

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

In the Matter of the Adequacy of Laclede )	
Gas Company's Service Line Replacement )	
Program and Leak Survey Procedures. )	Case No. GO-99-155

**STAFF'S ANNUAL REPORT**

COMES NOW the Staff of the Missouri Public Service Commission and, in response to the Commission's October 28, 2004 Order Directing Filing, states:

1. On October 14, 1998, Staff filed a motion to open a case to investigate the adequacy of Laclede Gas Company's (Laclede or Company) current direct-buried-copper-service-line replacement program and the effectiveness of the Company's leak survey procedures and investigations.

2. On October 30, 1998, the Commission issued an Order Establishing Case for the purpose of receiving information relevant to the adequacy of Laclede's copper service line replacement program and the effectiveness of the Company's leak surveys and investigations.

3. On February 18, 2000, the Parties filed a Unanimous Stipulation and Agreement. Agreement Section 7(h) states that: "[a]fter the third year of this program, Laclede and the Gas Safety Staff will review the progress and results of the Company's Copper Service Safety Program to determine future relay/renewal plans, including the rate of such future actions, potential modifications to survey techniques and other related matters."

4. On October 28, 2002, the Staff filed a Staff Update Report to Laclede's Copper Service Line Program Pertaining to Case No. GO-99-155, that summarized data obtained during Staff's ongoing monitoring of the program's progress. This Update Report, with information available through October 2002, indicated Laclede was in compliance with the requirements of

the Unanimous Stipulation and Agreement, and Staff expected Laclede to meet their 2002-2003 (through March 1, 2003) goal of 8,000 renewals. Staff continues to monitor the adequacy of Laclede's direct-buried-copper-service-line replacement program and the effectiveness of the leak surveys and investigations, and believes the program is progressing as designed.

5. In the Unanimous Stipulation and Agreement, Laclede agreed to provide its annual program report to Staff no later than April 30 of each program year, which details the copper service line relays/renewals for that program year.

6. On August 1, 2003 Staff filed its Three Year Summary Report Concerning Laclede's Copper Service Line Replacement Program detailing the copper service line relays/renewals and annual bar-hole leak surveys for each of the first three program years. Staff requested that the Commission approve its recommendation to continue the current requirements of the Stipulation and Agreement, with continued annual reporting from the Staff to the Commission pertaining to the matters addressed in the Stipulation.

7. On March 5, 2004, the Commission issued its Report and Order approving Staff's recommendation that the Commission continue the current requirements of the previously approved Stipulation and Agreement, with annual reporting from Staff to the Commission.

8. On April 6, 2004, the Commission issued an order directing Staff to file a status report regarding the annual report.

9. Staff filed its Status Report on April 19, 2004, requesting sufficient time, of up to September 1, 2004, to file its Annual Report to complete a comprehensive update report detailing the results of the copper service line replacement and bar-hole leak survey completed since Staff filed its three-year summary report on August 1, 2003.

10. Effective April 27, 2004, the Commission approved Staff's request to provide the Commission with an update report no later than September 1<sup>st</sup> each year.

11. Staff filed its Annual Report on September 1, 2004, detailing Staff's analysis of the service line replacement program, which included updating the results of the copper service line replacement program and bar-hole survey completed since Staff filed its 3-year summary report on August 1, 2003.

12. Effective November 7, 2004, the Commission approved Staff's recommendation that Laclede shall continue to meet or exceed the current requirements of the Unanimous Stipulation and Agreement, with annual reporting from Staff to the Commission. The Staff was ordered to file the next annual report no later than September 1, 2005.

13. Staff filed its Annual Report on August 29, 2005, detailing Staff's analysis of the service line replacement program, which included updating the results of the copper service line replacement program and bar-hole leak survey completed since Staff filed its Annual Report on September 1, 2004.

14. Effective February 17, 2006, the Commission approved Staff's recommendation that Laclede shall continue to meet or exceed the current requirements of the Unanimous Stipulation and Agreement, with annual reporting from Staff to the Commission. The Staff was ordered to file the next annual report no later than September 1, 2006.

15. Staff has verified that Laclede has filed its annual Report and is not delinquent on any assessment. Staff has completed an analysis of Laclede's copper service line replacements and bar-hole survey data, and submits its Annual Report attached as Exhibit A.

16. If, at any time during its monitoring and review of this program, Staff believes that changes to the program are necessary, Staff will file a notice with the Commission to recommend that the Commission order corrective action to address Staff's concerns.

WHEREFORE, the Staff respectfully requests that the Commission approve the recommendation to continue the current requirements of the Stipulation and Agreement, with continued annual reporting from Staff to the Commission pertaining to the matters addressed in the Stipulation.

Respectfully submitted,

**/s/ Robert S. Berlin**

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### **Certificate of Service**

I hereby certify that copies of the foregoing have been mailed, sent by facsimile, sent by email or hand-delivered to all counsel of record this 30th day of August, 2006.

**/s/ Robert S. Berlin**

**STAFF'S REPORT IN RESPONSE TO**  
**THE COMMISSION'S ORDER FOR STAFF TO CONTINUE ITS**  
**ANNUAL REPORTING TO THE COMMISSION**  
**Case No. GO-99-155**

**BACKGROUND:**

The Commission opened this case on October 30, 1998, as a general investigatory case to receive information relevant to the adequacy of Laclede Gas Company's direct-buried copper service line replacement program and the effectiveness of Laclede's leak survey procedures. On February 18, 2000, Laclede, Staff and the Office of the Public Counsel filed a Unanimous Stipulation and Agreement (Agreement). As part of the Agreement, Laclede agreed to submit annual reports to Staff detailing direct-buried copper service line renewal (full replacement) and relays (partial replacement) completed, and agreed to submit additional reports confirming the achievement of other milestones under the Agreement. The Agreement provided that after the third year of the program, Laclede and Staff would review the progress and results of the program to determine future relay/renewal plans, including the rate of such future actions, and potential modifications to leak survey techniques and other related matters. On May 18, 2000, the Commission issued its order approving the Unanimous Stipulation and Agreement.

On August 1, 2003, Staff filed its Three-year Summary Report, and on September 1, 2004 and August 29, 2005, Staff filed subsequent annual reports, which combined, represent the first five (5) years of the program, all of which can be summarized as follows:

**1. Copper Service Line Renewals**

Laclede replaced or eliminated a total of 42,036 direct-buried copper service lines during the first five (5) years of the program, which represents approximately 55 percent of the program's beginning total qualifying lines (76,966). The Agreement requires Laclede to replace or renew 8,000 lines annually and Laclede has exceeded the annual minimum rate of renewals. Laclede was permitted under the terms of the Agreement's replacement requirements to do partial replacement of certain copper service lines. However, during the beginning of the second year of the program, Laclede discovered efficiencies and benefits in conducting full main-to-meter replacements and since that time (including the second year of the program) has been

replacing, main-to-meter, over 8,100 copper service lines each year. Staff recommended, unless otherwise ordered by the Commission, that Laclede continue to renew (main-to-meter replacement) a minimum of 8,000 direct-buried copper service lines annually.

## **2. Bar-hole Leak Surveys**

Laclede successfully completed an annual bar-hole leak survey for each of the first five (5) program years, with each survey completed by July 1<sup>st</sup> of each year. In 1999, Laclede first completed a bar-hole leak survey producing a 3.4 percent (3.4%) leak rate. Laclede's 2002 bar-hole leak survey, of approximately 60,000 direct-buried copper service lines, produced a leak rate of 1.1 percent (1.1%). The reduction in leak rate from 1999 to 2002 was approximately a 68 percent (68%) reduction in discovery of new leaks during annual bar-hole leak surveys. Laclede's 2003 bar-hole leak survey of approximately 52,000 direct-buried copper service lines yielded a new leak discovery rate of slightly over one (1) percent (1.06%), but still below Year 2002 new leak rates. Laclede's Year 2004 bar-hole leak survey of approximately 44,624 direct-buried copper service lines yielded a total of 409 leaks, which represents a 0.92 percent (0.92%) leak rate for the 2004 survey and a 72 percent (72%) decrease in the leak rate since the beginning of the program. Laclede's Year 2005 bar-hole survey of approximately 37,557 direct-buried copper service lines yielded a total of 284 leaks, which represents a 0.76 percent (0.76%) leak rate, which is slightly less than the 2004 leak rate. This equates to a 78 percent (78%) decrease in the leak rate since the beginning of the program. As reported in Staff's August 2003 Three-Year Summary Report, and Staff's 2004 and 2005 Annual Reports, results from bar-hole leak surveys have shown a continuing downward trend in the leak discovery rate (percentage) of new leaks discovered on copper service lines.

The Agreement mandates practices that provide for early leak detection on direct-buried copper service lines. Therefore, the Staff recommended that, as it pertains to leak surveys, Laclede continue to perform an annual bar-hole leak survey. The Agreement specifically states that an annual bar-hole survey shall be conducted for the first three (3) program years. Because, at the time of Staff's Three-Year Summary Report, and 2004 and 2005 Annual Reports, no other testing method had been shown to be superior in the detection of sub-surface leaks than strategically placing bar-holes over certain service line locations and conducting a leak survey, the Staff recommended that the annual bar-hole leak surveys continue.

### **3. Leak Repairs**

Any Class 1 or 2 leak is repaired immediately. Otherwise, in accordance with the Agreement, leaks detected during an annual bar-hole leak survey are required to be repaired within six (6) months, or at the latest, within a year of discovery, depending on whether the leaks are located in Pressure Regions I or II (Pressure Region I includes direct-buried copper service lines that can operate above 35 psig, while these same service lines in Pressure Region II operate below 35 psig). These leak repair requirements are more stringent than MoPSC Pipeline Safety Regulations, which generally require that Class 3 leaks, which are not considered to be a hazard, be monitored every six (6) months and repaired within five (5) years.

For the first three (3) years of the program, Laclede repaired most Class 3 leaks in Pressure Region I within an average time of three (3) to four (4) months after discovery, instead of the six (6) months allowed under the Program. During the fourth and fifth year of the program, Laclede repaired Class 3 leaks in Pressure Region I within an average time of three (3) months (down from 3 to 4 months during the first three (3) years of the program). While Class 3 leaks in Pressure Region II require repair within one (1) year of discovery, Laclede averaged seven (7) to nine (9) months for these repairs during the first three (3) years of the program. During the fourth and fifth year of the program, Laclede was repairing Class 3 leaks in Pressure Region II within an average time of seven months (down from 7 to 9 months during the first three (3) years of the program).

Making timely repairs prior to the subsequent bar-hole leak survey: (1) provides for more accurate studies of data; (2) facilitates determination of leak trends in leak totals; and (3) improves detection of differences in areas where corrosion may be more or less active. For these reasons, Staff recommended maintaining the timely repair requirements of six months for Pressure Region I leaks, and one year for Pressure Region II leaks, as stated in the Agreement.

## **2006 ANNUAL REPORT**

### **INTRODUCTION:**

Subsequent to the filing of Staff's Three-Year Summary Report, on March 5, 2004, the Commission issued a REPORT AND ORDER in which the Commission approved Staff's recommendation that the Commission continue the current requirements of the previously approved Stipulation and Agreement, with annual reporting from Staff to the Commission. Subsequent to the filing of Staff's latest Annual Report, on August 29, 2005, the Commission issued an ORDER CONTINUING REQUIREMENTS OF UNANIMOUS STIPULATION AND AGREEMENT, in which the Commission approved Staff's recommendation that the Commission continue the current requirements of the previously approved Agreement, with annual Staff reports to the Commission and that Staff's next annual report be filed no later than September 1, 2006, unless otherwise ordered.

### **REPORT OVERVIEW:**

This update report summarizes data obtained (through August 2006) during Staff's ongoing monitoring of the program's progress, addresses information relevant to the adequacy of Laclede's copper service line replacement program, and discusses the effectiveness of the Company's leak surveys and investigations. For purposes of this report, Staff will touch upon the major points of Laclede's program. This program does appear to be yielding a number of positive results.

It should be noted that, unless otherwise ordered by the Commission, Laclede is required to follow, at a minimum, the Agreement until completion of the entire program. If, at any time, Staff determines that the program requirements are inadequate, Staff will immediately bring its concerns and recommendations to the Commission.

### **STAFF INVESTIGATION/ANNUAL REPORT**

#### **1. Copper Service Line Replacements**

During program year six (12 months ending March 1, 2006), Laclede completed a total of 8,204 direct-buried copper service line replacements (main-to-meter). During the first six years of the program, Laclede has completed a total of 50,240 direct-



buried copper service line replacements, which represents approximately 65 percent of the program's beginning total qualifying services (76,966). Through the end of program year six, Laclede has averaged 8,373 direct-buried copper service line replacements each year, which exceeds the Agreement's criteria of an annual replacement rate of 8,000 direct-buried copper service lines.

This aggressive annual replacement rate (i.e. approximately 10% annually), based upon priority, with increased frequencies of leak surveys, continues to be successful and, therefore, Staff recommends that the annual requirement of a minimum of 8,000 direct-buried copper service line replacements (main-to-meter) should be maintained at this time. The results of the replacement program are a substantial annual reduction in the number of direct-buried copper service lines in the system and a reduced leakage rate for the lines that remain to be replaced.

## **2. Bar-hole Leak Surveys**

Laclede conducted its 2006 bar-hole leak survey during the months of March - July 2006. Laclede personnel conducted a bar-hole leak survey over 5,913 direct-buried copper service lines in Pressure Region I and conducted a bar-hole leak survey over 24,859 direct-buried copper service lines in Pressure Region II for a total of 30,772 direct-buried copper service line bar-hole leak surveys in 2006. A total of 201 leaks were found during the 2006 bar-hole leak survey, which represents a 0.65 percent (0.65%) leak rate for the 2006 survey. Results from bar-hole leak surveys have shown a continued downward trend in the leakage rate of new leaks discovered on copper service lines. Observations in the sixth year of Laclede's program indicate that this downward trend is continuing with the new leak rate of 0.65 percent (0.65%), which is an approximate 14.5 percent (14.5%) decrease from the leakage rates found during the 2005 leak survey.

While the bar-hole method for leak surveying demands more personnel time and effort, it is Staff's opinion that this method is far superior to other methods for detection of small leaks that previously might have gone undetected. Using this superior method of leak detection, coupled with conducting the surveys on an annual basis, helps in achieving the program goals of early detection before the leak becomes hazardous and assists in prioritizing replacements. This procedure exceeds MoPSC minimum pipeline safety regulations that require 3-year leak surveys on most residential service lines.

For these reasons, the Staff recommends that Laclede continue to conduct an annual bar-hole leak survey of direct-buried copper service lines.

### **3. Leak Repairs**

Expediting the removal of all leaks found during a bar-hole leak survey prior to conducting the subsequent year's bar-hole leak survey continues to enhance the downward trend in detected leaks during subsequent annual bar-hole leak surveys. As mentioned previously in this report, Class 1 and 2 leaks are repaired immediately, and, in accordance with the Agreement, Class 3 leaks detected during an annual bar-hole leak survey are required to be repaired within six (6) months of discovery in Pressure Region I and within one (1) year of discovery in Pressure Region II. Laclede continues to exceed the requirements in the Agreement by repairing Class 3 leaks in Pressure Region I within an average time of approximately three (3) months from discovery and within an average time of approximately seven (7) months from discovery in Pressure Region II. The guideline in the Agreement exceeds MoPSC minimum pipeline safety regulations that require Class 3 leaks to be monitored every six (6) months until repaired (within 5 years of discovery).

All detected leaks, along with other historical information, are used in a prioritization model for identifying replacement areas in a consistent manner and prioritizing the scheduling of these areas for replacement. It is critical that any upward trends in new leaks on replacement program pipelines be identified promptly, as upward trends can point to the need to refocus efforts to stiffen requirements to meet the program's goals and objectives.

The Staff believes that timely repairs of observed leaks prior to the subsequent bar-hole leak survey provides better information to detect any upward trends in leakage rate totals and, therefore, that the requirements in the Agreement calling for Class 3 leaks in Pressure Region I to be repaired within six (6) months and Class 3 leaks in Pressure Region II to be repaired within one (1) year be continued.

## FINAL SUMMARY

The requirements contained in the Agreement are the three-point foundation of Laclede's current direct-buried copper service line replacement program.

- **Priority Replacements.** The Staff recommends that the annual requirement of a minimum of 8,000 direct-buried copper service line replacements (main-to-meter) should be maintained at this time.
- **Leak Surveys.** The Staff recommends that Laclede continue to conduct an annual bar-hole leak survey of direct-buried copper service lines.
- **Timely Leak Repairs.** The Staff recommends the requirements in the Agreement calling for Class 3 leaks in Pressure Region to be repaired within six (6) months and Class 3 leaks in Pressure Region II to be repaired within one (1) year be continued.

All must be considered together in order to achieve the purpose of the Agreement, which is protection of the public's safety, and each, must therefore, complement the other. At this time, Staff believes that the efforts of the parties in meeting the Agreement's requirements are achieving this purpose, and this is supported by the results discussed in the preceding report. Based on these observations, the Staff recommends that the Commission continue with the current requirements of the Agreement.

For the term of this program, Staff has and will continue to monitor the effectiveness of Laclede's direct-buried copper service line replacements 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.

In the Matter of the Adequacy of Laclede Gas Company's Service Line Replacement Program and Leak Survey Procedures.

SHARON S WILES  
Notary Public - Notary Seal  
STATE OF MISSOURI  
COLE COUNTY  
MY COMMISSION EXP. SEPT 11, 2006