PUBLIC VERSION

BEFORE THE STATE CORPORATION COMMISSION OF THE STATE OF KANSAS

IN THE MATTER OF THE APPLICATION OF ATMOS ENERGY CORPORATION FOR REVIEW AND ADJUSTMENT OF ITS NATURAL GAS RATES	)))))	**Docket No. 16-ATMG-079-RTS**

DIRECT TESTIMONY OF EDWARD A. McGEE
ON BEHALF OF THE
CITIZENS' UTILITY RATEPAYER BOARD

***REDACTED**

Dated: December 21, 2015

TABLE OF CONTENTS

DIRECT TESTIMONY OF
EDWARD A. McGEE
ON BEHALF OF THE
CITIZENS' UTILITY RATEPAYER BOARD
DOCKET No. 16-ATMG-079-RTS

I. Introduction

Q. WOULD YOU PLEASE STATE YOUR NAME AND BUSINESS ADDRESS?

A. My name is Edward A. McGee. My business address is P.O. Box #1659, Bethany Beach, DE. I am Principal Consultant of McGee Consulting, LLC, and I am currently working as an Engineering Associate with the Acadian Consulting Group ("ACG"). ACG is a research and consulting firm that specializes in the analysis of regulatory, economic, financial, accounting, statistical, and public policy issues associated with regulated and energy industries. ACG is a Louisiana-registered Limited Liability Company, formed in 1995, and is located at 5800 One Perkins Place, Suite 5-F, Baton Rouge, Louisiana.

Q. DO YOU HOLD ANY ACADEMIC DEGREES?

A. Yes. I was graduated from the University of Notre Dame with Bachelor and Master Degrees in Chemical Engineering. I was also graduated from the University of Chicago with a Master's Degree in Business Administration ("MBA"). Attachment 1 provides my academic vita that includes a listing of my experience as a gas practice consultant and related positions in the energy industry.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I have been retained by the Citizens' Utility Ratepayer Board ("CURB") to provide an expert opinion to the State Corporation Commission of the State of Kansas ("Commission") on management and engineering issues associated with the application of Atmos Energy

Corporation for the review and adjustment of its natural gas rates that was filed on August 13, 2015.

In particular, I was asked to evaluate the current condition of the Company's piping assets and to review the Company's progress in managing leaks and replacing portions of their system over a lengthy time period.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

A. No, I have not.

Q. HAVE YOU PREPARED ANY EXHIBITS IN SUPPORT OF YOUR RECOMMENDATIONS?

A. Yes. I have prepared 13 schedules in support of my direct testimony that were prepared by me or under my direct supervision.

Q. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?

A. In addition to this introductory section, my testimony is organized into the following sections:

- Section II. Summary of Findings and Conclusions
- Section III. Overview of Company Petition
- Section IV. Current State of Company's Existing Piping
- Section V. Company's Operating History
- Section VI. Findings and Conclusions

II. Summary of Findings and Conclusions

Q. WOULD YOU PLEASE SUMMARIZE YOUR PRIMARY FINDINGS AND CONCLUSIONS REGARDING THE CONDITION OF THE COMPANY'S PIPING ASSETS?

A. Based on my analysis of the Company's filing and discovery responses, as well as publicly available information from the DOT and other documentation in this case, my primary findings and conclusions are:

1) The Company currently has high amounts of what it considers to be "obsolete" piping materials in its system; however, these materials are primarily the types that tend to leak slowly at first and then the leak grows in size gradually. Many other gas companies with high amounts of "obsolete" piping are in the unfortunate position of having types of materials that can break circumferentially, emitting large amounts of gas. By contrast, iron piping (particularly cast iron and ductile iron, of which the Company has none) can break catastrophically without prior warning. These latter types are included in the materials that initiated PHMSA's Call-to-Action in 2011.

2) Our review of the Company's (and its predecessor's) leak rates over the last twenty-five years indicates that leaks have been consistently declining, indicating that the Company has managed leaks in its Kansas system very successfully to date.

3) The Company has been focusing much of its mains-replacement efforts on its oldest piping. Since corrosion generally increases over time, this strategy is increasingly beneficial since there are indications that corrosion of the metallic piping is becoming an increasing cause of leaks on both mains and service lines in the Atmos system.

4) For its vintage plastic piping assets, the Company has focused on PVC piping and has now eliminated all PVC service lines, and has slightly reduced its inventory of PVC mains.

5) The other vintage plastic assets (Aldyl-A and Century plastics which constitute 19.5% of the mains and 23% of the services) have very low leak rates and have not been replaced at all, an indication that the Company has not incurred any significant problems

to date with these materials. I'll admit I'm having a hard time understanding the logic of the company's position that all of these vintage assets should be replaced now, given that Atmos and its predecessor companies have not replaced a single one of these service lines, and haven't replaced a single mile of these mains in the last quarter-century. The usual approach is to selectively replace mains and services when conditions warrant.

Q. DO YOU HAVE ANY OTHER CONCLUSIONS OR RECOMMENDATIONS?

A. Yes. I also recommend testing the Company's proposed prioritization tool for its ability to correctly prioritize all obsolete materials (especially vintage plastic materials) prior to its implementation. The factors included in the current tool do not appear to apply to plastic materials as well as they do to metallic materials. For instance, scores for the cathodic protection factor and known material grade do not apply at all to plastics and will result in lower prioritization of plastic materials, all other factors being equal. Scores for the pressure factor, and leak history factor will also be lower for these materials, lowering their priority for replacement. Since the Company has stated that the data for the vintage materials is not currently available and may hold up the complete prioritization list for two years,[1] in the meantime, I recommend testing of the tool to determine its ability to prioritize removal of materials according to actual levels of risk, rather than setting priorities on one kind of material over another without correctly recognizing their actual level of risk.

III. Overview of Company Petition

Q. PLEASE DESCRIBE THE COMPANY'S PETITION

A. Under the petition, Atmos Energy Corporation ("Atmos Energy") is filing to make changes in its charges for natural gas service. Atmos Energy contends that its effective rates do

[1] Company response to Staff DR 1-174.

not presently produce sufficient revenues to enable Atmos Energy to cover its costs and continue to render reasonably sufficient and efficient service. The Company contends that Atmos Energy's recent infrastructure needs have and will continue to far outpace the GSRS cap of $0.40 per month per customer.[2]

Atmos Energy is also seeking to establish an Annual Review Mechanism ("ARM") that it states is a formula rate mechanism that would provide a streamlined and cost-effective annual review of the utility's cost of operations and actual return on equity. Additionally, Atmos Energy is requesting approval of a System Integrity Program Tariff ("SIP"). Atmos contends the SIP would allow the Company to accelerate its progress in the replacement of obsolete materials in the Kansas system and would provide for quarterly updates to rates for approved completed projects. The SIP is proposed for a 5-year pilot term.

Q. CAN YOU DESCRIBE THE TYPES OF PIPING MATERIALS THAT THE COMPANY CALLS "OBSOLETE" AND IS PETITIONING TO REPLACE MORE RAPIDLY?

A. Yes. The word "obsolete" means that the materials (certain types of metallic and plastic materials that the piping is made from) were state-of-the-art materials for gas piping at the time they were installed. However, that was many decades ago, and since that time new materials have been developed that have superior characteristics (e.g. longer life, less susceptible to corrosion). Today, when a gas company installs new piping, they use only the newest types of materials. Older materials that are still a part of piping systems and are considered unsuitable to be installed today are referred to as "obsolete" materials.

[2] Direct Testimony of Gary W. Gregory, page 10.

Q. DOES THE FACT THAT A COMPANY HAS "OBSOLETE" MATERIALS REMAINING IN ITS PIPING SYSTEM MEAN THAT THE SYSTEM IS UNSAFE?

A. No. The primary reason that a Gas Company would replace its "obsolete" piping is that newer materials would be less likely to leak. Obsolete metallic types of piping tend to leak after a period of time due to corrosion from wet ground conditions. Obsolete types of plastic piping tend to develop cracks over time. Pipes made of either of these types of materials can develop gas leaks because of these characteristics. Gas companies spend considerable time and effort controlling leaks through leak detection, repair, and replacement activities, so that the number of leaks does not increase substantially as the piping gets older.

Q. ARE THERE OTHER REASONS THAT "OBSOLETE" MATERIALS IN PIPING SYSTEMS ARE REPLACED?

A. Yes. In recent years (starting about 2010), a relatively small number of serious piping accidents throughout the U.S. have been highly publicized. This has led to recommendations by federal authorities (the Pipeline Hazardous Materials and Safety Administration division of the Department of Transportation, or "PHMSA") to accelerate the repair, rehabilitation, and/or replacement of certain "obsolete" piping materials. Of most concern are materials that can break catastrophically without prior warning, such as those involved in the highly publicized incidents. Since 2011, these particular recommendations have been conveyed to the states, to regulators, and to gas companies, and advisory notices warning of various other concerns have been issued to owners and operators of gas distribution systems over a longer period of time. Beginning in 1999, four PHMSA Advisory Bulletins sent to operators of distribution systems concerning vintage plastic materials have generally recommended that the operators should closely monitor

these types of piping materials for leaks by analyzing their leak history, conducting more frequent leak surveys, and replacing the piping as necessary.

Q. IS THERE A GENERAL AGREEMENT AMONG ALL PARTIES IN THE GAS INDUSTRY CONCERNING "OBSOLETE" MATERIALS, THEIR SAFETY RISKS, AND THE NEED TO REPLACE THEM?

A. No. For instance, the American Gas Association ("AGA"), which is an organization of gas companies, has been quoted as follows: "There is no one-size-fits-all approach, according to AGA. The group questions drawing conclusions about the safety of a pipe based solely on what it's made out of, saying that even systems in big cities with high concentrations of cast-iron and bare-steel gas mains can be operated safely if the utility has in place aggressive inspection, monitoring and mitigation programs." [3]

IV. Current State of Company's Existing Piping

Q. WHICH TYPES OF "OBSOLETE" MATERIALS REMAIN IN ATMOS'S KANSAS SYSTEM?

A. The materials in the Atmos Kansas piping system that are targeted for replacement by the Company include two broad categories: 1) metallic materials and 2) vintage plastic materials, with roughly equal amounts of both types of pipe. Within these categories, the following individual materials are included:

1) Metallic Piping Materials:

   a. Unprotected bare steel mains

[3] Source: http://www.usatoday.com/story/news/nation/2014/09/23/gas-pipes-cast-iron-deaths-explosions-investigation/15783697/

b. Protected bare steel mains and service lines (Protected indicates that low amounts of electricity have been applied to the piping to slow corrosion)

2) Vintage Plastic Piping Materials:

a. Aldyl-A plastic mains and service lines

b. Century plastic mains and service lines

c. PVC (poly vinyl chloride) mains

The metallic materials listed above are common in the systems of virtually all gas companies that have mains remaining in their systems that were routinely installed up into the 1950s. The vintage plastic materials are not as common in distribution systems. Vintage plastic materials are found primarily in the systems of gas companies in the Midwest and date primarily from the 1960s through the 1980s.

Q. PLEASE DESCRIBE THE OVERALL CONDITION OF THE COMPANY'S KANSAS PIPING.

A. Currently the Company's system has relatively high amounts of materials remaining in the system that would not be installed in a modern-day system. Out of 3,628 miles of mains, the Company has 682 miles of metallic mains (18.8% of the system) and 815 miles of vintage plastic mains (22.5% of the system) that are considered to be "obsolete". Thus, 41.3% of the miles of mains in the Kansas system are considered "obsolete".

Q. HOW DO THESE PERCENTAGES COMPARE AGAINST THOSE OF OTHER GAS UTILITIES?

A. Vintage plastic piping is not tracked separately in the DOT's Annual Distribution Reports, but metallic types of piping are. As shown in Schedule EM-01, with 18.8% of the total miles of the Company's mains consisting of obsolete metallic materials, Atmos ranks 25th compared to

other gas utilities in the U.S. This Schedule ranks 242 gas utilities that have at least 1,000 miles of mains. Also highlighted in this Schedule are the rankings of other Atmos affiliate gas utilities.

Q. HOW DO THE METALLIC SERVICE LINES IN KANSAS SYSTEM RANK COMPARED TO OTHER COMPANIES*?*

A. The Kansas system has a high percentage of metallic service lines. The current comparative condition of the Company's Kansas service lines is shown in Schedule EM-02. This indicates that out of 388 U.S. gas utilities having 5,000 or more service lines, Atmos Kansas ranks 21st highest in the percentage of obsolete metallic services (19.5% of the system). Also highlighted in this Schedule are the rankings of other Atmos affiliates.

Q. DO THE HIGH AMOUNTS OF "OBSOLETE" METALLIC PIPING FOR ATMOS KANSAS COMPARED TO OTHER U.S. GAS COMPANIES INDICATE THAT SAFETY RISKS ARE ALSO HIGH?

A. No. As shown in both of the prior schedules, the obsolete metallic materials in the Kansas system differ markedly from the types of obsolete materials listed for most of the companies near the top of the rankings. The Kansas system does not have any iron pipe; it contains only steel materials. Most other companies near the top of the ranking have high amounts of iron piping materials. Iron materials, especially cast iron, are susceptible to breakage of the pipe walls caused by ground movement because cast iron has very little flexibility. It cracks rather than bends under pressure from ground movement caused by frost or nearby construction activities. When stressed to the breaking point, cast iron tends to fail by breaking circumferentially—i.e., the pipe breaks completely in two all the way around—which results in a relatively large release of gas at the point of failure compared to the kinds of leaks that develop in steel materials.

Q. ARE THE COMPANY'S MAINS COMPRISED OF HIGH PERCENTAGES OF VINTAGE PLASTIC MATERIALS?

A. Yes. Measured in miles, 22.5% of Atmos Kansas mains are vintage plastic, including PVC. Together with metallic mains, 41.3% of the Kansas system mains (in miles) are obsolete.

Q. DO THE RELATIVELY HIGH PERCENTAGES OF BARE STEEL AND VINTAGE PLASTIC MATERIALS INDICATE A DANGEROUS CONDITION IN THE COMPANY'S PIPING SYSTEM?

A. No, not now. As will be shown in the following section covering the Company's operating history, the Company is managing current steel and PVC material-related problems well; and has had minimal problems with Aldyl-A and Century vintage plastic materials, as evidenced by extremely low leak rates and low replacement rates. There is however, a potential future risk that has been pointed out by PHMSA based on experiences at other utilities. Accordingly, PHMSA has recommended accelerated proactive measures (such as repair, rehabilitation, or replacement) to help prevent any future problems.

V. Company's Operating History

Q. HOW CAN WE TELL IF THE COMPANY HAS BEEN SUCCESSFULLY MANAGING THE RISKS THAT EXIST IN THEIR CURRENT INVENTORY OF OBSOLETE PIPING?

A. The best way to assess the management of risks inherent in obsolete piping is to analyze replacement rates and leak rates for each type of obsolete piping.

Q. HAVE YOU PREPARED ANY ANALYSES OF THE COMPANY'S CURRENT AND HISTORIC PIPELINE REPLACEMENT RATES AND LEAK HISTORY ON THE OBSOLETE PIPING?

A. Yes. I have prepared a series of exhibits that show the changes in inventory over time, which reflect replacement rates. Schedules EM-03 and Schedule EM-04 examine the Company's inventory of bare steel mains and services. Additionally Schedules EM-05 and Schedule EM-06 are presented, that show the number of leaks incurred on both types of assets over the past twenty-five years.

I have also provided confidential exhibits (Schedules EM-09 and Schedule EM-10) that examine the changes in the Company's inventory of vintage plastic mains and services over time.

Q. WHAT IS THE SOURCE OF THE DATA YOU USED FOR YOUR ANALYSES?

A. For metallic piping, I utilized data from the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration ("PHMSA"), Office of Pipeline Safety ("OPS," generally "OPS data"). The OPS collects a variety of information from pipeline operators under its jurisdiction in accordance with federal pipeline safety regulations. This annual data is required by 49 CFR 191.11, which states that "…each operator of a distribution pipeline system shall submit an annual report for that system on Department of Transportation RSPA Form 7100.1-1. This report must be submitted each year, no later than March 15, for the preceding calendar year."[4] Some of the information submitted in this report is provided to the public, including the "Gas Distribution Annual Data" that was used in this analysis.

Q. DID YOU USE ANY INFORMATION PROVIDED BY THE COMPANY IN RESPONSE TO DISCOVERY?

A. Yes. For vintage plastic piping I relied on Confidential Company-specific information provided in discovery. Also some of the summary statistics and historic trend analyses are from Company-specific information provided in discovery as well as in Direct Testimony.

[4] 49 CFR 191.11.

Q. WHAT TIME PERIOD DID YOU USE FOR YOUR ANALYSES?

A. I used the time period spanning from 1990 to the year with the most recently available information (2014). This long period of time allows for an adequate historic comparison of replacement activity and leak trends over different periods of ownership of the existing piping. The change in ownership was due to acquisitions that incorporated additional piping assets into the present Atmos Kansas system.

Q. CAN YOU DESCRIBE THE HISTORY OF THE OBSOLETE METALLIC ASSETS AND VINTAGE PLASTIC PIPING IN THE CURRENT ATMOS KANSAS SYSTEM?

A. Yes. As shown in Schedules EM-03 through EM-06, there are three time periods of interest since 1990. The first time period, shown in the lightest shading, lasted from 1990 to 1993, during which time the piping assets were owned and maintained by Greeley Gas Company ("Greeley"). The second time period, shown in moderate shading, lasted from 1993 to 1997, during which time Atmos owned and maintained the piping assets. The third time period, shown in the heaviest shading, lasting from 1997 to 2014, includes the piping assets of United Cities Gas Company ("United Cities") with those of Atmos.

Q. CAN YOU DESCRIBE THE HISTORY OF THE OBSOLETE STEEL MAINS PIPING ASSETS IN THE CURRENT ATMOS KANSAS SYSTEM?

A. Yes. As shown in Schedule EM-03, during the period that the obsolete steel mains were owned by Greeley, there were relatively small amounts (approximately 100 miles) of steel mains, most of which were unprotected. During the second time period, increasing amounts (approximately 250 miles) of steel mains were electrically protected by Atmos. At the same time, the inventory of unprotected steel mains was declining due to either replacement or the addition

of protection to the unprotected steel mains. During the third period large amounts of protected steel mains were added to the Atmos inventory following the acquisition of United Cities' assets. Simultaneously the inventory of unprotected steel mains was declining to near-zero levels.

Q. CAN YOU DESCRIBE THE HISTORY OF THE OBSOLETE STEEL SERVICE-LINE PIPING ASSETS IN THE CURRENT ATMOS KANSAS SYSTEM?

A. Yes. As shown in Schedule EM-04, during the period that the obsolete steel services were owned by Greeley, there were a fairly constant number (approximately 6,000) of protected steel service lines, and only a minimum number of unprotected steel services. These amounts continued during the second time period up until approximately the time of the United Cities acquisition. Following the acquisition, major amounts of bare steel services were added to the Atmos inventory. Midway through the third time period (about 2009) virtually all of the unprotected service lines were converted to protected lines by adding electrical cathodic protection.

Q. WHAT POINTS ARE BROUGHT OUT IN THE TWO STEEL CHARTS (SCHEDULES EM-03 AND EM-04)?

A. One point is obvious in both charts: Atmos has been converting bare steel mains and services from unprotected to protected after these assets were acquired from other utilities. Both protected and unprotected steel assets are considered "obsolete"; however, by applying relatively inexpensive electrical protection to the assets, corrosion rates have been reduced and their life has been extended.

The second point that jumps out is that the inventories of both protected mains and protected services have been declining very slowly over time, indicating that those assets will not be completely replaced for a very long time if current replacement rates are continued.

Q. IF PROTECTED STEEL PIPING IS NOT REPLACED IMMEDIATELY, WHAT MEASURES CAN A GAS COMPANY TAKE TO MAINTAIN THE SAFETY OF THEIR SYSTEMS?

A. Prudent gas companies employ a variety of leak detection, and leak repair activities to assist in managing leak rates on their piping assets. The objective is to control these rates so they don't increase markedly and get out of hand.

Q. HAVE YOU ANALYZED THE LEAK RATES ON THE ATMOS KANSAS PIPING TO SEE IF THEY ARE IN CONTROL OR OUT OF CONTROL?

A. Yes. Schedules EM-05 and EM-06 show the number of leaks that have occurred in the piping system since 1990. Both the number of total leaks and the number of leaks caused by corrosion are shown separately.

Schedule EM-05 shows the total number of leaks on mains has been generally declining throughout the twenty-five year period, except for one year (1999) when the assets of United Cities were fully incorporated into the existing Atmos system. This indicates that both Greeley and Atmos (before and after United Cities) managed their leak repairs in an effective, responsible manner.

The number of leaks on mains that have been caused by corrosion have also generally declined over the same time periods, but not as steeply as total leaks have decreased, indicating the rising importance of corrosion as a predominant cause of leaks on mains in the Atmos system. The increase in corrosion reflects the gradual aging of the steel assets.

Q. TO WHAT DO YOU ATTRIBUTE THE DRAMATIC DECREASE IN LEAKS ON ATMOS MAINS SINCE 1990?

A. As shown in Schedule EAM-05, the most likely causes of the dramatic drop in leaks have been the elimination of virtually all of its unprotected bare steel mains over the twenty-five year time period, as well as the Company's other leak detection and leak repair activities.

Q. HAS CORROSION ALSO BEEN A MAJOR FACTOR IN THE CONDITION OF THE ATMOS KANSAS SERVICE LINES?

A. Yes. Schedule EM-06 indicates very similar patterns of leaks on services as shown for leaks on mains. Specifically, total service line leaks have generally fallen since 1990 (except for the year following incorporation of United Cities' service lines). Corrosion-caused leaks on services have also generally declined, but not as much as total leaks on services have declined. This indicates the growing importance of corrosion on service lines as well as on mains.

Q. TO WHAT DO YOU ATTRIBUTE THE DECREASE IN LEAKS ON ATMOS SERVICE LINES SINCE 1990?

A. The most likely causes of the decrease in service line leaks, have been the reduction in the number of unprotected bare steel services over the twenty-four year time period, as shown in Schedule EM-04, as well as cathodic protection of the services, replacement of leaking service lines, and other leak detection and leak repair activities.

Q. AFTER VIEWING THE DECLINE IN THE NUMBER OF LEAKS ON BOTH MAINS AND SERVICE LINES, DO YOU CONCLUDE THAT THE COMPANY HAS BEEN SUCCESSFULLY MANAGING LEAKS IN ITS SYSTEM?

A. Yes.

Q. DOES THE COMPANY'S TESTIMONY APPEAR TO AGREE WITH THE DECLINE IN LEAKS YOU SHOW FOR BOTH MAINS AND SERVICES SINCE 1990?

A. No. In response to the question "Are you aware of any empirical evidence supporting the need to replace Atmos Energy's bare steel pipe in Kansas?" Mr. Paige states on page 12 of his direct testimony: "Yes. The number of known system leaks scheduled for repair reported in the annual DOT reports has increased from 335 in 2011 to 560 in 2014."

Q. WHY DOESN'T THE INCREASING NUMBER OF SCHEDULED LEAKS SUPPORT THE NEED TO REPLACE PIPING?

A. The number of leaks scheduled for repair is not a proper measure to use to justify pipe replacement. The number of actual leaks reported, which I've indicated is generally declining or stable, is a better measure. Leaks scheduled for repair is a poor measure for two reasons:

1) Leaks scheduled for repair includes primarily (or entirely) grade 2 and grade 3 leaks, which are not as severe as grade 1 leaks.
2) The number of leaks scheduled for repair is heavily influenced by the Company's urgency of repair of the grade 2 and 3 leaks. These leaks do not have to be repaired immediately. The Company has discretion to be more or less aggressive in reducing the number of scheduled leaks, and could have been more aggressive.

Q. YOU MENTION THE DECREASES IN LEAKS ON BOTH MAINS AND SERVICE LINES. DO THE NUMBERS OF HAZARDOUS LEAKS SHOW SIMILAR REDUCTIONS?

A. No, the patterns of hazardous leaks on mains and services do not show reductions, but they do not show obvious increases either. Hazardous leaks have only been reported to the DOT since 2010 which is a much shorter period than utilities have been reporting unspecified-grades of leaks. Hazardous leaks are equivalent to Grade-1 leaks.[5] They require immediate attention.

[5] Grade 1 leaks indicate an existing or probable hazard to persons or property, and require immediate repair or continuous action until the conditions are no longer hazardous.

Schedules EM-07 and EM-08 show the number of hazardous leaks on mains and on services. Again, both total hazardous leaks and corrosion-caused hazardous leaks are tracked. The total number of hazardous leaks appears to be staying fairly constant for both mains and for services. The data on corrosion-caused hazardous service leaks appear to indicate a slight increase over the five years shown, but there are not enough data points as yet to verify that the increase is established as a trend.

Q. DO THE STABLE OR DECLINING LEAK RATES ON ALL OF THE COMPANY'S PIPING ASSETS TO DATE INDICATE THAT THE COMPANY HAS DONE A GOOD JOB OF MANAGING ALL OF ITS LEAKS?

A. Yes. The frequency of leaks on all of the Company's piping assets has been successfully controlled to date.

Q. CAN YOU SHOW HOW THE INVENTORY OF VINTAGE PLASTIC PIPING HAS CHANGED OVER TIME?

A. Yes. Confidential Schedules EM-09 and EM-10 show how the inventories of vintage plastic mains and services have changed over the same time periods that I discussed in my testimony above for metallic piping. The inventories are shown separately for PVC piping and for other vintage plastic materials (Aldyl-A plastic and Century plastic, combined).

Q. HOW HAS THE INVENTORY OF VINTAGE PLASTIC MAINS CHANGED OVER TIME?

***** BEGIN CONFIDENTIAL *****

A. [redacted]

[redacted]

[6] Company response to Staff DR 1-335.

[redacted]

[7] Company response to Staff DR 1-334.
[8] Company response to Staff DR 1-165.

[redacted]

***** END CONFIDENTIAL *****

Q. DOES THE COMPANY REGARD THE REPLACEMENT OF VINTAGE PLASTIC PIPING TO BE A LOWER PRIORITY IN ITS PROPOSED REPLACEMENT PROGRAM BECAUSE OF ITS LOW LEAK RATE?

A. No. Mr. Paige's direct testimony states that "The pipe replacement program will initially emphasize replacement of bare steel, PVC, Aldyl-A and Century pipe. Since the repair options for these types of pipe are limited, they represent the highest risk."[9]

[9] Christian Paige, Direct Testimony, 20:20-22.

This is somewhat puzzling since all leak and replacement indicators show that the Aldyl-A and Century piping has performed very well to date, so replacements perhaps should be considered as a lower priority. Of course leak detection on these materials must still be given a high priority since there is still a potential future risk of cracking which has been pointed out by PHMSA based on experiences at other utilities.

Q. DOES THE COMPANY'S PRIORITIZED REPLACEMENT LIST FOR BARE STEEL AND EARLY GENERATION PLASTIC PIPING APPEAR TO IDENTIFY ALL OF THE MATERIALS THAT CURRENTLY REPRESENT THE HIGHEST RISK?

A. No. All of the currently prioritized projects[10] involve the replacement of steel materials. None of these prioritized projects includes the replacement of PVC, Aldyl-A, or Century plastic.

Q. WHY HAVEN'T VINTAGE PLASTIC MATERIALS YET APPEARED ON THE COMPANY'S PRIORITIZED PIPING REPLACEMENT LIST?

A. The Company explains that: "Our initial analysis focused on areas with bare steel main, service lines, and yard lines. As such, scores have not been completed for projects in the Aldyl-A areas."[11] The Company further explains that: "Atmos Energy estimates that it will take approximately two years to develop the complete listing of prioritized SIP projects for the Kansas distribution system."[12]

Q. IF INPUT DATA AND PRIORITY REPLACEMENT SCORES HAVE NOT YET BEEN AVAILABLE FOR VINTAGE PLASTIC PIPING, DOESN'T THIS MEAN THAT THE COMPANY'S PRIORITY REPLACEMENT TOOL HAS NOT YET BEEN VETTED FOR THESE MATERIALS?

[10] Confidential Exhibit CLP-4 of Mr. Paige's direct testimony.
[11] Company response to Staff DR 1-173.
[12] Company response to Staff DR 1-174.

A. Yes.

Q. WOULD YOU EXPECT THE COMPANY'S CURRENT PRIORITIZATION FACTORS TO APPLY EQUALLY WELL TO VINTAGE PLASTIC AS TO STEEL PIPING?

A. No. They should, but they don't. Several factors in the proposed prioritization scheme do not apply equally well to plastic materials. For instance, all other factors being equal, scores for the cathodic protection factor and known material grade do not apply at all and will result in lower prioritization for plastic materials. Scores for the pressure factor and leak history factor will also be lower for these materials.

Q. WHAT ARE THE CURRENT AGE AND REPLACEMENT RATES OF OLDER ATMOS KANSAS PIPING ASSETS?

A. The age of the current inventory of both mains and services in the Kansas system can be shown by sorting their ages by the decade in which they were installed. This is shown in Schedules EM-11 and EM-12 for older mains and service lines for each year since 2004. The rate of replacement can be observed by inspecting the decline in inventory for each age class over the eleven years shown.

Q. HOW OLD ARE THE EXISTING KANSAS MAINS?

A. The age ranges of older mains are shown in Schedule EM-11. The oldest category of mains is the Pre-1940's vintage. This Pre-1940 group of mains shows the greatest reduction over time, with replacement rates increasing after 2009. The second oldest group of mains is the 1940 to 1949 group which shows the second largest replacement rate – although it is not large. Other vintages of mains show minor replacement activity over the past eleven years. This is an indication that the Company's mains replacement program has been targeting primarily the oldest piping.

Q. HOW OLD ARE THE EXISTING KANSAS SERVICE LINES?

A. The age ranges of older service lines are shown in Schedule EM-12. All age categories exhibit significant declines indicating replacement rates higher than those shown previously for most vintages of mains. The jump in services in 2010 for 1960 and 1970 vintages may be a data correction for data reported to the DOT for 2010 and subsequent years. The declines in inventory of service-lines in many vintage categories shown in Exhibit EM-12 are an indication that the Company is not targeting the replacement of service lines primarily due to their age. Atmos, like most gas utilities, may be targeting the replacement of service lines due to their condition (e.g. leaks).

Q. HOW DOES THE PROPOSED REPLACEMENT PERIOD OF THIRTY (30) YEARS COMPARE WITH REPLACEMENT PERIODS OF OTHER GAS UTILITIES?

A. The time period of thirty (30) years proposed by the Company for complete replacement of all obsolete piping materials is at the high end of replacement times for many gas utilities. As shown in Schedule EM-13, very few utilities have planned as-long or longer replacement periods.

VI. Findings and Conclusions

Q. WHAT ARE YOUR MAJOR FINDINGS AND CONCLUSIONS REGARDING THE CONDITION OF THE COMPANY'S PIPING ASSETS?

A. Based on my analysis of the Company's filing and discovery responses, as well as publicly available information from the DOT and other documentation in this case, my primary findings and conclusions are:

1) The Company currently has high amounts of what it considers to be "obsolete" piping materials in its system; however, these materials are primarily the types that tend to leak slowly at first and then the leak grows in size gradually. Many other gas companies with

high amounts of "obsolete" piping are in the unfortunate position of having types of materials that can break circumferentially, emitting large amounts of gas. By contrast, iron piping (particularly cast iron and ductile iron, of which the Company has none) can break catastrophically without prior warning. These latter types are the materials that initiated PHMSA's Call-to-Action in 2011.

2) Our review of the Company's (and its predecessor's) leak rates over the last twenty-five years indicates that leaks have been consistently declining, indicating that the Company has managed leaks in its Kansas system very successfully to date.

3) The Company has been focusing much of its mains-replacement efforts on its oldest piping. Since corrosion generally increases over time, this strategy is increasingly beneficial since there are indications that corrosion of the metallic piping is becoming an increasing cause of leaks on both mains and service lines in the Atmos system.

4) For its vintage plastic piping assets, the Company has focused on PVC piping and has now eliminated all PVC service lines, and has slightly reduced its inventory of PVC mains.

5) The other vintage plastic assets (Aldyl-A and Century plastics which constitute 19.5% of the mains and 23% of the services) have very low leak rates and have not been replaced at all, an indication that the Company has not incurred any significant problems to date with these materials. I'll admit I'm having a hard time understanding the logic of the company's position that all of these vintage assets should be replaced now, given that Atmos and its predecessor companies have not replaced a single one of these service lines, and haven't replaced a single mile of these mains in the last quarter-century. The usual approach is to selectively replace mains and services when conditions warrant.

Q. DO YOU HAVE ANY OTHER CONCLUSIONS OR RECOMMENDATIONS?

A. Yes. I also recommend testing the Company's proposed prioritization tool for its ability to correctly prioritize all obsolete materials (especially vintage plastic materials) prior to its implementation. The factors included in the current tool do not appear to apply to plastic materials as well as they do to metallic materials. For instance, scores for the cathodic protection factor and known material grade do not apply at all to plastics and will result in lower prioritization of plastic materials, all other factors being equal. Scores for the pressure factor, and leak history factor will also be lower for these materials, lowering their priority for replacement. Since the Company has stated that the data for the vintage materials is not currently available and may hold up the complete prioritization list for two years,[13] in the meantime, I recommend testing of the tool to determine its ability to prioritize removal of materials according to actual levels of risk, rather than setting priorities on one kind of material over another without correctly recognizing their actual level of risk.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes it does. However, I reserve the right to supplement my testimony if any updated or additional information becomes available during the course of this proceeding.

[13] Company response to Staff DR 1-174.

VERIFICATION

STATE OF DELAWARE)

COUNTY OF SUSSEX) ss:

I, Edward A. McGee, of lawful age and being first duly sworn upon my oath, state that I am an engineering analyst for the Citizens' Utility Ratepayer Board; that I have read and am familiar with the above and foregoing document and attest that the statements therein are true and correct to the best of my knowledge, information, and belief.

Edward A. McGee

SUBSCRIBED AND SWORN to before me this 7th day of December, 2015.

Notary Public

My Commission expires: Oct 31, 2017.

JOHN A. BARRETT
Notary Public
State of Delaware
My Commission Expires on Oct. 31, 2017

CREDENTIALS OF EDWARD A. McGEE

PROFESSIONAL CAREER

2012 – Present **Acadian Consulting Group**
Engineering Associate

As Engineering Associate for Acadian Consulting Group, I am responsible for assisting in studies performed for Public Utility Commissions.

1999 – Present **McGee Consulting**
Principal Consultant and Engineer – Energy Industry

As Principal Consultant and Engineer, I am responsible for assisting larger consulting firms in their studies performed for utility companies and Public Utility Commissions.

1985 - 1999 **Stone & Webster Management Consultants, Inc.**
Vice President/Director

As Vice President of Stone & Webster Management Consultants, I was responsible for consulting studies in the Gas Practice area, where I performed consulting analyses in the gas planning and gas operations areas for gas utility companies and public utility commissions.

1982 - 1985 **Stone & Webster Engineering Corporation**
Business Development Manager

As Business Development Manager at Stone & Webster Engineering Corp., I was responsible for the construction of investment models for feasibility studies on large-scale chemical and refining complexes.

1982 & earlier **W. R. Grace & Co.**
Director of Energy Resources
Manager of Chemical Development

As Director of Energy Resources for W. R. Grace, I advised the Chief Operating Officer on corporate energy consumption and production. I also assisted operating divisions in securing long-term energy resources.

As Manager of Chemical Development at W. R. Grace, I analyzed potential acquisition targets in specialty chemical and high technology fields, developing corporate strategies for selected expansions.

AMOCO Oil
Supervisor of Technical Computer Programming
Internal Operations Research Consultant

In a variety of engineering and computer modeling capacities at AMOCO Oil directed a staff of professionals in the development of technical programs in the refining, distribution and marketing areas.

EDUCATION

University of Chicago, Master of Business Administration, Quantitative Analysis and Computers

University of Notre Dame, Master of Science in Chemical Engineering

University of Notre Dame, Bachelor of Science in Chemical Engineering

LICENSES & CERTIFICATES

Licensed Professional Engineer (License Currently Retired) -- State of Indiana
U.S. Patent Holder -- Refinery Treating Process

PROFESSIONAL AFFILIATIONS

American Institute of Chemical Engineers
The Institute of Management Sciences

SAMPLE PUBLICATIONS AND PAPERS

"Using a Personal Computer as a Gas Supply Planning Tool." Gas Industries lead article.

"Personal Computers and the Natural Gas Industry." Public Utilities Fortnightly.

"Personal Computer-Based Long-Range Planning for Natural Gas Development and Supply Management." Presented at the International Gas Union's 18th World Gas Conference, Berlin, Germany.

"Role of Optimization Models in Dispatching Gas Supplies." Presented at AGA Distribution/Transmission Conference, Toronto, Canada.

"Experience With Gas Supply Optimization Models at Inland Natural Gas." Presented at IGT symposium on Personal Computers in the Gas Industry, Chicago, Illinois.

APPENDIX B

Direct Testimony of Edward McGee
Supporting Schedules

***Confidential Schedules have not been provided**

Table of Schedules

Title	Schedule
Ranking of U.S. Utilities by Percent Leak Prone Metallic Mains	Schedule EM-01
Ranking of U.S. Utilities by Percent Leak Prone Metallic Service Lines	Schedule EM-02
Miles of Bare Steel Mains - Atmos Kansas	Schedule EM-03
Number of Bare Steel Services - Atmos Kansas	Schedule EM-04
Number of Leaks on Mains by Year - Atmos Kansas	Schedule EM-05
Number of Leaks on Services by Year - Atmos Kansas	Schedule EM-06
Number of Hazardous Leaks on Mains by Year - Atmos Kansas	Schedule EM-07
Number of Hazardous Leaks on Services by Year- Atmos Kansas	Schedule EM-08
Miles of Vintage Plastic Mains - Atmos Kansas, Greeley Gas, United Cities Gas **CONFIDENTIAL**	Schedule EM-09
Number of Vintage Plastic Services - Atmos Kansas, Greeley Gas, United Cities Gas **CONFIDENTIAL**	Schedule EM-10
Miles of Existing Mains by Decade Installed - Atmos Kansas	Schedule EM-11
Number of Existing Services by Decade Installed - Atmos Kansas	Schedule EM-12
Timeframes for Selected Utilities to Replace All High Risk Pipes	Schedule EM-13

Ranking of U.S. Utilities by Percent Leak Prone Metallic Mains

Rank	Operator Name	State	Total Miles of Mains	Miles of Leak-Prone Steel Mains[1]	Miles of Leak-Prone Iron and Copper Mains[2]	Total Miles of Leak-Prone Metallic Mains	Percent Leak-Prone Metallic Mains
1	PHILADELPHIA GAS WORKS	PA	3,023	491	1,605	2,096	69.3%
2	CONSOLIDATED EDISON CO OF NEW YORK	NY	4,283	1,065	1,147	2,212	51.6%
3	BOSTON GAS CO	MA	6,342	1,319	1,946	3,266	51.5%
4	KEYSPAN ENERGY DELIVERY - LONG ISLAND	NY	7,931	3,380	317	3,697	46.6%
5	KEYSPAN ENERGY DELIVERY - NY CITY	NY	4,134	314	1,586	1,900	46.0%
6	WASHINGTON GAS LIGHT CO	DC	1,212	88	415	503	41.5%
7	NIAGARA MOHAWK POWER CORP	RI	3,188	483	822	1,305	40.9%
8	PEOPLES GAS LIGHT & COKE CO	IL	4,327	0	1,595	1,595	36.9%
9	NSTAR GAS COMPANY	MA	3,231	734	380	1,114	34.5%
10	DOMINION HOPE	WV	3,146	1,073	-	1,073	34.1%
11	PENSACOLA, ENERGY SERVICES OF	FL	1,606	438	85	523	32.6%
12	SOUTHERN CONNECTICUT GAS CO	CT	2,358	93	663	756	32.1%
13	PEOPLES NATURAL GAS COMPANY LLC	PA	10,335	3,064	111	3,175	30.7%
14	MOUNTAINEER GAS CO	WV	5,760	1,759	-	1,759	30.5%
15	PEOPLES TWP LLC	PA	2,622	776	-	776	29.6%
16	PUBLIC SERVICE ELECTRIC & GAS CO	NJ	17,857	1,024	4,045	5,069	28.4%
17	DOMINION EAST OHIO	OH	19,632	5,458	70	5,528	28.2%
18	NATIONAL FUEL GAS DISTRIBUTION CORP	PA	4,831	1,046	167	1,213	25.1%
19	COLUMBIA GAS OF PENNSYLVANIA	PA	7,443	1,529	128	1,657	22.3%
20	ELIZABETHTOWN GAS CO	NJ	3,163	90	613	703	22.2%
21	NATIONAL FUEL GAS DISTRIBUTION CORP - NEW YORK	NY	9,636	1,768	326	2,094	21.7%
22	DTE GAS COMPANY	MI	19,029	1,576	2,364	3,939	20.7%
23	OKALOOSA COUNTY GAS DISTRICT	FL	1,328	254	19	273	20.6%
24	KANSAS GAS SERVICE COMPANY, A DIVISION OF ONE GAS, INC.	KS	11,361	2,096	70	2,166	19.1%
25	**ATMOS ENERGY CORPORATION - COLORADO/KANSAS (KANSAS ONLY)**	**KS**	**3,628**	**682**	**-**	**682**	**18.8%**
26	BALTIMORE GAS & ELECTRIC CO	MD	7,173	35	1,278	1,313	18.3%
27	CENTRAL HUDSON GAS & ELECTRIC CORP	NY	1,229	140	85	225	18.3%
28	UGI CENTRAL PENN GAS, INC	PA	3,684	647	9	656	17.8%
29	CONNECTICUT NATURAL GAS CORP	CT	2,079	20	347	367	17.7%
30	COLUMBIA GAS OF MASSACHUSETTS	MA	4,945	319	554	872	17.6%
31	PECO ENERGY CO	PA	6,780	426	770	1,196	17.6%
32	COLUMBIA GAS OF KENTUCKY INC	KY	2,570	414	16	429	16.7%
33	MISSOURI GAS ENERGY	MO	8,582	1,100	323	1,423	16.6%

[1] Includes unprotected bare steel, unprotected coated steel, and protected bare steel mains mileage.
[2] Includes cast iron, ductile iron, and copper mains mileage.
Source: Annual DOT Gas Distribution Reports, PHMSA Form 7100.1-1.

Ranking of U.S. Utilities by Percent Leak Prone Metallic Mains

Rank	Operator Name	State	Total Miles of Mains	Miles of Leak-Prone Steel Mains[1]	Miles of Leak-Prone Iron and Copper Mains[2]	Total Miles of Leak-Prone Metallic Mains	Percent Leak-Prone Metallic Mains
34	UGI PENN NATURAL GAS	PA	2,515	306	106	412	16.4%
35	SOUTHERN CALIFORNIA GAS CO	CA	50,156	8,057	-	8,057	16.1%
36	METROPOLITAN UTILITIES DISTRICT	NE	2,790	20	427	447	16.0%
37	ALABAMA GAS CORPORATION	AL	11,017	986	768	1,754	15.9%
38	ARKANSAS OKLAHOMA GAS CORP	AR	1,634	247	-	247	15.1%
39	RICHMOND, CITY OF	VA	1,911	5	278	283	14.8%
40	COLUMBIA GAS OF OHIO INC	OH	19,881	2,745	194	2,939	14.8%
41	CENTERPOINT ENERGY RESOURCES CORP.	OK	2,735	398	-	398	14.6%
42	VECTREN ENERGY DELIVERY OF OHIO	OH	5,393	689	89	779	14.4%
43	YANKEE GAS SERVICES CO	CT	3,302	96	368	464	14.1%
44	ATMOS ENERGY CORPORATION - MID-TEX	TX	31,862	3,718	678	4,396	13.8%
45	UGI UTILITIES, INC	PA	5,525	471	279	750	13.6%
46	SOUTH JERSEY GAS CO	NJ	6,339	660	147	807	12.7%
47	SOUTHERN INDIANA GAS & ELECTRIC CO	IN	3,043	278	105	382	12.6%
48	AGRITEXGAS L P	TX	4,380	540	-	540	12.3%
49	CENTERPOINT ENERGY RESOURCES CORP.	LA	3,990	375	107	483	12.1%
50	COLONIAL GAS CO - LOWELL DIV	MA	1,396	67	99	166	11.9%
51	SOURCEGAS ARKANSAS INC.	AR	4,896	539	-	539	11.0%
52	ORANGE & ROCKLAND UTILITY INC	NY	1,849	173	15	188	10.2%
53	VIRGINIA NATURAL GAS	VA	5,338	498	43	541	10.1%
54	ENERGY NORTH NATURAL GAS INC	NH	1,354	26	105	131	9.7%
55	MIDWEST ENERGY INC	KS	3,060	286	-	286	9.3%
56	ENTERGY NEW ORLEANS, INC	LA	1,708	-	156	156	9.1%
57	NIAGARA MOHAWK POWER CORP	NY	8,643	231	523	754	8.7%
58	LACLEDE GAS CO	MO	8,608	26	704	730	8.5%
59	CENTERPOINT ENERGY RESOURCES CORPORATION	MS	3,961	322	-	322	8.1%
60	BLACK HILLS ENERGY	KS	2,801	225	-	225	8.0%
61	ATMOS ENERGY CORPORATION - KY/MID-STATES (KENTUCKY)	KY	3,934	292	-	292	7.4%
62	WEST TEXAS GAS INC	TX	4,744	346	-	346	7.3%
63	SOURCEGAS LLC	NE	4,809	350	-	350	7.3%
64	INDIANA GAS CO INC	IN	12,405	778	118	895	7.2%
65	FLORIDA PUBLIC UTILITIES CO	FL	1,865	129	0	130	7.0%
66	OHIO GAS CO	OH	1,214	84	-	84	6.9%

[1] Includes unprotected bare steel, unprotected coated steel, and protected bare steel mains mileage.
[2] Includes cast iron, ductile iron, and copper mains mileage.
Source: Annual DOT Gas Distribution Reports, PHMSA Form 7100.1-1.

Ranking of U.S. Utilities by Percent Leak Prone Metallic Mains

Rank	Operator Name	State	Total Miles of Mains	Miles of Leak-Prone Steel Mains[1]	Miles of Leak-Prone Iron and Copper Mains[2]	Total Miles of Leak-Prone Metallic Mains	Percent Leak-Prone Metallic Mains
67	ROCHESTER GAS & ELECTRIC CORP	NY	4,918	264	68	332	6.8%
68	CONSUMERS ENERGY CO	MI	26,798	1,260	529	1,790	6.7%
69	NEW JERSEY NATURAL GAS CO	NJ	7,074	442	16	458	6.5%
70	TEXAS GAS SERVICE COMPANY, A DIVISION OF ONE GAS, INC.	TX	9,710	541	59	600	6.2%
71	MOBILE GAS SERVICE CORP	AL	2,254	-	139	139	6.1%
72	DELMARVA POWER & LIGHT COMPANY	DE	1,977	30	83	113	5.7%
73	ATMOS ENERGY CORPORATION - WEST TEXAS	TX	7,731	425	-	425	5.5%
74	OKLAHOMA NATURAL GAS COMPANY, A DIVISION OF ONE GAS, INC.	OK	17,538	928	-	928	5.3%
75	WASHINGTON GAS LIGHT CO	MD	6,025	219	65	284	4.7%
76	NEW YORK STATE ELECTRIC & GAS CORP	NY	4,752	198	19	217	4.6%
77	WASHINGTON GAS LIGHT CO	VA	6,220	248	16	264	4.2%
78	CAPE COD GAS CO (DIV OF COLONIAL GAS CO)	MA	2,462	105	-	105	4.2%
79	ATMOS ENERGY CORPORATION - COLORADO/KANSAS (COLORADO ONLY)	CO	3,170	134	-	134	4.2%
80	ZIA NATURAL GAS CO	NM	1,507	63	-	63	4.2%
81	PUBLIC SERVICE CO OF COLORADO	CO	21,870	890	-	890	4.1%
82	CENTERPOINT ENERGY RESOURCES CORP.	AR	13,626	452	78	530	3.9%
83	WEST TEXAS GAS INC	OK	1,064	40	-	40	3.8%
84	COLUMBIA GAS OF VIRGINIA INC	VA	4,984	179	2	181	3.6%
85	BLACK HILLS ENERGY	NE	3,504	120	-	120	3.4%
86	CHATTANOOGA GAS CO	TN	1,616	50	4	55	3.4%
87	NAVITAS UTILITY COPORATION	OK	1,045	33	-	33	3.1%
88	CENTERPOINT ENERGY RESOURCES CORP., DBA CENTERPOINT ENERGY MINNESOTA GAS	MN	13,556	409	16	425	3.1%
89	PEOPLES GAS SYSTEM INC	FL	12,479	296	85	382	3.1%
90	HUNTSVILLE GAS SYSTEM	AL	1,299	-	40	40	3.0%
91	SOUTHWEST GAS CORP	AZ	19,297	542	-	542	2.8%
92	MIDAMERICAN ENERGY COMPANY	IA	9,679	265	2	268	2.8%
93	ATMOS ENERGY CORPORATION - LOUISIANA	LA	8,410	221	-	221	2.6%
94	DELTA NATURAL GAS CO INC	KY	1,881	46	-	46	2.5%
95	ROANOKE GAS CO	VA	1,059	16	8	24	2.2%
96	MIDAMERICAN ENERGY COMPANY	SD	1,438	28	3	31	2.1%
97	DUKE ENERGY OHIO	OH	5,607	15	91	106	1.9%
98	MEMPHIS LIGHT GAS & WATER DIVISION	TN	4,856	-	86	86	1.8%
99	FLORIDA CITY GAS	FL	3,470	58	-	58	1.7%

[1] Includes unprotected bare steel, unprotected coated steel, and protected bare steel mains mileage.
[2] Includes cast iron, ductile iron, and copper mains mileage.
Source: Annual DOT Gas Distribution Reports, PHMSA Form 7100.1-1.

Ranking of U.S. Utilities by Percent Leak Prone Metallic Mains

Rank	Operator Name	State	Total Miles of Mains	Miles of Leak-Prone Steel Mains[1]	Miles of Leak-Prone Iron and Copper Mains[2]	Total Miles of Leak-Prone Metallic Mains	Percent Leak-Prone Metallic Mains
100	LOUISVILLE GAS & ELECTRIC CO	KY	4,338	15	53	68	1.6%
101	ENTERGY GULF STATES	LA	1,751	2	25	27	1.5%
102	COLORADO SPRINGS, CITY OF	CO	2,454	38	-	38	1.5%
103	SEMCO ENERGY GAS COMPANY	MI	6,055	70	18	88	1.5%
104	NORTHERN ILLINOIS GAS CO	IL	32,956	224	207	431	1.3%
105	NORTHERN INDIANA PUBLIC SERVICE CO	IN	16,879	188	4	192	1.1%
106	CENTERPOINT ENERGY RESOURCES CORPORATION	LA	3,351	30	4	34	1.0%
107	ALLIANT ENERGY - INTERSTATE POWER AND LIGHT COMPANY	IA	4,291	39	-	39	0.9%
108	PACIFIC GAS & ELECTRIC CO	CA	42,703	345	-	345	0.8%
109	ATMOS ENERGY CORPORATION - MISSISSIPPI	MS	6,379	50	-	50	0.8%
110	MICHIGAN GAS UTILITIES CO	MI	3,799	27	-	27	0.7%
111	LIBERTY ENERGY (MID-STATES) CORP D/B/A LIBERTY UTILITIES - CENTRAL	MO	2,005	12	2	14	0.7%
112	KNOXVILLE UTILITIES BOARD	TN	2,388	-	10	10	0.4%
113	NORTHERN STATES POWER CO OF MINNESOTA	MN	9,085	36	-	36	0.4%
114	MARSHALL COUNTY GAS DISTRICT	AL	1,029	4	-	4	0.4%
115	MONTANA - DAKOTA UTILITIES CO	ND	2,426	8	-	8	0.3%
116	LIBERTY ENERGY (GEORGIA) CORP D/B/A LIBERTY UTILITIES GEORGIA	GA	1,193	4	-	4	0.3%
117	BLACK HILLS ENERGY	IA	2,719	9	-	9	0.3%
118	NEW MEXICO GAS COMPANY	NM	10,170	32	-	32	0.3%
119	SOURCEGAS LLC	CO	3,425	10	-	10	0.3%
120	CITIZENS GAS & COKE UTILITY	IN	4,070	-	12	12	0.3%
121	MONTANA - DAKOTA UTILITIES CO	MT	1,660	5	-	5	0.3%
122	ATMOS ENERGY CORPORATION - KY/MID-STATES (MID-STATES)	TN	3,398	8	-	8	0.2%
123	MINNESOTA ENERGY RESOURCES CORPORATION	MN	4,512	6	-	6	0.1%
124	SOURCEGAS LLC	WY	2,259	3	-	3	0.1%
125	AVISTA CORP	OR	2,259	2	-	2	0.1%
…	…	…	…	…	…	…	…
242	MESA MUNICIPAL SYSTEM, CITY OF	AZ	1,287	-	-	-	0.0%

[1] Includes unprotected bare steel, unprotected coated steel, and protected bare steel mains mileage.
[2] Includes cast iron, ductile iron, and copper mains mileage.
Source: Annual DOT Gas Distribution Reports, PHMSA Form 7100.1-1.

Ranking of U.S. Utilities by Percent Leak Prone Metallic Service Lines

Rank	Operator Name	State	Total Number of Services	Number of Leak-Prone Steel Services[1]	Number of Leak-Prone Iron and Copper Services[2]	Total Number of Leak-Prone Metallic Services	Percent Leak-Prone Metallic Services
1	LIBERTY UTILITIES MASSACHUSETTS	MA	35,923	13,109	-	13,109	36.5%
2	PENSACOLA, ENERGY SERVICES OF	FL	57,877	16,040	-	16,040	27.7%
3	KEYSPAN ENERGY DELIVERY - NY CITY	NY	568,913	24,450	129,131	153,581	27.0%
4	NIAGARA MOHAWK POWER CORP	NY	555,686	129,432	19,687	149,119	26.8%
5	DTE GAS COMPANY	MI	1,197,585	189,571	131,711	321,282	26.8%
6	NIAGARA MOHAWK POWER CORP	RI	193,615	49,265	395	49,660	25.6%
7	PHILADELPHIA GAS WORKS	PA	471,945	118,478	15	118,493	25.1%
8	CENTRAL HUDSON GAS & ELECTRIC CORP	NY	60,885	9,670	5,604	15,274	25.1%
9	BOSTON GAS CO	MA	495,167	110,226	10,644	120,870	24.4%
10	WASHINGTON GAS LIGHT CO	DC	123,925	18,999	11,073	30,072	24.3%
11	ENTERGY NEW ORLEANS, INC	LA	99,650	23,759	4	23,763	23.8%
12	CONSOLIDATED EDISON CO OF NEW YORK	NY	369,339	68,834	17,492	86,326	23.4%
13	KEYSPAN ENERGY DELIVERY - LONG ISLAND	NY	535,580	116,951	5,308	122,259	22.8%
14	ALABAMA GAS CORPORATION	AL	549,002	121,506	1,119	122,625	22.3%
15	SOUTHERN CONNECTICUT GAS CO	CT	140,276	30,927	170	31,097	22.2%
16	KANSAS GAS SERVICE COMPANY, A DIVISION OF ONE GAS, INC.	OK	34,911	7,446	-	7,446	21.3%
17	MOUNTAINEER GAS CO	WV	257,410	54,371	31	54,402	21.1%
18	HAWAI`IGAS	HI	34,692	6,991	30	7,021	20.2%
19	OKALOOSA COUNTY GAS DISTRICT	FL	49,678	9,797	-	9,797	19.7%
20	SOUTHERN CALIFORNIA GAS CO	CA	4,369,671	857,210	-	857,210	19.6%
21	**ATMOS ENERGY CORPORATION - COLORADO/KANSAS (KANSAS ONLY)**	**KS**	**144,368**	**28,149**	**-**	**28,149**	**19.5%**
22	NSTAR GAS COMPANY	MA	198,775	37,801	763	38,564	19.4%
23	BERKSHIRE GAS CO	MA	31,775	5,820	289	6,109	19.2%
24	ARKANSAS OKLAHOMA GAS CORP	AR	55,274	10,575	-	10,575	19.1%
25	BALTIMORE GAS & ELECTRIC CO	MD	530,089	77,194	22,490	99,684	18.8%
26	ELIZABETHTOWN GAS CO	NJ	223,527	7,710	34,009	41,719	18.7%
27	PUBLIC SERVICE ELECTRIC & GAS CO	NJ	1,253,587	199,679	32,560	232,239	18.5%
28	COLUMBIA GAS OF MASSACHUSETTS	MA	263,029	45,303	542	45,845	17.4%
29	DOMINION HOPE	WV	112,495	19,126	-	19,126	17.0%
30	MARSHALL COUNTY GAS DISTRICT	AL	25,575	4,160	-	4,160	16.3%
31	PEOPLES TWP LLC	PA	58,666	9,423	-	9,423	16.1%
32	CENTERPOINT ENERGY RESOURCES CORP.	OK	122,405	19,309	-	19,309	15.8%
33	DELMARVA POWER & LIGHT COMPANY	DE	121,808	13,317	4,785	18,102	14.9%

[1] Includes the total number of unprotected bare steel, unprotected coated steel, and protected bare steel service lines.
[2] Includes the total number of cast iron, ductile iron, and copper service lines.
Source: Annual DOT Gas Distribution Reports, PHMSA Form 7100.1-1.

Ranking of U.S. Utilities by Percent Leak Prone Metallic Service Lines

Rank	Operator Name	State	Total Number of Services	Number of Leak-Prone Steel Services[1]	Number of Leak-Prone Iron and Copper Services[2]	Total Number of Leak-Prone Metallic Services	Percent Leak-Prone Metallic Services
34	COLUMBIA GAS OF PENNSYLVANIA	PA	420,733	57,722	-	57,722	13.7%
35	CONSUMERS ENERGY CO	MI	1,551,307	35,746	165,680	201,426	13.0%
36	ENERGY NORTH NATURAL GAS INC	NH	66,823	8,255	273	8,528	12.8%
37	YANKEE GAS SERVICES CO	CT	156,757	19,046	513	19,559	12.5%
38	LIBERTY ENERGY (GEORGIA) CORP D/B/A LIBERTY UTILITIES GEORGIA	GA	68,649	8,432	-	8,432	12.3%
39	UGI PENN NATURAL GAS	PA	171,683	20,996	-	20,996	12.2%
40	NATIONAL FUEL GAS DISTRIBUTION CORP	PA	193,550	23,426	-	23,426	12.1%
41	LACLEDE GAS CO	MO	617,385	6,121	67,233	73,354	11.9%
42	KANSAS GAS SERVICE COMPANY, A DIVISION OF ONE GAS, INC.	KS	629,825	74,297	-	74,297	11.8%
43	NATIONAL FUEL GAS DISTRIBUTION CORP - NEW YORK	NY	453,903	51,813	-	51,813	11.4%
44	DUKE ENERGY OHIO	OH	404,188	3,862	42,120	45,982	11.4%
45	ESSEX COUNTY GAS CO	MA	43,215	4,830	6	4,836	11.2%
46	COLUMBIA GAS OF MARYLAND INC	MD	34,977	3,852	-	3,852	11.0%
47	CENTERPOINT ENERGY RESOURCES CORP.	LA	160,853	17,686	-	17,686	11.0%
48	ROCHESTER GAS & ELECTRIC CORP	NY	280,051	18,909	10,681	29,590	10.6%
49	PEOPLES NATURAL GAS COMPANY LLC	PA	613,036	56,154	8,084	64,238	10.5%
50	VECTREN ENERGY DELIVERY OF OHIO	OH	324,631	31,802	-	31,802	9.8%
51	WASHINGTON GAS LIGHT CO	MD	420,930	14,862	25,456	40,318	9.6%
52	PECO ENERGY CO	PA	444,762	39,244	2,366	41,610	9.4%
53	UGI UTILITIES, INC	PA	355,326	20,774	9,242	30,016	8.4%
54	HUNTSVILLE GAS SYSTEM	AL	50,605	4,217	-	4,217	8.3%
55	COLUMBIA GAS OF OHIO INC	OH	1,385,726	113,384	-	113,384	8.2%
56	CONNECTICUT NATURAL GAS CORP	CT	133,035	10,293	578	10,871	8.2%
57	NEW YORK STATE ELECTRIC & GAS CORP	NY	235,710	19,085	-	19,085	8.1%
58	DUKE ENERGY KENTUCKY	KY	96,616	192	7,459	7,651	7.9%
59	COLUMBIA GAS OF KENTUCKY INC	KY	136,162	10,543	-	10,543	7.7%
60	RICHMOND, CITY OF	VA	96,212	3,671	3,601	7,272	7.6%
61	WASHINGTON GAS LIGHT CO	VA	448,667	10,548	22,197	32,745	7.3%
62	COLONIAL GAS CO - LOWELL DIV	MA	75,320	5,424	1	5,425	7.2%
63	MIDWEST ENERGY INC	KS	39,990	2,649	-	2,649	6.6%
64	FLORIDA PUBLIC UTILITIES CO	FL	69,710	4,543	-	4,543	6.5%
65	VIRGINIA NATURAL GAS	VA	319,959	19,588	507	20,095	6.3%
66	NATIONAL GAS & OIL CORP	OH	32,591	2,022	-	2,022	6.2%

[1] Includes the total number of unprotected bare steel, unprotected coated steel, and protected bare steel service lines.
[2] Includes the total number of cast iron, ductile iron, and copper service lines.
Source: Annual DOT Gas Distribution Reports, PHMSA Form 7100.1-1.

Ranking of U.S. Utilities by Percent Leak Prone Metallic Service Lines

Rank	Operator Name	State	Total Number of Services	Number of Leak-Prone Steel Services[1]	Number of Leak-Prone Iron and Copper Services[2]	Total Number of Leak-Prone Metallic Services	Percent Leak-Prone Metallic Services
67	SOURCEGAS ARKANSAS INC.	AR	167,913	10,278	-	10,278	6.1%
68	NEW JERSEY NATURAL GAS CO	NJ	496,165	29,912	-	29,912	6.0%
69	CENTERPOINT ENERGY RESOURCES CORP.	AR	450,546	27,128	10	27,138	6.0%
70	ATMOS ENERGY CORPORATION - COLORADO/KANSAS (COLORADO ONLY)	CO	96,416	5,435	-	5,435	5.6%
71	ATMOS ENERGY CORPORATION - WEST TEXAS	TX	376,834	20,226	-	20,226	5.4%
72	ROANOKE GAS CO	VA	59,185	3,150	-	3,150	5.3%
73	COLORADO SPRINGS, CITY OF	CO	157,814	8,178	-	8,178	5.2%
74	SOUTH JERSEY GAS CO	NJ	369,810	18,896	-	18,896	5.1%
75	ATMOS ENERGY CORPORATION - MID-TEX	TX	1,402,610	70,979	-	70,979	5.1%
76	OHIO GAS CO	OH	49,353	2,497	-	2,497	5.1%
77	DOMINION EAST OHIO	OH	1,198,284	-	52,980	52,980	4.4%
78	ORANGE & ROCKLAND UTILITY INC	NY	104,093	4,602	-	4,602	4.4%
79	METROPOLITAN UTILITIES DISTRICT	NE	201,153	-	8,563	8,563	4.3%
80	OHIO VALLEY GAS CORP	IN	28,487	1,085	-	1,085	3.8%
81	PEOPLES GAS LIGHT & COKE CO	IL	515,719	5,404	13,575	18,979	3.7%
82	LIBERTY ENERGY (MID-STATES) CORP D/B/A LIBERTY UTILITIES - CENTRAL	IL	25,732	946	-	946	3.7%
83	CAPE COD GAS CO (DIV OF COLONIAL GAS CO)	MA	113,534	4,076	16	4,092	3.6%
84	SOURCEGAS LLC	WY	82,700	2,892	-	2,892	3.5%
85	ATMOS ENERGY CORPORATION - KY/MID-STATES (KENTUCKY)	KY	178,480	6,105	-	6,105	3.4%
86	DELTA NATURAL GAS CO INC	KY	41,365	1,322	-	1,322	3.2%
87	TEXAS GAS SERVICE COMPANY, A DIVISION OF ONE GAS, INC.	TX	599,364	18,068	517	18,585	3.1%
88	CORPUS CHRISTI, CITY OF - GAS DIV	TX	60,068	-	1,801	1,801	3.0%
89	MIDAMERICAN ENERGY COMPANY	SD	81,375	2,333	44	2,377	2.9%
90	MIDAMERICAN ENERGY COMPANY	IA	509,758	14,849	7	14,856	2.9%
91	WISCONSIN GAS LLC DBA WE ENERGIES	WI	512,509	-	13,850	13,850	2.7%
92	NORTHERN ILLINOIS GAS CO	IL	2,034,204	17,900	32,192	50,092	2.5%
93	BLACK HILLS ENERGY	KS	99,570	2,449	-	2,449	2.5%
94	PUBLIC SERVICE CO OF COLORADO	CO	1,203,664	26,403	-	26,403	2.2%
95	ZIA NATURAL GAS CO	NM	41,389	812	-	812	2.0%
96	NEW MEXICO GAS COMPANY	NM	521,395	9,584	-	9,584	1.8%
97	OKLAHOMA NATURAL GAS COMPANY, A DIVISION OF ONE GAS, INC.	OK	1,072,880	19,502	-	19,502	1.8%
98	ENERGY WEST MONTANA	MT	29,497	522	-	522	1.8%
99	BLACK HILLS ENERGY	NE	188,155	3,201	128	3,329	1.8%

[1] Includes the total number of unprotected bare steel, unprotected coated steel, and protected bare steel service lines.
[2] Includes the total number of cast iron, ductile iron, and copper service lines.
Source: Annual DOT Gas Distribution Reports, PHMSA Form 7100.1-1.

Ranking of U.S. Utilities by Percent Leak Prone Metallic Service Lines

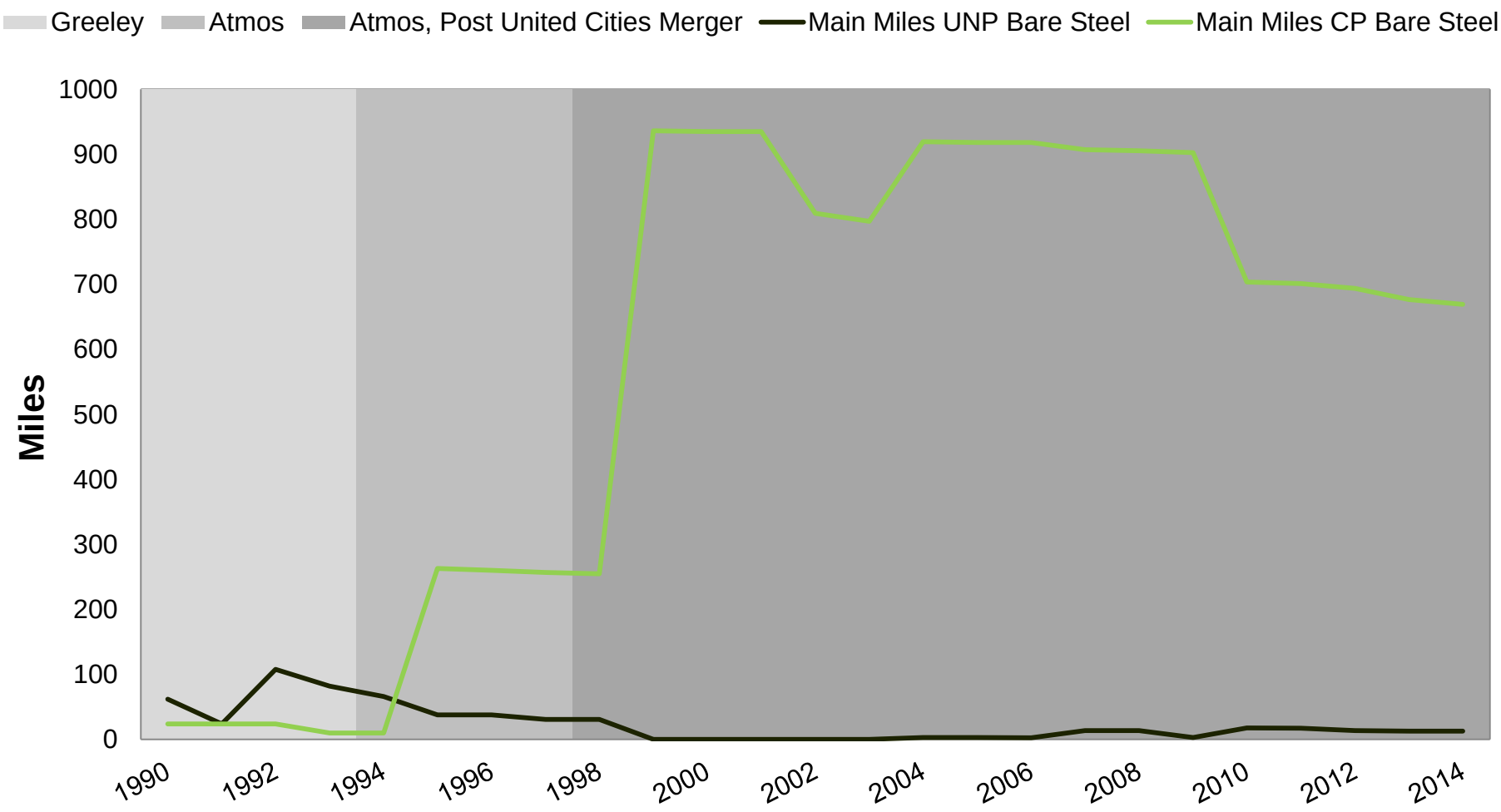
Rank	Operator Name	State	Total Number of Services	Number of Leak-Prone Steel Services[1]	Number of Leak-Prone Iron and Copper Services[2]	Total Number of Leak-Prone Metallic Services	Percent Leak-Prone Metallic Services
100	CENTERPOINT ENERGY RESOURCES CORP., DBA CENTERPOINT ENERGY MINNESOTA GAS	MN	752,178	2,496	10,478	12,974	1.7%
101	SOUTHERN INDIANA GAS & ELECTRIC CO	IN	108,628	1,855	-	1,855	1.7%
102	INDIANA GAS CO INC	IN	636,849	10,661	138	10,799	1.7%
103	PEOPLES GAS SYSTEM INC	FL	366,250	6,107	-	6,107	1.7%
104	MISSOURI GAS ENERGY	MO	508,430	6,897	-	6,897	1.4%
105	NORTHERN STATES POWER CO OF MINNESOTA	MN	405,909	4,716	699	5,415	1.3%
106	SEMCO ENERGY GAS COMPANY	MI	287,600	3,502	160	3,662	1.3%
107	ENSTAR NATURAL GAS CO	AK	123,738	-	1,554	1,554	1.3%
108	COLUMBIA GAS OF VIRGINIA INC	VA	253,996	2,830	-	2,830	1.1%
109	SOUTHWEST GAS CORP	AZ	1,049,015	11,046	-	11,046	1.1%
110	GAINESVILLE REGIONAL UTIL GAS DEPT	FL	32,712	29	305	334	1.0%
111	PACIFIC GAS & ELECTRIC CO	CA	3,383,060	28,699	5,036	33,735	1.0%
112	FLORIDA CITY GAS	FL	126,307	1,226	-	1,226	1.0%
113	CENTERPOINT ENERGY RESOURCES CORPORATION	TX	1,743,429	16,117	-	16,117	0.9%
114	ATMOS ENERGY CORPORATION - KY/MID-STATES (MID-STATES)	TN	145,103	1,309	-	1,309	0.9%
115	BLACK HILLS ENERGY	IA	157,464	1,299	21	1,320	0.8%
116	LOUISVILLE GAS & ELECTRIC CO	KY	298,382	1,879	468	2,347	0.8%
117	MICHIGAN GAS UTILITIES CO	MI	167,763	904	-	904	0.5%
118	UGI CENTRAL PENN GAS, INC	PA	82,041	407	15	422	0.5%
119	MOBILE GAS SERVICE CORP	AL	111,357	535	-	535	0.5%
120	LIBERTY ENERGY (MID-STATES) CORP D/B/A LIBERTY UTILITIES - CENTRAL	MO	74,686	290	-	290	0.4%
121	CHESAPEAKE UTILITIES CORPORATION	DE	45,537	167	5	172	0.4%
122	MINNESOTA ENERGY RESOURCES CORPORATION	MN	208,796	25	763	788	0.4%
123	NORTHERN INDIANA PUBLIC SERVICE CO	IN	854,879	2,793	-	2,793	0.3%
124	MIDAMERICAN ENERGY COMPANY	IL	60,550	144	-	144	0.2%
125	PIEDMONT NATURAL GAS CO INC	TN	181,990	385	-	385	0.2%
126	ATMOS ENERGY CORPORATION - LOUISIANA	LA	403,233	436	-	436	0.1%
127	NORTH SHORE GAS CO	IL	144,018	16	139	155	0.1%
128	MONTANA - DAKOTA UTILITIES CO	MT	80,384	53	-	53	0.1%
129	MONTANA - DAKOTA UTILITIES CO	ND	107,218	68	-	68	0.1%
130	ATMOS ENERGY CORPORATION - MISSISSIPPI	MS	303,094	-	185	185	0.1%
…	…	…	…	…	…	…	…
388	WEST BATON ROUGE PARISH NATURAL GAS SYSTEM	LA	5,228	-	-	-	0.0%

[1] Includes the total number of unprotected bare steel, unprotected coated steel, and protected bare steel service lines.

[2] Includes the total number of cast iron, ductile iron, and copper service lines.

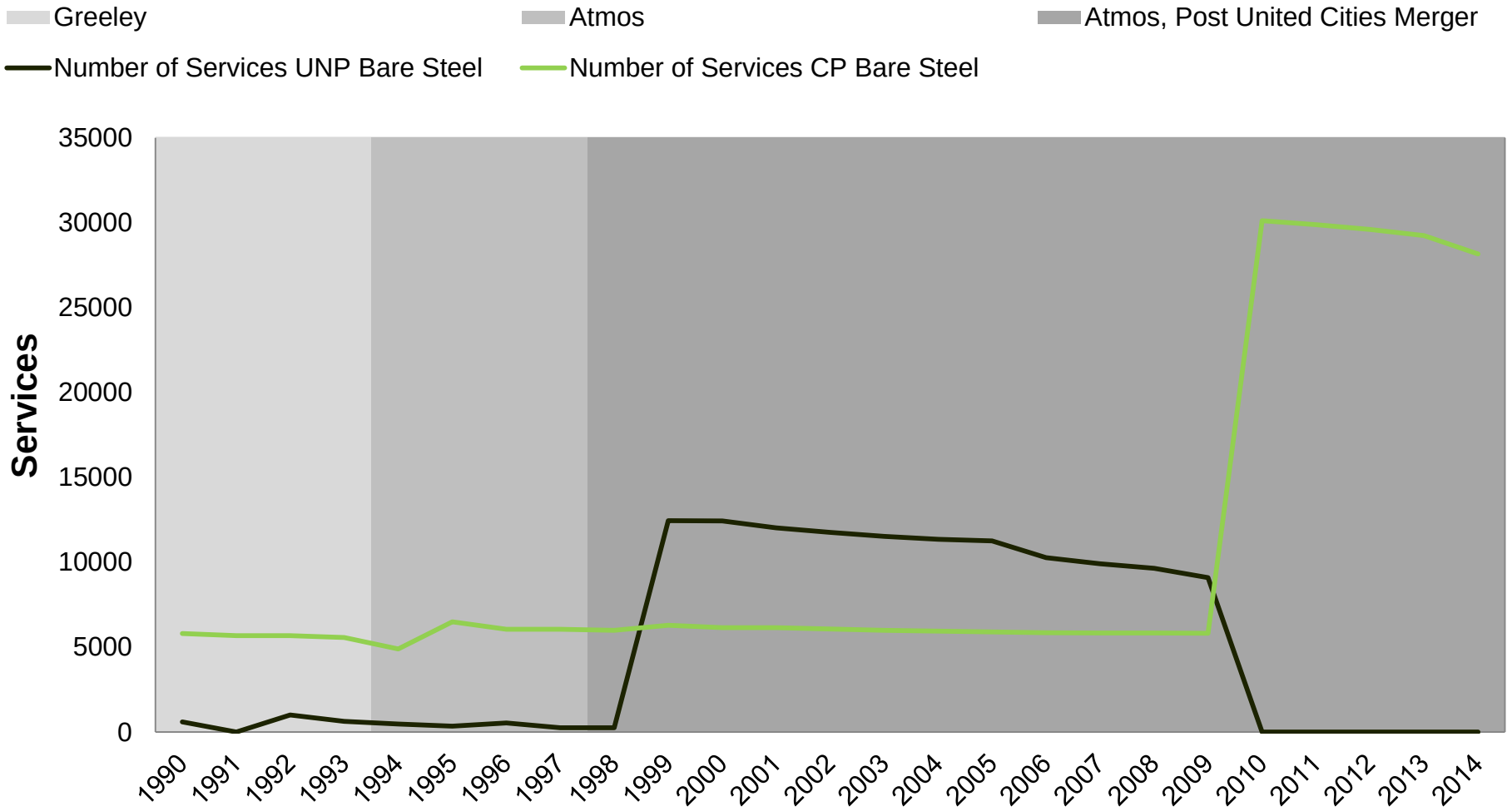
Source: Annual DOT Gas Distribution Reports, PHMSA Form 7100.1-1.

Miles of Bare Steel Mains – Atmos Kansas



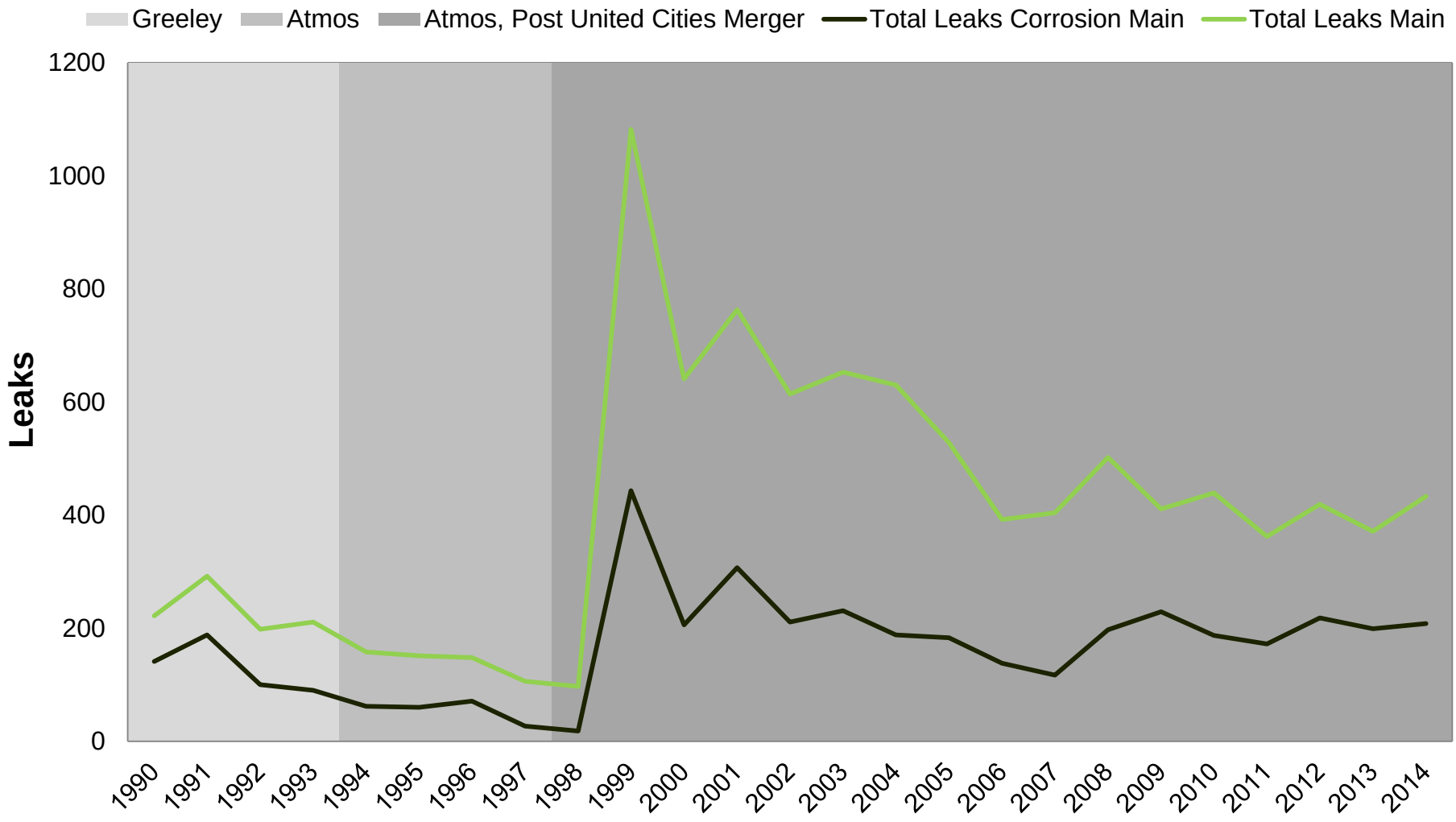
Source: Annual DOT Gas Distribution Reports, PHMSA Form 7100.1-1.

Number of Bare Steel Services – Atmos Kansas



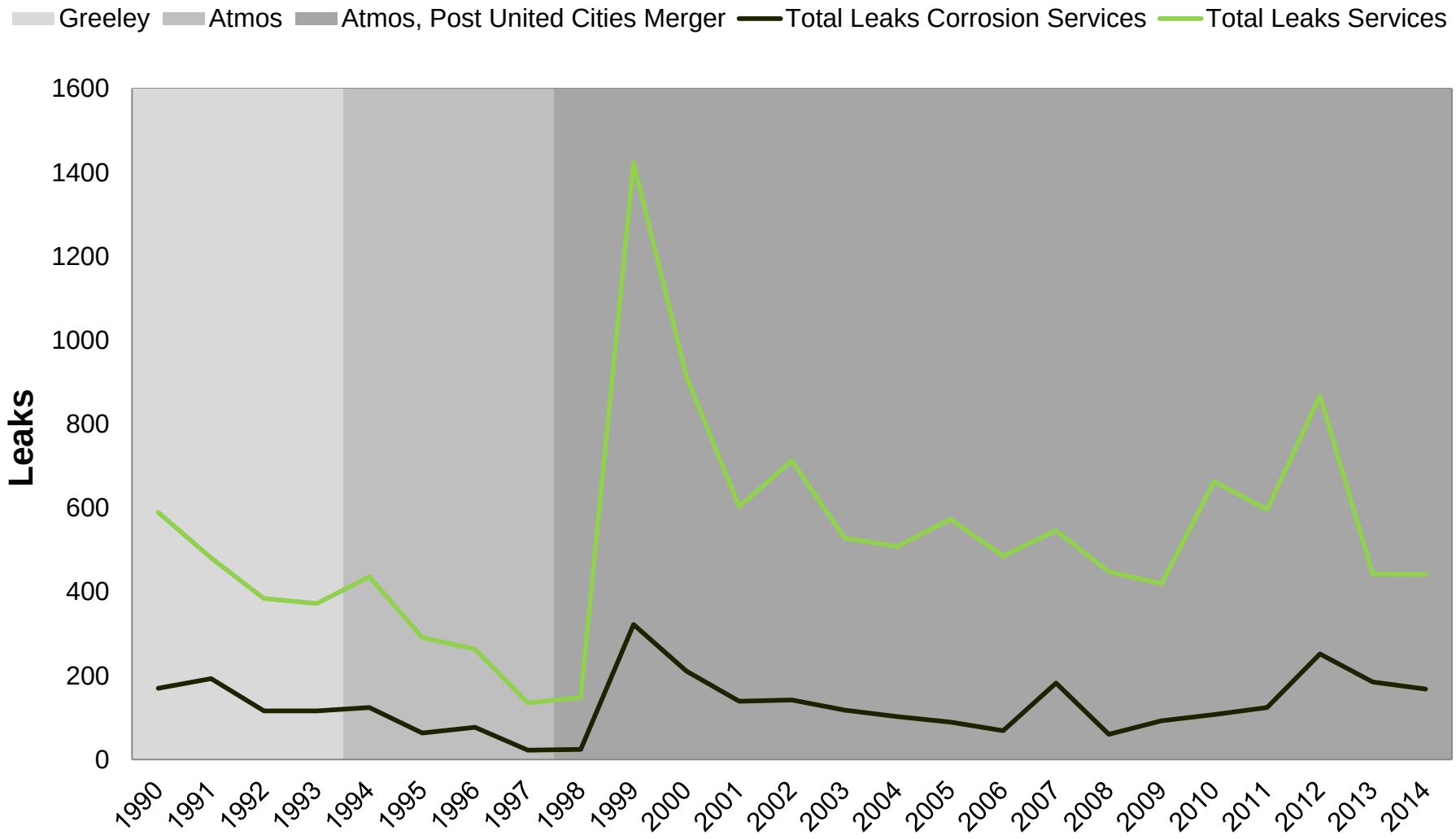
Source: Annual DOT Gas Distribution Reports, PHMSA Form 7100.1-1.

Number of Leaks on Mains by Year – Atmos Kansas



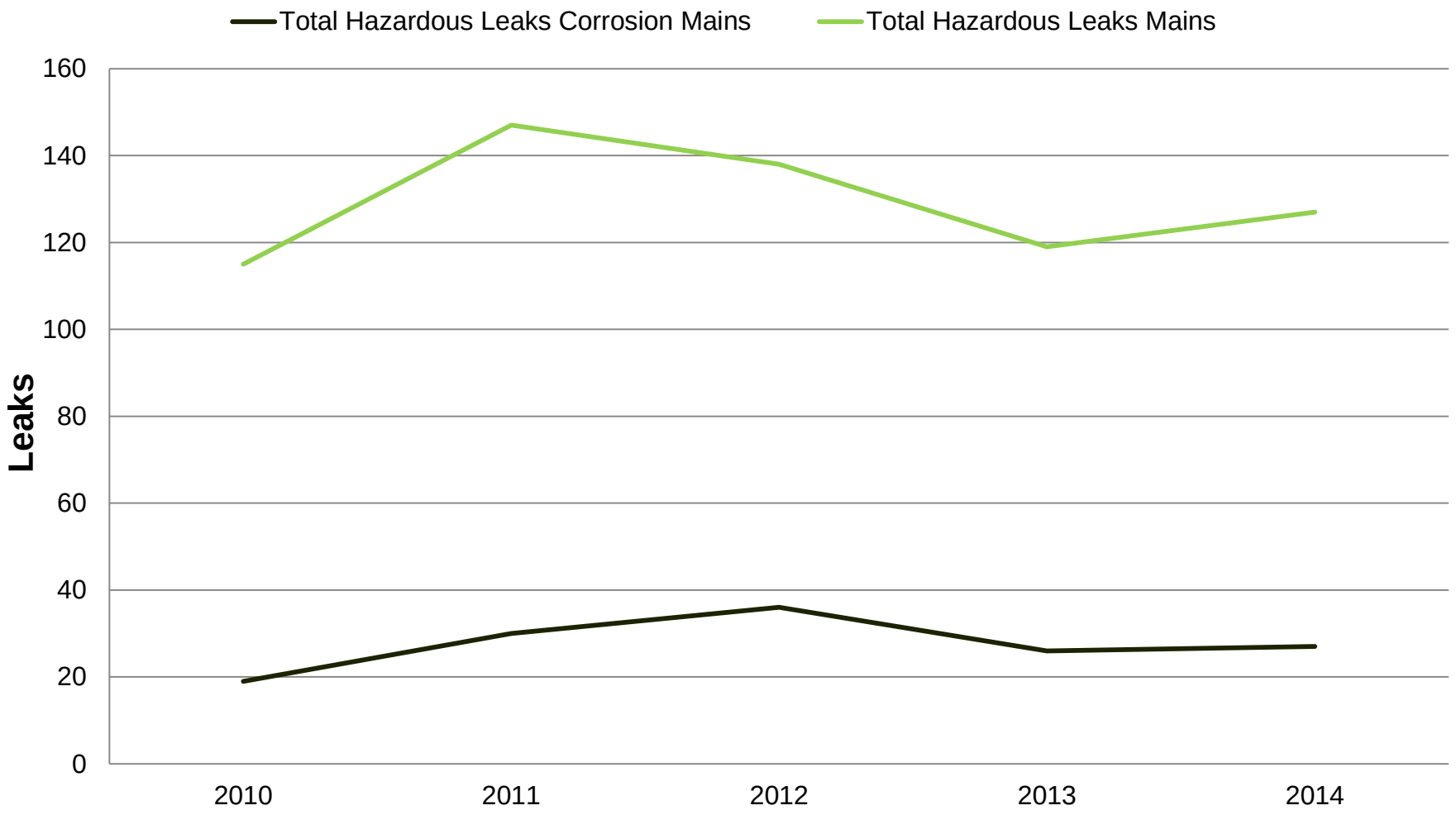
Source: Annual DOT Gas Distribution Reports, PHMSA Form 7100.1-1.

Number of Leaks on Services by Year – Atmos Kansas



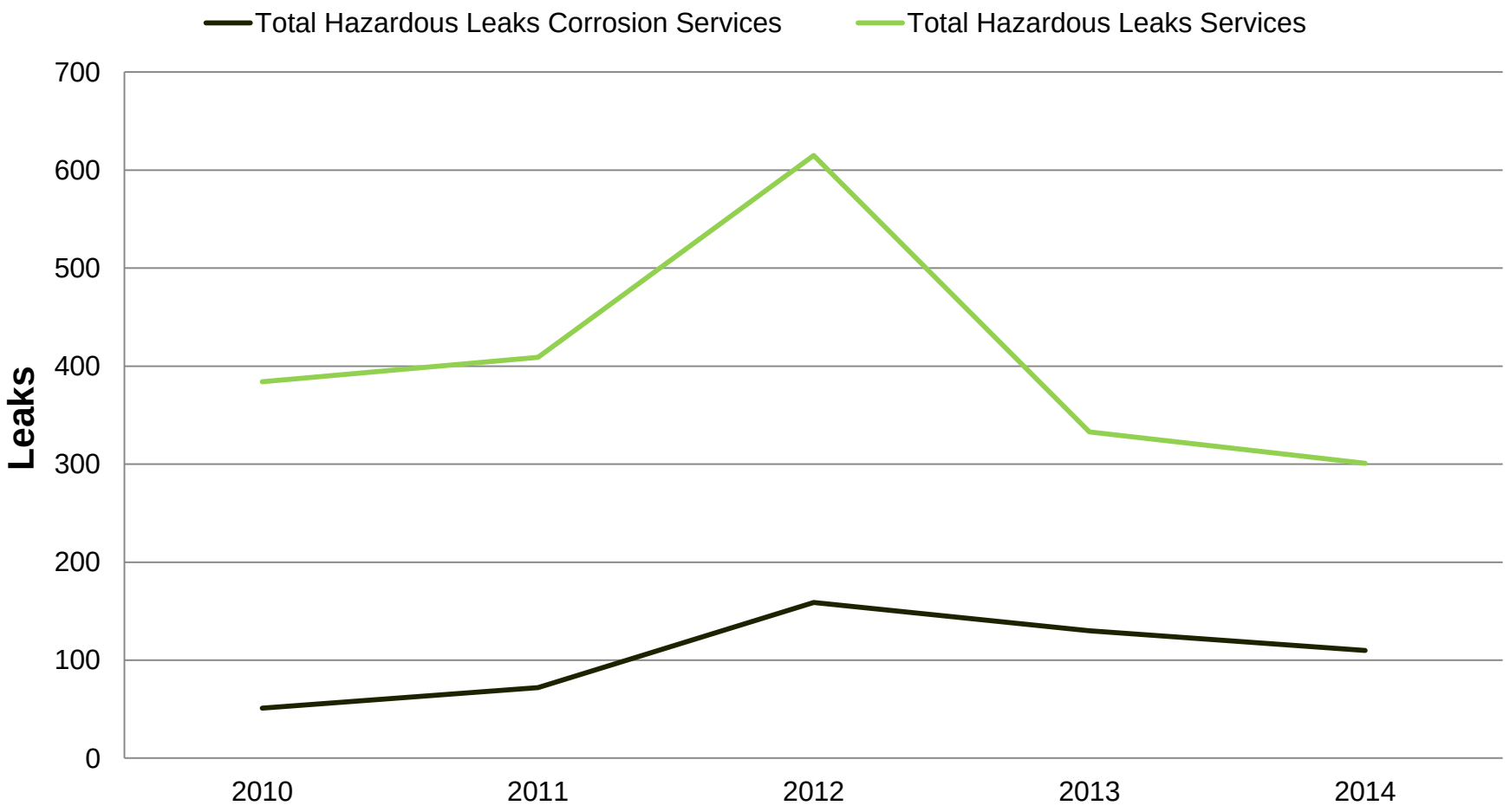
Source: Annual DOT Gas Distribution Reports, PHMSA Form 7100.1-1.

Number of Hazardous Leaks on Mains by Year
Atmos Kansas



Source: Annual DOT Gas Distribution Reports, PHMSA Form 7100.1-1.

Number of Hazardous Leaks on Services by Year
Atmos Kansas



Source: Annual DOT Gas Distribution Reports, PHMSA Form 7100.1-1.

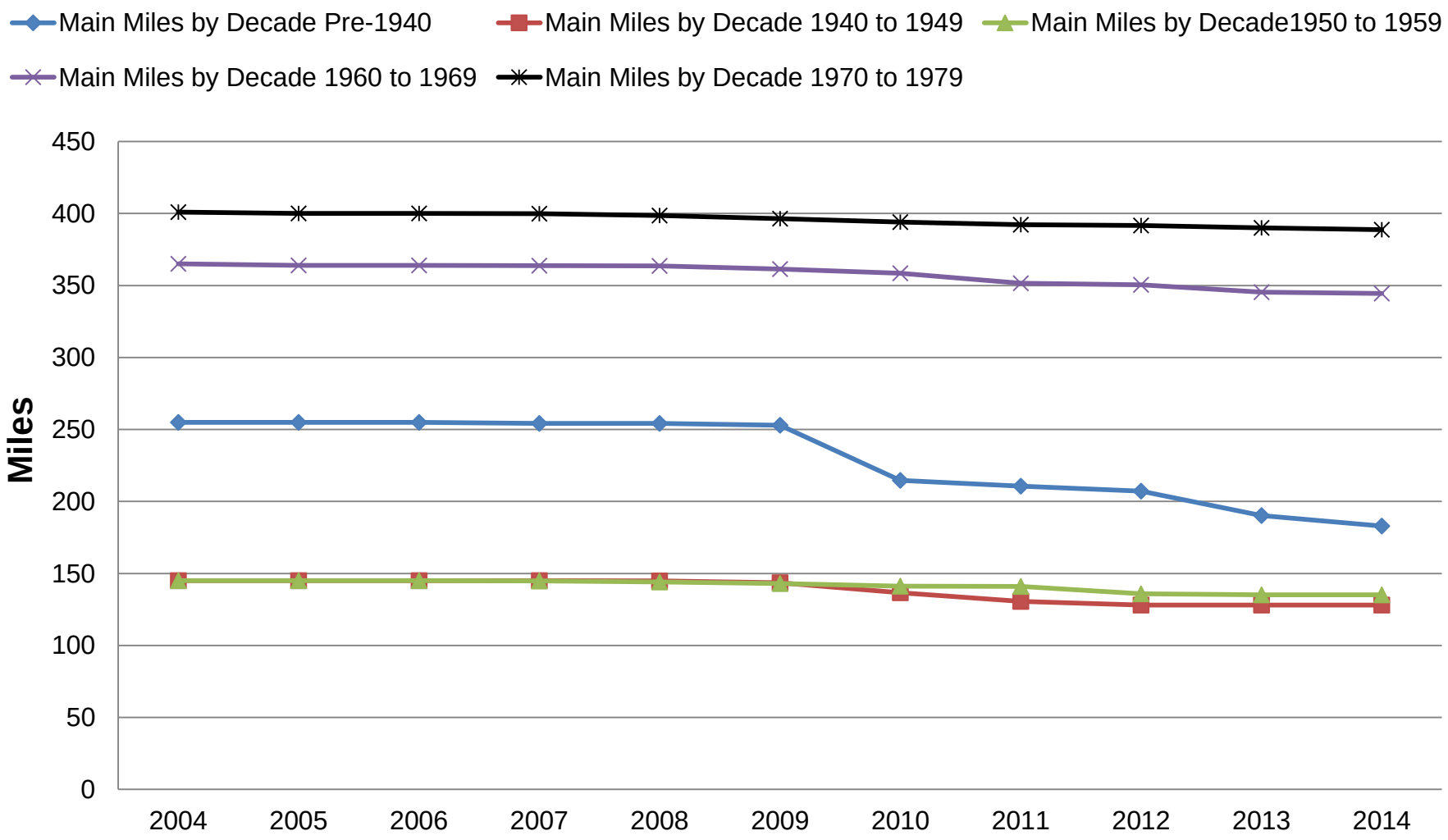
Miles of Vintage Plastic Mains – Atmos Kansas, Greeley Gas, United Cities Gas

Source: Atmos Response to CURB CONFIDENTIAL Data Request 78, Attachment 1.

Number of Vintage Plastic Services – Atmos Kansas, Greeley Gas, United Cities Gas

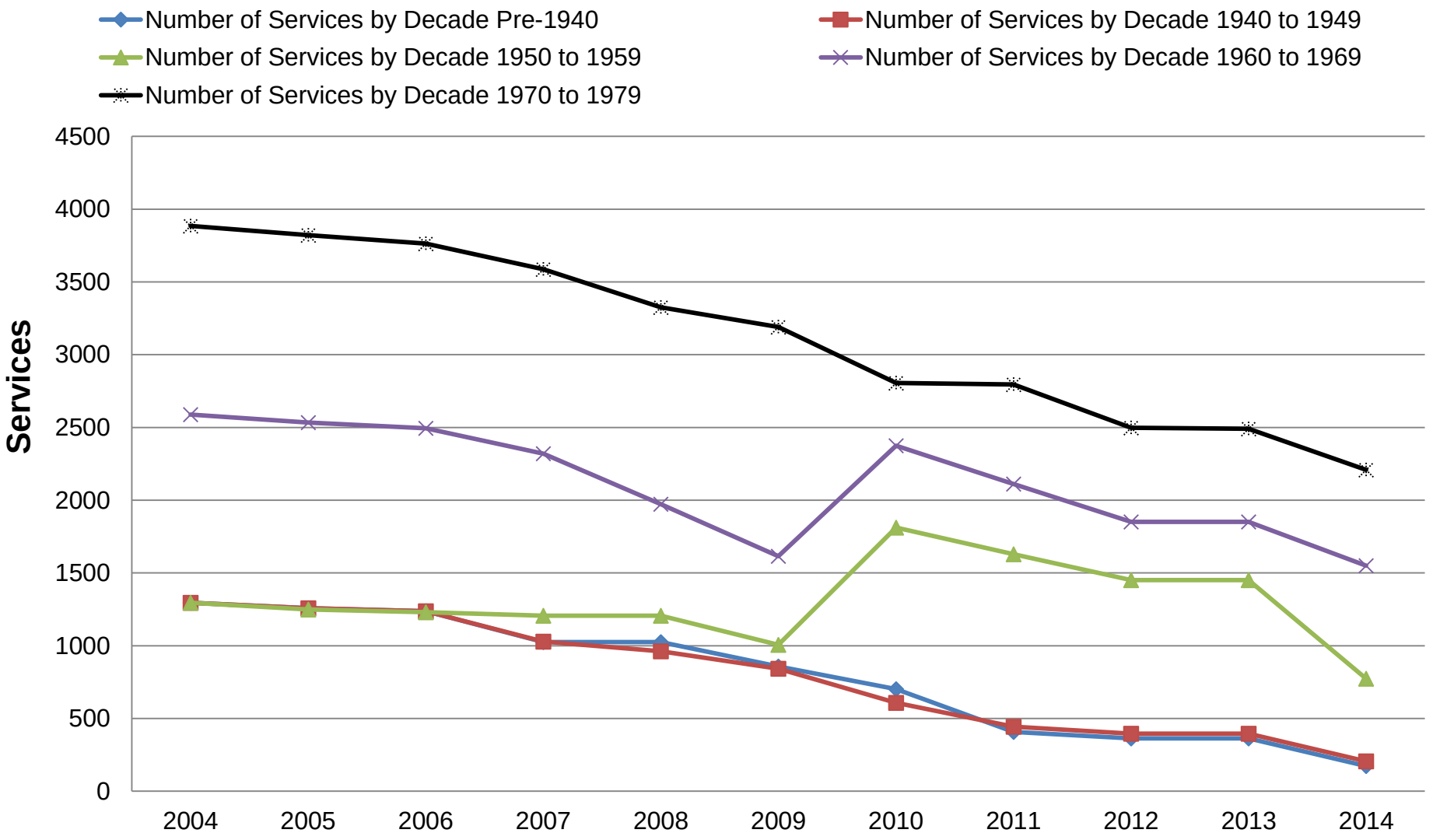
Source: Atmos Response to CURB CONFIDENTIAL Data Request 78, Attachment 1.

Miles of Existing Mains by Decade Installed – Atmos Kansas



Source: Annual DOT Gas Distribution Reports, PHMSA Form 7100.1-1.

Number of Existing Services by Decade Installed
Atmos Kansas



Source: Annual DOT Gas Distribution Reports, PHMSA Form 7100.1-1.

Timeframes for Selected Utilities to Replace All High Risk Pipes

****RANKED****

	Utility Company	Service Territory	State	Forecasted Timeframe (Years)
1	Philadelphia Gas Works	Philadelphia, PA	PA	84
2	ConEd	New York, NY	NY	35
3	**Atmos Energy**	**Kansas**	**KS**	**35**
4	PECO	Greater Philadelphia, PA	PA	33
5	PSE&G	Newark, NJ	NJ	30
6	Pensacola Energy	Pensacola, FL	FL	30
7	Baltimore Gas Company	Baltimore, MD	MD	30
8	UGI	Rural Pennsylvania	PA	27
9	Consumers Energy	Detroit, MI	MI	25
10	DTE	Detroit, MI	MI	25
11	National Grid	New York, NY	NY	25
12	Dominion Hope Gas Co.	Ohio	OH	20
13	Yankee Gas Services Company	Rural Connecticut	CT	20
14	Peoples Gas	Chicago, IL	IL	20
15	National Grid - Niagra Mohawk	Rhode Island	RI	19
16	Peoples TWP	Southwestern Pennsylvania	PA	19
17	Peoples Natural Gas Co.	Southwestern Pennsylvania	PA	17
18	National Grid - Niagra Mohawk	Syracuse, NY	NY	16
19	Columbia Gas of Pennsylvania	Southwestern Pennsylvania	PA	15
20	Northern Utilities	Maine	ME	13
21	CenterPoint	Arkansas	AR	12

Source: U.S. Department of Energy, Quadrennial Energy Review, April 2015, Table 2-3 Expected Replacement Horizons for Select Utilities for Leak-Prone Mains.

APPENDIX C

Referenced Data Requests

Staff 1-174
Staff 1-165
Staff 1-335
Staff 1-334
Staff 1-173

CURB 1-078*

*** Confidential data not provided**

REQUEST:

When does Atmos anticipate completing the risk prioritization project list for its entire system in Kansas?

RESPONSE:

Atmos Energy estimates that it will take approximately two years to develop the complete listing of prioritized SIP projects for the Kansas distribution system.

Respondent: Troy Paige

REQUEST:

For each year 2008 through 2014, how many leaks on PE pipe susceptible to cracking (Aldyl-A, Century, Marlex) mains has Atmos experienced in Kansas?

RESPONSE:

The table below provides a summary of the quantity of leaks that were repaired that occurred on Aldyl-A, Century, Marlex mains from 2008 through 2014.

Repaired Aldyl-A, Century, Marlex Main Leaks

Year	Repaired Leaks
2008	0
2009	0
2010	2
2011	13
2012	18
2013	22
2014	9

Respondent: Troy Paige

REQUEST:

For each year 2008 through 2014, how many leaks on PVC mains has Atmos experienced in Kansas?

RESPONSE:

The table below provides a summary of the quantity of leaks that were repaired that occurred on PVC mains from 2008 through 2014.

Repaired PVC Main Leaks

Year	Repaired Leaks
2008	0
2009	0
2010	1
2011	6
2012	1
2013	2
2014	0

Respondent: Troy Paige

REQUEST:

For each year from 2008 through 2014, how many leaks on Aldyl A service lines has Atmos experienced in Kansas?

RESPONSE:

The table below provides a summary of the quantity of leaks that were repaired that occurred on Aldyl-A service lines and yard lines from 2008 through 2009.

Repaired Aldyl-A Service & Yard Line Leaks

Year	Repaired Leaks
2008	0
2009	0
2010	1
2011	9
2012	33
2013	9
2014	7

Respondent: Troy Paige

REQUEST:

Please provide the score card from prioritization factors for the highest ranked project that included replacement of Aldyl A service lines.

RESPONSE:

Our initial analysis focused on areas with bare steel main, service lines, and yard lines. As such, scores have not been completed for projects in the Aldyl-A areas. Several bare steel, PVC, and Aldyl-A projects will be evaluated and included in the multi-year project plan filed with the Commission as proposed on page 23, lines 18 through 21 of the Direct Testimony of Gary Smith.

Respondents: Troy Paige and Gary Smith

REQUEST:

(a) Please provide in computer-readable format a tabulation of miles of PVC mains existing in the Atmos system each year from 1990 to 2014.

(b) Please provide in computer-readable format a tabulation of miles of Aldyl-A mains existing in the Atmos system each year from 1990 to 2014.

(c) Please provide in computer-readable format a tabulation of miles of Century mains existing in the Atmos system each year from 1990 to 2014.

(d) Please provide in computer-readable format a tabulation of the number of PVC services existing in the Atmos system each year from 1990 to 2014.

(e) Please provide in computer-readable format a tabulation of the number of Aldyl-A services existing in the Atmos system each year from 1990 to 2014.

(f) Please provide in computer-readable format a tabulation of the number of Century services existing in the Atmos system each year from 1990 to 2014.

(g) Please provide in computer-readable format a tabulation of the number of PVC yardlines existing in the Atmos system each year from 1990 to 2014.

(h) Please provide in computer-readable format a tabulation of the number of Aldyl-A yardlines existing in the Atmos system each year from 1990 to 2014.

(i) Please provide in computer-readable format a tabulation of the number of Century yardlines existing in the Atmos system each year from 1990 to 2014.

RESPONSE:

a-f) Atmos Energy interprets miles of main, quantity services and yard lines in this request to mean the miles of main and quantity of services and yard lines installed in Atmos Energy's Kansas service territory. Please see Attachment 1 for the year ending miles of main and quantity of services in the Greeley Gas Company, United Cities Gas Company, and Atmos Energy Corporation Kansas service territory from 1990 through 2014. These quantities are the year ending quantities reported on the annual DOT reports. Atmos Energy and its predecessor companies did not differentiate between pipe manufactured by DuPont and Century; therefore, the cumulative quantities of these pipe types are provided.

g-i) The DOT reports do not provide the year end quantity of yard lines, as such, Atmos Energy is unable to provide a response to subparts (g) through (i). Changes in the reported year ending quantities are the result of pipe replacement projects and data corrections.

ATTACHMENT:

ATTACHMENT 1 - Atmos Energy Corporation, CURB_1-078_Att1 - DOT 1990-2014.xlsx, 1 Page.

Respondent: Troy Paige

CERTIFICATE OF SERVICE

16-ATMG-079-RTS

I, the undersigned, hereby certify that a true and correct copy of the above and foregoing document was served by electronic service on this 21st day of December, 2015, to the following:

JAMES G. FLAHERTY, ATTORNEY
ANDERSON & BYRD, L.L.P.
216 S HICKORY
PO BOX 17
OTTAWA, KS 66067
jflaherty@andersonbyrd.com

JAMES PRICE, ATTORNEY
ATMOS ENERGY
5430 LBJ FREEWAY, THREE LINCOLN CENTRE
PO BOX 650205
DALLAS, TX 75265-0205
james.price@atmosenergy.com

JENNIFER G. RIES, VICE PRESIDENT,
RATES AND REGULATORY AFFAIRS
ATMOS ENERGY CORPORATION
1555 BLAKE ST STE 400
DENVER, CO 80202
jennifer.ries@atmosenergy.com

DAVID COHEN, LAW CLERK - OFFICE OF THE GENERAL COUNSEL
KANSAS CORPORATION COMMISSION
1500 SW ARROWHEAD RD
TOPEKA, KS 66604-4027
d.cohen@kcc.ks.gov

ANDREW FRENCH, SENIOR LITIGATION COUNSEL
KANSAS CORPORATION COMMISSION
1500 SW ARROWHEAD RD
TOPEKA, KS 66604-4027
a.french@kcc.ks.gov

DUSTIN KIRK, ASSISTANT GENERAL COUNSEL
KANSAS CORPORATION COMMISSION
1500 SW ARROWHEAD RD
TOPEKA, KS 66604-4027
d.kirk@kcc.ks.gov

MICHAEL NEELEY, LITIGATION COUNSEL
KANSAS CORPORATION COMMISSION
1500 SW ARROWHEAD RD
TOPEKA, KS 66604-4027
m.neeley@kcc.ks.gov

JAMES H. JEFFRIES
MOORE & VAN ALLEN PLLC
100 NORTH TYRON STREET
CHARLOTTE, NC 2802-4003
jimjeffries@mvalaw.com

GLENDA CAFER, ATTORNEY
CAFER PEMBERTON LLC
3321 SW 6TH ST
TOPEKA, KS 66606
glenda@caferlaw.com

TERRI PEMBERTON, ATTORNEY
CAFER PEMBERTON LLC
3321 SW 6TH ST
TOPEKA, KS 66606
terri@caferlaw.com

ALEX GOLDBERG, EXECUTIVE VICE PRESIDENT, GENERAL COUNSEL
CONTINUUM RETAIL ENERGY SERVICES, L.L.C.
1323 E 71ST, STE # 300
TULSA, OK 74136
agoldberg@continuumes.com

TIMOTHY MULLER, SENIOR ATTORNEY
CONTINUUM RETAIL ENERGY SERVICES, L.L.C.
1415 LOUISIANA STREET, STE 4200
HOUSTON, TX 77002
tmuller@continuumes.com

RICK PEMBERTON, DIRECTOR, MIDWEST
CONTINUUM RETAIL ENERGY SERVICES, L.L.C.
3732 SW SPRING CREEK LANE
TOPEKA, KS 66610
rpemberton@continuumes.com

Della Smith
Administrative Specialist