

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of an Investigation into)	
City Utilities of Springfield Plastic Pipe)	
Failures and the Adequacy of its Leak)	<u>Case No. GS-2004-0257</u>
Survey Procedures, Installation)	
Procedures and Replacement Criteria)	

**STAFF'S STATUS REPORT REGARDING CITY UTILITIES OF
SPRINGFIELD'S PLASTIC PIPE REPLACEMENT PROGRAM**

COMES NOW the Staff of the Missouri Public Service Commission and files its report regarding its ongoing investigation into plastic pipe leaks caused by rock impingement and City Utilities of Springfield's ("City Utilities") plastic pipe replacement program, and in support states as follows:

1. On May 18, 2010, Staff and City Utilities filed a *Joint Recommendation Concerning Pipeline Replacement Schedule* ("Joint Recommendation"). The Joint Recommendation listed the parameters that Staff and City Utilities agreed to follow for year 2010 and beyond. On May 28, 2010, the Commission issued an *Order Adopting Joint Recommendation and Ordering Compliance with Pipeline Replacement Schedule*.

2. In 2016, City Utilities proposed to change its reporting period from a calendar year basis to an October through September annual reporting basis corresponding with City Utilities' fiscal year to allow for more efficient scheduling of replacement projects. The Commission granted this change in the reporting period on May 31, 2016.

3. Attached hereto and incorporated herein by this reference is Staff's Status Report, which discusses Staff's on-going investigation into plastic pipe leaks caused by

rock impingement and City Utilities' plastic pipe replacement program. Due to the change in the reporting period noted above, the attached Status Report focuses on January 1, 2016, through September 30, 2016, information. However, for purposes of calculating annual miles replaced, the period is from October 1, 2015, through September 30, 2016.

4. Staff has been and will continue to monitor the effectiveness of City Utilities' plastic main and service line replacement program and leak surveys. If at any time Staff determines that the program requirements should be enhanced, it will immediately bring its concerns and recommendations to the Commission.

5. Staff recommends City Utilities continue the current replacement program and leak survey schedule (based upon the replacement criteria for calendar year 2010 and beyond listed in the attached report).

WHEREFORE, Staff requests the Commission accept Staff's Status Report attached hereto.

Respectfully submitted,

/s/ Jeffrey A. Keevil

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Missouri Public Service Commission

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CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing have been mailed, hand-delivered, or transmitted by facsimile or electronic mail to counsel of record this 6th day of January, 2017.

/s/ Jeffrey A. Keevil

STAFF'S STATUS REPORT

Case No. GS-2004-0257

City Utilities of Springfield

January 6, 2017

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STAFF'S STATUS REPORT
CASE NO. GS-2004-0257

BACKGROUND:

This is Staff's seventh status report concerning the schedule and recommendations in the Joint Recommendation Concerning Pipeline Replacement Schedule ("Joint Recommendation") filed on May 18, 2010, and approved by the Commission on May 28, 2010. This status report discusses Staff's on-going investigation into plastic pipe leaks caused by rock impingement and City Utilities of Springfield's ("City Utilities") plastic pipe replacement program.

Staff filed the latest of these annual Reports on April 5, 2016. That Report detailed City Utilities' plastic pipe monitoring, evaluation and replacement program for calendar year 2015. The Report further indicated that City Utilities had complied with the replacement program schedule as listed in the Joint Recommendation adopted by the Commission on May 28, 2010. In the April 5, 2016 Report, Staff indicated it would file "another Status Report on or before January 10, 2017".

In 2016, City Utilities proposed to change the reporting period from a calendar year basis to an October through September annual reporting basis corresponding with City Utilities' fiscal year to allow for more efficient scheduling of replacement projects. The Commission granted this change in the reporting period on May 31, 2016. For that reason, this Status Report focuses on January 1, 2016 through September 30, 2016 information. However, for purposes of calculating annual miles replaced, the period is from October 1, 2015 through September 30, 2016. In subsequent reporting years, annual miles replaced would be for a period of October 1 through September 30 (12 months).

STATUS REPORT:

During the three month period of October 1, 2015 through December 31, 2015, City Utilities experienced four leaks due to rock impingement in which all leaks were reported by the public (odor calls); three were on high-pressure piping (60 psig), and one was on intermediate pressure piping (15-35 psig). For the nine month period of January 1, 2016 through September 30, 2016, City Utilities experienced ten leaks due to rock impingement in which three (3) were

discovered during the leak surveys and the remaining seven (7) were reported by the public; eight were on high-pressure piping (60 psig), one was on intermediate pressure piping (15-35 psig), and one was on low pressure piping (0-5 psig). Leaking service lines were replaced from main to meter at the time of discovery. Leaking mains were repaired and those main segments were added to City Utilities' "Plastic Pipe Failure – Rock/Dirt Mix Master List" (Master List)¹ for annual leak surveys and systematic replacement at a future date.

For the time period of 1999 through September 30, 2016, records indicate 93% of rock impingement leaks have been on pre-1985 piping and 80% have been on piping operating at high-pressure (60 psig operating systems); 14% have been on piping operating at intermediate pressure (15-35 psig), and 6% were on piping operating at low pressure (0-5 psig).

Based upon this historical data, including the more recent rock impingement leak information, the primary focus of the replacement program must be on the replacement of pre-1985 high-pressure (60 psig) plastic piping.

The Staff recommends continuing the current replacement program and leak survey schedule (based upon the replacement criteria for calendar year 2010 and beyond listed in this report). The recommendations in the Joint Recommendation are listed below, followed by the current status of each recommendation. City Utilities met these recommendations during the period of this Status Report (CU Fiscal Year: 10/1/15-9/30/16).

Recommendations - Replacement Criteria for Calendar Year 2010 and Beyond:

1. City Utilities shall replace the remaining pre-1985 "high-pressure" DuPont Aldyl A[®] polyethylene piping (services lines 1¼ inches in diameter and larger and mains) at a rate of at least 6 miles annually².

¹ The "Master List" lists pipe segments that need to be replaced, scheduled for replacement and that have been replaced based upon rock impingement leaks, piping segments in a rock-dirt mix backfill and other criteria as listed in Recommendation 4.

² Replacements of "high-pressure" DuPont Aldyl A[®] piping installed in 1985 and after, and other lower pressure categories of DuPont Aldyl A[®] piping is considered as a lower priority for replacement, but can be included in the total annual mileage if the segments have experienced leaks, are in a rock-dirt backfill, or if the piping is connected to a higher priority segment that is being replaced.

During the three month period of October 1, 2015 through December 31, 2015, City Utilities replaced 2.48 miles of plastic piping and 192 plastic service lines. For the nine month period of January 1, 2016 through September 30, 2016, City Utilities replaced 7.79 miles of plastic piping and 384 plastic service lines. Based upon the new reporting schedule that covered October 1, 2015 through September 30, 2016, the total replacement mileage was 10.27 miles of plastic piping (includes both pre-1985 and post-1985 plastic mains at all pressure categories) and 576 plastic service lines. The total replacement of pre-1985 high-pressure DuPont Aldyl A[®] pipe was 5.65 miles for the 12-month period of October 1, 2015 through September 30, 2016.

2. City Utilities shall continue its practice of replacing nearby or adjacent pipe segments that are beyond the specific piping in the same work order number because the piping was installed in the same time period and could likely have been installed using the same methods and in the same environment.

City Utilities' Supervisor Natural Gas/Water Engineering evaluates each location for nearby and adjacent piping replacement before assigning the job to the Natural Gas/Water Engineering personnel and these piping segments are included in the replacement program.

3. City Utilities shall continue its practice of replacing the service lines associated with the main replacements.

City Utilities has continued its practice of replacing all gas service lines associated with the main replacements.

4. The replacements shall be prioritized based on risk factors, such as Maximum Allowable Operating Pressure (MAOP), installation in rock-dirt backfill, installation date, history of leaks due to rock impingement, continuous pavement areas, areas of high population density, areas of previous leakage, and other appropriate criteria.

City Utilities' Supervisor Natural Gas/Water Engineering evaluates each location per the above criteria and the Master List before prioritizing and assigning the job.

5. The primary focus of the replacement program shall be on “high-pressure” DuPont Aldyl A[®] piping that was manufactured before 1985 (pre-1985) that was installed in a rock-dirt backfill. Replacements of “high-pressure” DuPont Aldyl A[®] piping installed in 1985 and after, and other lower pressure categories of DuPont Aldyl A[®] piping would normally be a low priority, but can be included in the total annual mileage if the segments have experienced leaks, are in a rock-dirt backfill, or if the piping is connected to a higher priority segment that is being replaced.

City Utilities' primary focus of the replacement program must be on high-pressure DuPont Aldyl A[®] piping that was manufactured before 1985. City Utilities' Supervisor Natural Gas/Water Engineering evaluates each location and prioritizes the job assignment as contained in the recommended criteria. City Utilities has included the replacement of intermediate and low pressure DuPont Aldyl A[®] piping in the total annual replacement mileage. To date, City Utilities has replaced 40.87 miles of pre-1985 high-pressure (60 psig) plastic main and associated service lines, and 19.63 miles of pre-1985 low (less than 5 psig) and

intermediate (15-35 psig) plastic gas main and associated service lines since the beginning of City Utilities' replacement program in 2004.

6. Staff has agreed that, depending on City Utilities' investigation into their distribution integrity management program (DIMP), the provisions of this replacement program may be adjusted, with Commission approval. The U.S. Department of Transportation-Pipeline and Hazardous Materials Safety Administration Final Rule (DIMP) took effect February 2, 2010, and operators were required to have an Integrity Management program in-place and implemented by August 2, 2011. If, at any time during the review of their DIMP program, City Utilities discovers more essential and higher priority areas on which it must concentrate its replacement efforts, such as rock impingement leaks on lower pressure PE piping and PE piping installed after 1984, City Utilities will bring these issues to Staff's attention and notify the Commission.

City Utilities provided Staff with a copy of its DIMP plan on August 2, 2011 and Staff has reviewed the plan. If at any time the DIMP risk analysis process identifies higher priority areas than the segments of its system covered by the Joint Recommendation order, City Utilities will arrange discussions with Staff and notify the Commission of the higher priority areas. City Utilities filed an updated DIMP Plan on July 28, 2016 and Staff will review the revised plan with City Utilities.

Recommendations - Non-Replacement Criteria for Calendar Year 2010 and Beyond:

In addition to the above replacement program, City Utilities will continue to meet the following requirements of the original agreement:

7. An annual leakage survey shall be conducted over pre-1985, 60 psig plastic piping. In addition, an annual leakage survey shall be conducted over post-1985 and/or low and medium pressure main segments that have exhibited splits or are confirmed to be in rock-dirt mix backfill.

City Utilities' Gas Leak Survey Department is in the process of conducting its annual leakage survey of pre-1985 ALDYL A[®], high-pressure (60 psig) plastic pipe and piping from its Plastic Pipe Failure – Rock/Dirt Mix Master List. For the period of January 1, 2016 through September 30, 2016 a total of three (3) rock impingement leaks were found on mains during the leak survey and then subsequently repaired. The total number of rock impingement leaks found by leak surveys during the 12-month period from October 1, 2015 to September 30, 2016 was three (3).

8. Quarterly leak surveys shall be conducted of the downtown business district.

City Utilities conducted leak surveys of the downtown business district during October of 2015, January, April, and July of 2016. No rock impingement leaks were found during these quarterly business district leak surveys.

9. Any plastic piping that is exposed will be inspected for proper backfill, and if rock- dirt mix backfill is found, the main segments and larger diameter service lines (1¼-inch diameter and larger) shall be added to the Master List for annual leak surveys and systematic replacement.

From January 1, 2016 through September 30, 2016, City Utilities found rock-dirt mix backfill in approximately 35% of the locations where plastic piping was

exposed. These locations were added to the Master List for annual leak surveys and replacement. Since inception of the program in 2004, City Utilities has found rock-dirt mix backfill in approximately 22% of the locations where plastic piping was exposed for various reasons.

10. Semi-annual reports and monthly updates shall be submitted to Staff.

City Utilities continues to submit semi-annual reports and monthly updates to Staff. Based upon the new reporting schedule the next semi-annual reports will cover the periods of October 1, 2016 through March 31, 2017 and April 1, 2017 through September 30, 2017, respectively. Staff will continue to review these monthly updates and semi- annual reports.

11. The mileage of pre-1985, 60 psig mains that remain in the distribution system shall be provided to Staff.

City Utilities had approximately 75.45 miles of pre-1985 high-pressure (60 psig) plastic main in its distribution system at the beginning of the replacement program. City Utilities has replaced approximately 40.87 miles of pre-1985 high-pressure (60 psig) and approximately 19.63 miles of pre-1985 intermediate and low pressure plastic gas main since the beginning of the 2004 replacement program. As of September 30, 2016, approximately 34.58 miles of pre-1985 high-pressure (60 psig) plastic main remained in City Utilities' distribution system.

12. Staff and City Utilities shall continue to monitor the effectiveness of the Replacement Program. If at any time, Staff determines that the program requirements should be enhanced, it will immediately bring its concerns and recommendations to the Commission.

City Utilities reports that it is closely monitoring its plastic gas piping system. Staff reviews the monthly and semi-annual reports submitted by City Utilities to monitor the effectiveness of the replacement program. As leaks due to rock impingement are identified, these main segments are added to the Master List and annually leak surveyed until they are replaced. Factors such as location, pressure, and number of leaks are being taken into consideration when scheduling plastic pipe replacement projects. As plastic gas mains are being replaced, City Utilities is replacing all of the plastic service lines installed prior to June 2004 along with the main. Staff will continue to review the monthly updates and semi-annual reports (see item 10) and, if needed, make immediate recommendations to the Commission.

SUMMARY:

Staff has been and will continue to monitor the effectiveness of City Utilities' plastic main and service line replacement program and leak surveys. If at any time Staff determines that the program requirements should be enhanced, it will immediately bring its concerns and recommendations to the Commission.

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OF THE STATE OF MISSOURI**

In the Matter of an Investigation into City Utilities of)
Springfield Plastic Pipe Failures and the Adequacy)
Of its Leak Survey Procedures, Installation)
Procedures and Replacement Criteria)

File No. GS-2004-0257

AFFIDAVIT OF KATHLEEN A. MCNELIS

STATE OF MISSOURI)
) ss
COUNTY OF COLE)


COMES NOW, Kathleen A. McNelis, and on her oath declares that she is of sound mind and lawful age; that she contributed to the attached Report; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

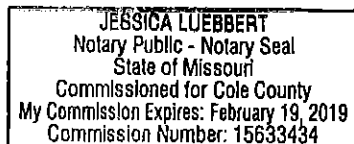


Kathleen A. McNelis

Subscribed and sworn before me on this 5th day of January, 2017.



Notary Public



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AFFIDAVIT OF GREG A. WILLIAMS

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

COMES NOW, Greg A. Williams, and on his oath declares that he is of sound mind and lawful age; that he contributed to the attached Report; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.



Greg A. Williams

Subscribed and sworn before me on this 5th day of January, 2017.



Notary Public

