result, these pipelines frequently incorporate tight bends, tees, valves, "bottom out" fittings and diameter changes. They have been odorized in an effort to provide an added layer of safety for leak detection purposes. Transmission pipelines operated by distribution operators are installed in a diverse range of locations, including downtown areas, county roads or highways, and suburban neighborhoods. Many of these pipelines are situated in the public right-of-way and require operators to secure permits from jurisdictional agencies in order to access them for repair or direct examination purposes.

Since the promulgation of the transmission integrity management regulation in December 2003, operators have been working to complete integrity assessments of transmission pipelines lying in high consequence areas (HCAs). Integrity assessments are being done by Pressure Testing, In-Line-Inspection (ILI), Direct Assessment or other technology, as approved by PHMSA. Operators are making excellent progress toward meeting the December 17, 2012 deadline to complete their baseline integrity assessments for the 19,381 miles of pipelines in HCAs. (See figure 1)

Figure 1*



*Taken from PHMSA website: <http://primis.phmsa.dot.gov/gasimp/PerformanceMeasures.htm>

Assessment and material information:

- Re-assessments of some higher-risk pipelines in HCAs have also begun in order to meet the 7-year maximum requirement.
- More than 3,500 repairs have been made on pipelines in HCAs since December 2003.
- Based on the reporting from June 2010, more than 153,000 miles of gas transmission pipe have actually been inspected in executing integrity management.
- Pipelines outside of HCAs are still subject to a host of regulations to ensure their safe operation. These regulations are focused on corrosion prevention, third-party excavation detection, leak survey and other requirements to protect the pipe from applicable threats.

Based upon the 2009¹ data collected by PHMSA on the annual report for onshore gas transmission pipelines, below is a breakdown of the composition of transmission pipelines relative to coating, and whether or not they are receiving adequate cathodic protection.

- Bare and not cathodically protected: **1,081 miles (0.4%)**
- Bare and cathodically protected: **5,438 miles (1.8%)**
- Coated and not cathodically protected: **163 miles (0.06%)**
- Coated and cathodically protected: **287,836 miles (97.7%)**

The 2009 data also shows mileage of onshore gas transmission pipelines by decade of installation:

Pre-1940	11,860 miles	4.0%
1940-1949	22,450 miles	7.6%
1950-1959	70,585 miles	23.8%
1960-1969	71,111 miles	24%
1970-1979	30,206 miles	10.2%
1980-1989	26,370 miles	8.9%
1990-1999	31,477 miles	10.6%
2000-2009	27,274 miles	9.2%
Unknown	4,853 miles	1.6%

Other considerations:

Pipeline operators are familiar with how to deal with unknown or uncertain material properties under their Risk Assessment methodology. If companies are missing any pipe attribute information, then AGA agrees that the most conservative applicable value must be used in managing the integrity of a pipeline. The **ASME B31.8S – 2010 Managing System Integrity of Gas Pipelines** addresses this issue in Chapter 5:

“Risk assessment methods alone should not be completely relied upon to establish risk estimates or to address or mitigate known risks. Risk assessment methods should be used in conjunction with knowledgeable, experienced personnel (subject matter experts and people familiar with the facilities) that regularly review the data input, assumptions, and results of the risk assessments. Such experience-based reviews should validate risk assessment output with other relevant factors not included in the process, the impact of assumptions, or the potential risk variability caused by missing or estimated data. These processes and their results shall be documented in the integrity management plan.

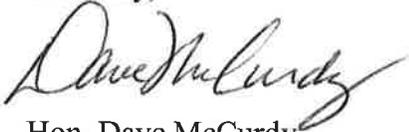
¹ Annual data is usually not available at PHMSA’s website until fall of the following calendar year.

An integral part of the risk assessment process is the incorporation of additional data elements or changes to facility data. To ensure regular updates, the operator shall incorporate the risk assessment process into existing field reporting, engineering, and facility mapping processes and incorporate additional processes as required (see para. 11)."

AGA is submitting a report "**Low Frequency ERW and Lap Welded Longitudinal Seam Evaluation**" written for PHMSA in April 2004 by Michael Baker Jr., Inc. The document serves as a technical resource when discussing properties and appropriate management strategies for pre-1970 transmission pipelines. There is industry-wide recognition that pre-1970 low-frequency electric-resistance welded (ERW) pipe represents a higher risk. After 1970, that higher level of risk ceased to exist due to improvements made in the manufacturing process for ERW pipe and regulatory requirements that addressed potential manufacturing and construction defects with post-construction pressure tests.

AGA hopes that the information provided supports the agency's efforts to continually improve pipeline safety. If you need additional information please feel free to contact Christina Sames, vice president, Operations & Engineering (csames@aga.org; 202/824-7214), or contact me directly.

Sincerely,



Hon. Dave McCurdy
President & CEO
American Gas Association

Exhibit 1: Information from American Gas Foundation Report: Safety Performance and Integrity of the Natural Gas Distribution Infrastructure

Executive Summary

The study was conducted to provide an independent technical review of safety performance and integrity in the natural gas distribution sector through (1) a detailed analysis of the natural gas distribution industry's safety performance; (2) an overview of current regulations and industry practices that address threats to the natural gas distribution infrastructure; (3) a description of the unique characteristics that differentiate natural gas transmission pipelines from distribution pipelines; and (4) identification of industry and government initiatives that are currently in-place to ensure continual improvement in regulation and practices affecting distribution integrity.

Detailed Analysis - The safety performance review involved a detailed analysis of distribution incidents in the U.S. Department of Transportation (DOT), Office of Pipeline Safety (OPS), reportable incident database adopting an approach different from traditional approaches used by others in the past. Rather than considering all of the incidents in the OPS database, the study approach focuses on Serious Incidents, defined in the study as incidents that involved fatalities and injuries, and then uses statistical analysis to evaluate, at set confidence levels, whether an upward or downward trend in the data could be determined.

Overview of Current Regulations and Industry Practices - The results of a survey of a group of gas utility operators were used as the basis for the assessment of how threats to distribution system integrity are currently addressed both through pipeline safety regulations and industry practices. To serve as a representative cross section of the gas utility industry, the survey group was selected through guidelines established by the American Gas Foundation (AGF), state utility and service commission safety representatives, and the American Public Gas Association (APGA).

Description of The Unique Characteristics - Input from the survey group, together with knowledge and experience of personnel on this project and with review by a government and industry study oversight team, provided a comprehensive review of key integrity-related differences between natural gas distribution systems and gas transmission pipelines.

Identification of Industry and Government Initiatives - Industry group member input, together with available data on recent federal programs and initiatives, provided the information needed to identify current programs and initiatives that have the potential to promote continual improvement in practices, procedures and processes used to address gas distribution infrastructure integrity.

Major Findings

Distribution Safety Performance

- Over the study period from 1990 through 2002 there has been a statistically determined downward trend in “Serious Incidents,” namely those involving a fatality or an injury. The amount of the decrease in the trend is approximately 40%.
- Outside force damage to the infrastructure was the major cause of Serious Incidents during the study period. This incident category in the OPS database is responsible for 47% of the 601 Serious Incidents involving distribution facilities. The data show a statistically determined decreasing trend, with a decrease of approximately 50%.
- The predominant component of outside force damage was third-party damage (typically excavation damage inflicted on distribution facilities by a third party not related to the gas system operator or its surrogate), which contributed nearly 35% to the total number of the Serious Incidents.
- Of the other incident categories in the OPS database, corrosion caused only 6.5% of Serious Incidents; construction/operating error, and accidentally-caused-by-operator categories each accounted for less than 10% of the Serious Incidents.
- Of the total 601 Serious Incidents, 46% occurred on distribution mains, while 34% of the incidents occurred on service lines and meter sets combined. The remaining incidents were categorized by operators as “Other” or “No Data”.
- The Mann-Kendall (M-K) test was used to identify whether a statistically significant decreasing or increasing trend may exist for a given data set. No upward trends were validated.
- A number of gaps in the OPS data were identified that preclude a deeper insight into the mechanisms by which specific threats affect the integrity of distribution pipelines.
- Normalized by 100,000 miles over the study period, the average fatality and injury counts for gas distribution are essentially the same as the counts for gas transmission.

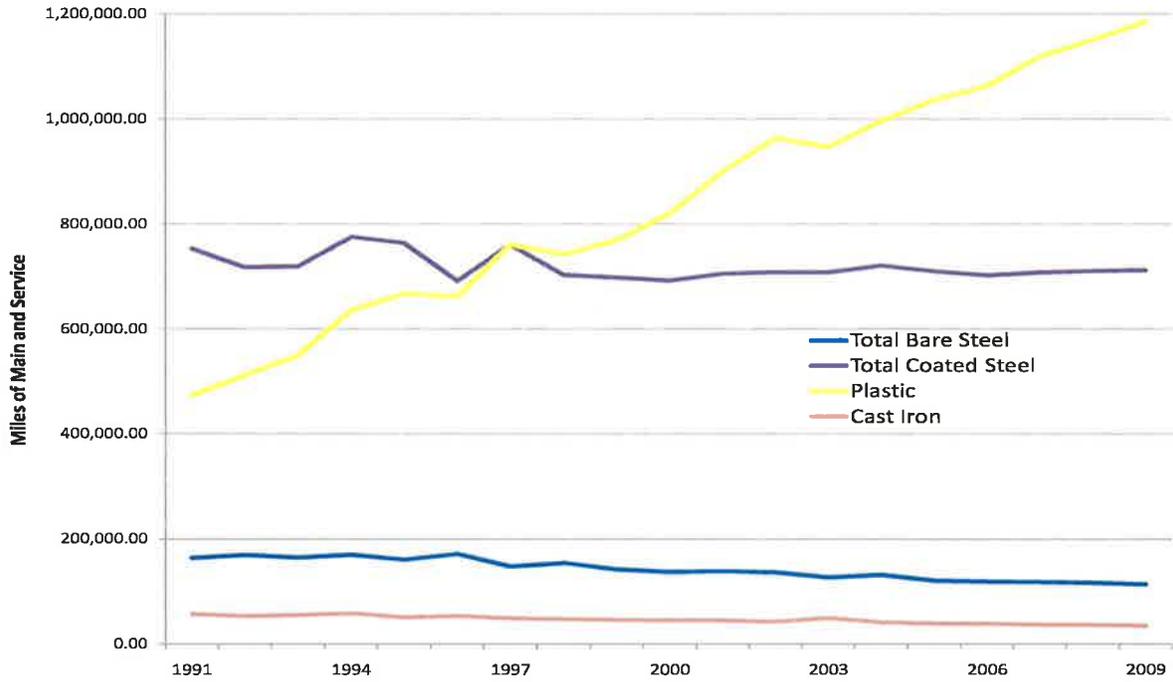
Distribution Infrastructure Integrity

Based on a survey of a representative cross-section of gas distribution companies, the following significant findings were compiled:

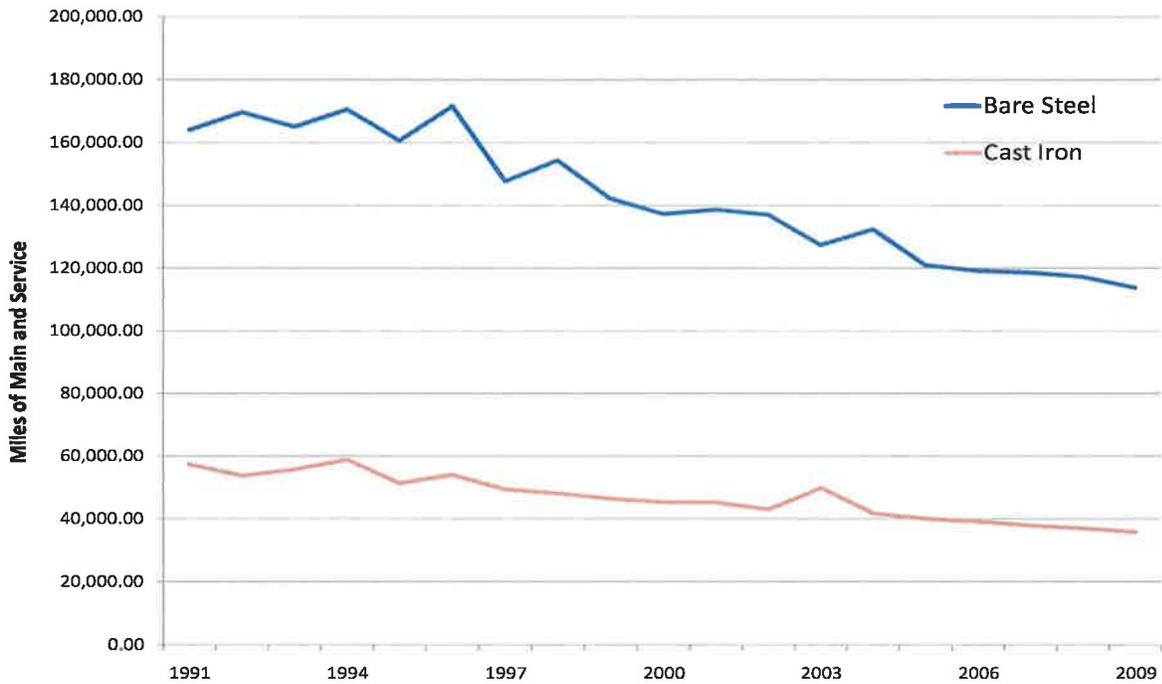
- To address specific threats to the integrity of distribution pipelines, operators use additional prevention and mitigation measures that exceed the requirements of the federal pipeline safety regulations. The measures used are generally consistent with the perceived significance of the threat as indicated in the industry practices survey results.
- The top five processes identified by the survey group as having the highest impact on distribution integrity are: (1) cathodic protection systems; (2) leak surveys; (3) operator qualification programs; (4) one-call systems; and (5) planned pipe replacement programs. The programs and processes in this group are consistent with indications from the incident statistics.
- Operators address the dominant threat of third-party damage with prevention and mitigation measures that include those required to meet regulation-mandated pipeline safety requirements and additional ones that exceed the regulatory requirements.
- More than 80% of the operators in the survey reported employing risk-ranking tools to evaluate their distribution infrastructure.
- More than 65% of the companies that participated in this study have planned replacement programs for cast iron and almost 80% have such programs for bare steel.
- Pipe replacement between 1990 and 2002 has reduced the amount of cast iron main mileage by 21% and the amount of bare, unprotected steel main mileage by 7%. During the same period, the number of bare, unprotected steel services has been reduced by 13%.
- From the operator responses received, no apparent gaps were identified between specific threats to distribution integrity and the industry practices that address the threats.
- The respondents to the survey did not identify any apparent gaps between the pipeline safety.

Exhibit 2: Information from DOT database showing change in materials over time

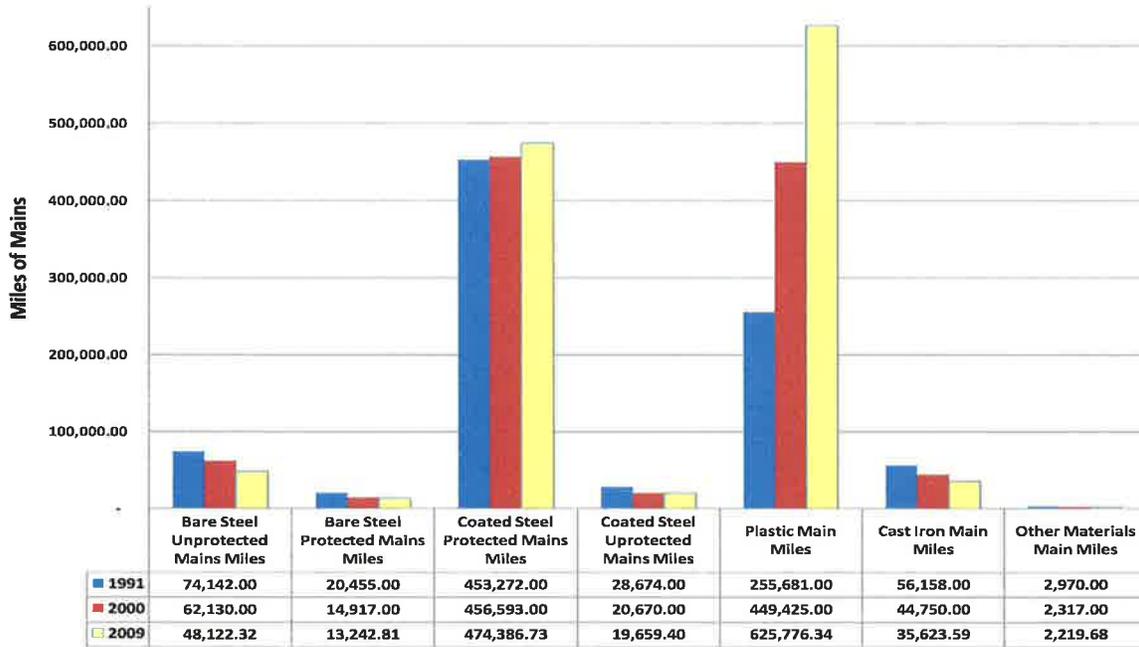
Distribution Materials: Miles of Mains & Services



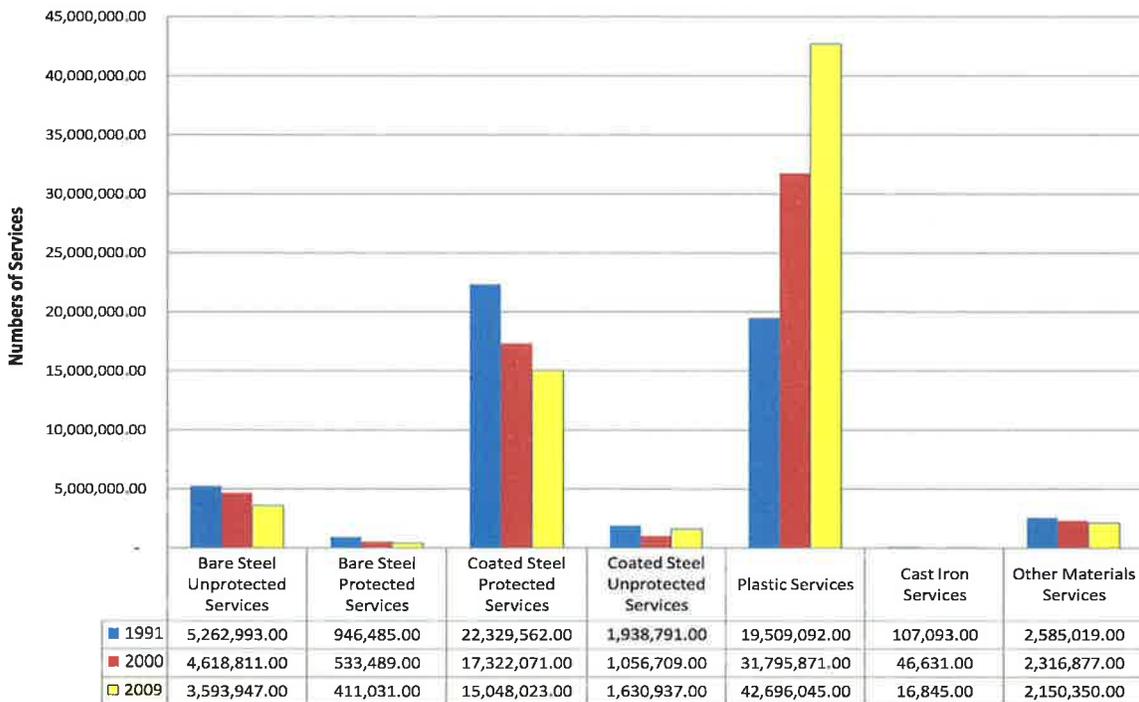
Bare Steel and Cast Iron



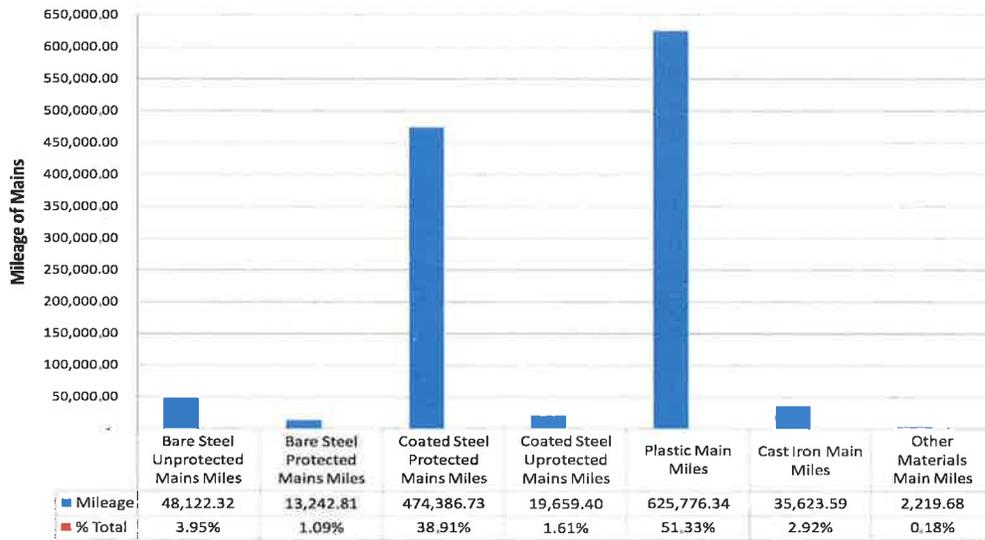
Miles of Main by Materials: 1991, 2000, 2009



Numbers of Services by Material: 1991, 2000, 2009



Distribution Mains by Material: 2009



2009 Miles of Main by Region by Material

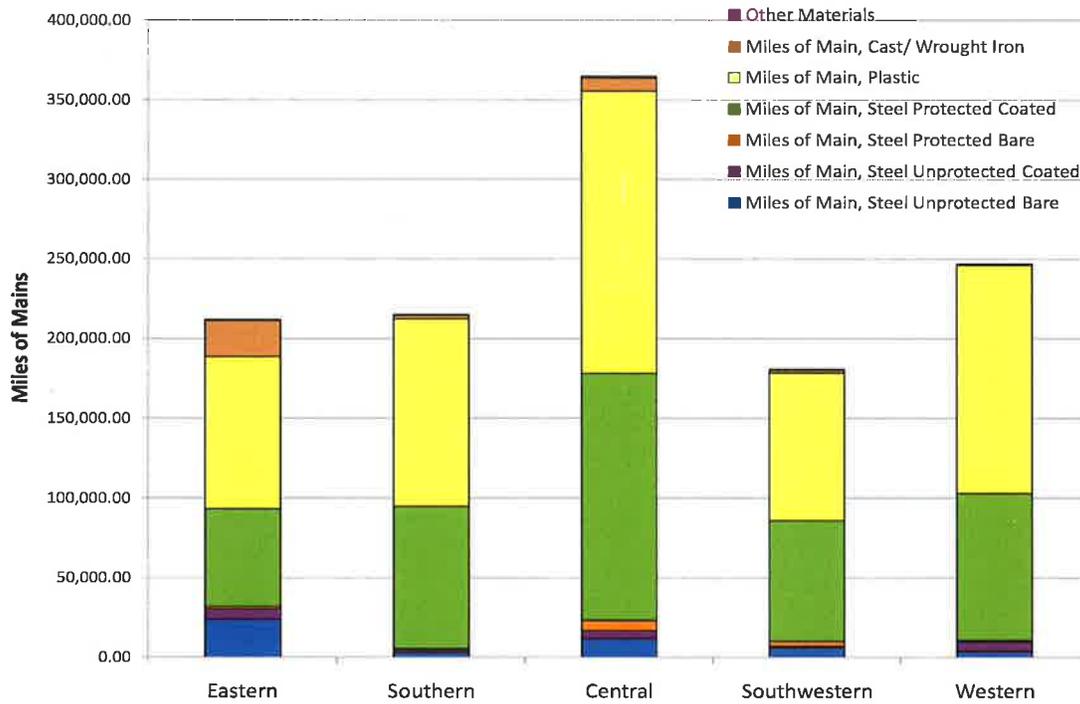


Exhibit 3: Information on the downward trend in pipeline incidents

