Exhibit No:	Laclede Exh. No. 3
Issue:	**Hydrostatic Testing; Effect of Incidental Plastic Pipe Replacement**
Witness:	**Mark D. Lauber**
Type of Exhibit:	**Rebuttal Testimony**
Sponsoring Party:	**Laclede Gas Company**
Case Nos.:	**GO-2016-0332; GO-2016-0333**
Date Prepared:	**December 23, 2016**

LACLEDE GAS COMPANY
MISSOURI GAS ENERGY

GO-2016-0332
GO-2016-0333

REBUTTAL TESTIMONY

OF

MARK D. LAUBER

December 2016

TABLE OF CONTENTS

REBUTTAL TESTIMONY OF MARK D. LAUBER

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Mark D. Lauber, and my business address is 700 Market St., St. Louis, Missouri, 63101.

Q. WHAT IS YOUR PRESENT POSITION?

A. I am presently employed as Director of Health and Safety, Environmental and Crisis Management for Laclede Gas Company ("Laclede" or "Company").

Q. PLEASE STATE HOW LONG YOU HAVE HELD YOUR POSITION AND BRIEFLY DESCRIBE YOUR RESPONSIBILITIES.

A. I was appointed to my present position in November 2015. In this position, I am responsible for the occupational health and safety of the Company's employees, the Company's compliance with environmental laws and regulations, completing the Company's environmental objectives, and overseeing the Company's crisis management coordination.

B. WHAT WAS YOUR EXPERIENCE WITH THE COMPANY PRIOR TO BECOMING DIRECTOR, HEALTH AND SAFETY, ENVIRONMENTAL AND CRISIS MANAGEMENT?

A. I joined Laclede in January 1987, as a staff engineer. I was promoted to Engineer I in January 1990, Engineer II in January 1992, Assistant to the District Superintendent, Construction & Maintenance May 1993, Senior Maintenance Engineer in January 1997, Superintendent of Maintenance Engineering in January 1999, and Manager of Pipeline Safety Compliance for both Laclede and MGE in April 2013 with responsibility for pipeline safety at both Laclede and MGE following Laclede's acquisition of MGE. From

1997 to November 2015 I was responsible for the Company's safety risk-based facility replacements and its integrity management efforts.

Q. **WHAT IS YOUR EDUCATIONAL BACKGROUND?**

A. I received a Bachelor of Science degree in Electrical Engineering from the, University of Missouri at Rolla in December 1986. Since January 1997, I have been certified as an International Cathodic Protection Specialist by the National Association of Corrosion Engineers (NACE).

Q. **HAVE YOU PREVIOUSLY FILED TESTIMONY BEFORE THIS COMMISSION?**

A. Yes. I submitted testimony in Case No. GC-2006-0318.

Q. **WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

A. The purpose of my rebuttal testimony is to respond to portions of the direct testimony filed on behalf of the Office of the Public Counsel ("OPC") by Charles R. Hyneman. Specifically, I will address two issues. The first concerns Mr. Hyneman's assertion that project expenditures made to hydrostatically test, or hydro-test, certain pipeline facilities are ineligible for inclusion in the Company's ISRS charges. I will explain why this assertion is incorrect in that it fails to recognize that such one-time testing is required by applicable safety regulations in order to keep the tested pipeline facility in operation and the expenditure is therefore one which extends the useful life of a facility within the meaning of the ISRS statute. Furthermore, when the hydrostatic test identifies flaws that must be addressed, these tests are indispensable in allowing Laclede to enhance the integrity of the pipeline on which the tests are performed.

The second issue relates to Mr. Hyneman's contention that simply because some plastic pipe has been incidentally replaced as an integral and necessary part of completing various cast iron and steel main replacement projects, the installation costs incurred for these projects have been rendered ineligible for inclusion in the Company's ISRS charges. I will explain why such an assertion incorrectly ignores the practical realities of how replacement projects for cast iron and steel must be done for economic, safety and operational reasons. Furthermore this assertion ignores an intention of the ISRS legislation which was to incentivize operators to replace facilities in a more expedited manner and on a more significant scale to improve safety. I will also explain how OPC's testimony fails to take into account the fact that in many cases the number of feet of plastic main facilities installed is actually less than the number of feet of cast iron and steel being replaced, even excluding the portion of plastic pipeline that is also being replaced. Laclede witness Glenn Buck will provide additional information in his rebuttal testimony substantiating the amount of new facilities installed and the amount and nature of the facilities replaced. He will also explain how including the retirement of these plastic facilities in the calculation of ISRS charges *reduces* the amount of ISRS requested in these proceedings.

ELIGIBILITY OF HYDROSTASTIC TESTING EXPENDITURES

Q. PLEASE EXPLAIN WHAT HYDROSTATIC TESTING IS IN THE CONTEXT OF NATURAL GAS PIPELINE FACILITIES.

A. Hydrostatic testing of natural gas pipelines is a pressure test process where a pipeline is first briefly taken out of service, and then tested for strength and possible leaks by filling

the pipeline with pressurized water. Hydrostatic testing has long been used to determine, verify and improve pipeline integrity.

Q. WHAT SPECIFIC FLAWS CAN A HYDROSTATIC TEST IDENTIFY?

A. Several types of flaws can be detected through hydrostatic testing, including manufacturing defects, stress corrosion cracking, galvanic corrosion, internal corrosion, mechanical damage, and weld defects. One of the key objectives of the test is to find possible flaws that exist in the pipeline. The test creates a certain amount of stress for a given time to allow these possible flaws to be exposed as leakages that result in a loss of pressure. The test pressure is designed to provide a sufficient tolerance between itself and the maximum operating pressure such that surviving flaws in the pipeline shall not grow over time after the pipeline is placed into service at the intended operating pressure.

Q. DO FEDERAL SAFETY REGULATIONS REQUIRE THAT CERTAIN FACILITIES BE HYDROSTATICALLY-TESTED?

A. Yes, in fact an advisory bulletin issued by DOT's Pipeline Hazardous Materials Safety Administration (PHMSA) on January 10, 2011, provided specific regulatory interpretations that placed a renewed focus on locating and verifying the records of historical hydrostatic tests of transmission pipelines. Federal pipeline safety regulations require that pipeline operators subject all newly constructed pipelines to a post-construction pressure test, and to keep records of that pressure test. Hydrostatic testing is the method used by the Company to perform these tests on natural gas transmission lines, which are typically the larger, highest pressure lines in the system. Federal requirements came into existence in 1970, with the inception of the federal pipeline safety code. All pipelines installed after July 1970 require a documented one-time pressure test completed

in compliance with regulatory requirements to establish a Maximum Allowable Operating Pressure (MAOP). Pipelines installed prior to 1970 must meet either a specific pressure test, operating history, or design requirements as outlined in 4 CSR 240-40.030(12)(M) [49 CFR part 192.616] to establish an MAOP. Additionally, pressure testing is one acceptable option to assess certain threats defined by 4 CSR 240-40.030(16), Pipeline Integrity Management for Transmission Lines [49 CFR part 192 Subpart O] whose intent is to enhance the integrity of gas transmission lines. The recent PHMSA interpretation further defined the requirements for that pre-1970 pipe, which resulted in Laclede Gas, MGE and other utility pipeline operators undertaking, or at least verifying that, these one-time tests are or were completed in compliance with the PHMSA requirements.

Q. WHY DID PHMSA PLACE A RENEWED FOCUS ON HYDROSTATIC TESTING IN JANUARY 2011?

A. The renewed focus occurred as a result of the September 2010 explosion in San Bruno, California resulting from a natural gas transmission pipeline failure. PHMSA sought to have pipeline operators undertake detailed threat and risk analyses that integrate accurate data and information from their entire pipeline system, especially when calculating MAOP. In doing so, PHMSA stated that "PHMSA's goal is to improve the overall integrity of pipeline systems and reduce risks." The identification and review of hydrostatic pressure testing records is a key component in ensuring the adequacy of MAOP calculations for transmission lines. PHMSA's new interpretations stated that traceable, verifiable and complete records were necessary which led the Company to determine that certain hydrostatic testing projects were required.

Q. WHAT IS THE CONSEQUENCE IF HYDROSTATIC TESTING IS NOT DONE ON A PIPELINE FACILITY WHERE IT IS REQUIRED?

A. The consequence would be that the pipeline would no longer be able to be operated in compliance with pipeline safety rules, and would have to be replaced. The choice is then for the Company to either perform a hydrostatic test or replace the line. The test is required to determine if the line is safe and fit for service. If the line passes, the hydrostatic test successfully extends the life of the line and avoids the cost of replacement. If the line fails the test and an unacceptable flaw is identified, the Company must invest in either rehabilitating the integrity of the line or replacing it. If the line is replaced, the new line must still be subjected to a one-time post construction hydrostatic test that is capitalized as part of the cost of the line.

Q. SO DOES THE EXPENDITURE FOR HYDROSTATIC TESTING EXTEND THE USEFUL LIFE OF THE TESTED PIPELINE FACILITY?

A. Yes. The completion of a one-time hydrostatic pressure test will allow these pipelines to continue to be operated and maintained into the future in a similar manner as a newly constructed pipeline. This occurs whether the line passes and is permitted to remain in use, or the test shows there is an integrity issue with the line which, when rehabilitated, allows the line to be returned to service. In fact, the project associated with WO# 009253, discussed by Mr. Hyneman, did identify a flaw which resulted in the enhanced integrity of the line.

Q. DO YOU AGREE WITH MR. HYNEMAN THAT THERE MUST BE SOME PHYSICAL ENHANCEMENT TO A PIPELINE FACILITY IN ORDER FOR AN EXPENDITURE TO BE ELIGIBLE FOR INCLUSION IN AN ISRS?

A. Like Mr. Hyneman, I am not an attorney, so I am only qualified to provide a technical expert's view of what the provisions of the ISRS Statute mean. I don't see anything in the provision cited by Mr. Hyneman, however, that would indicate that the extension of the useful life of the facilities has to be achieved through a physical enhancement of the facility. In fact, by saying projects qualify for ISRS treatment if they result in "extending the useful life *or* enhancing the integrity of pipeline system components", the relevant provision indicates to me that no physical enhancement is required as long as the useful life of the facility is extended, which is what happens when facilities are hydrostatically-tested. I agree with Mr. Hyneman that a physical improvement of the pipeline would certainly enhance the integrity of the line. But Mr. Hyneman's requirement that there be a physical improvement leaves no room for any actions on a facility that would extend its useful life without also performing a physical improvement. The hydrostatic testing project is the type of project that would extend the useful life without having a physical improvement.

Q. IN YOUR EXPERIENCE, IS HYDROSTATIC TESTING A PIPELINE FACILITY AND EXTENDING ITS USEFUL LIFE GENERALLY MORE ECONOMIC THAN SIMPLY REPLACING IT?

A. Yes.

Q. HAS THE COMPANY PREVIOUSLY INCLUDED EXPENDITURES FOR HYDROSTATIC TESTING IN PRIOR ISRS FILINGS AND IN ITS ISRS PLANS PROVIDED TO OPC?

A. Yes, projects at MGE have been included in both ISRS presentations to Staff and OPC and in prior filings, including Case No. GR-2015-0025, an ISRS case in which OPC

witness Hyneman was the Staff auditor. At Laclede hydrostatic testing of existing transmission lines to meet regulatory requirements has not been necessary in the past but may be required in the future depending on future regulatory requirements.

INCIDENTAL REPLACEMENT OF PLASTIC FACILITIES

Q. HAVE YOU REVIEWED MR. HYNEMAN'S COMMENTS REGARDING THE ELIGIBILITY OF COSTS ASSOCIATED WITH THE LACLEDE'S AND MGE'S CAST IRON AND STEEL REPLACEMENT PROJECTS IN THOSE INSTANCES WHERE SOME PLASTIC FACILITIES ARE ALSO REPLACED AS PART OF THOSE PROJECTS?

A. Yes. Mr. Hyneman has asserted that costs incurred by Laclede and MGE to install new pipeline so that it can retire cast iron and steel pipeline facilities – replacement costs that are unquestionably ISRS-eligible – have been made ineligible for ISRS inclusion solely because some plastic pipe also had to be replaced as part of the project. OPC asserts that its incidental replacement as part of these projects somehow tarnishes and requires exclusion of some of the installation costs incurred to replace the cast iron and steel that is worn out or in deteriorated condition. The fact is that these projects often remove from service more cast iron main than the new plastic main installed, and do so without having to tie into those older patches of plastic, which would raise costs and may create additional issues.

Q. DO YOU AGREE WITH HIS CONCLUSION THAT THE INCIDENTAL REPLACMENT OF SOME PLASTIC FACILITIES IN CONNECTION WITH THESE PROJECTS MAKES ALL OR SOME OF THE COSTS INCURRED FOR THESE PROJECTS INELIGIBLE FOR INCLUSION IN THE ISRS?

A. Absolutely not. OPC's position is certainly inconsistent with my understanding of the purpose and operation of the ISRS statute which nowhere states that replacement costs are ineligible for inclusion in the ISRS unless every single component of the facilities being replaced is worn out or in deteriorated condition. In fact, the ISRS statute allows for temporary fixes that enhance the integrity or extend the useful life of facilities. It follows then that a permanent fix would replace both the original cast iron mains and the temporary fixes interspersed within those mains. This is especially true for projects like these where even OPC does not dispute that replacing the plastic pipe that was installed to patch a previous area of the cast iron or steel main was an essential and indispensable step in completing the cast iron and steel main replacement projects. In fact, it would have been uneconomic, unsafe and operationally impractical to even try and integrate the new plastic pipe with the scattered patches of older plastic pipe that aren't even aligned with the new installation, and there should be no incentive to do so.

Q. PLEASE EXPLAIN WHY IT WOULD HAVE BEEN UNECONOMIC TO COMPLETE THESE PROJECTS IN A MANNER THAT CONTINUED TO UTILIZE THE PLASTIC PIPE THAT WAS REPLACED?

A. The existing patches of plastic main vary in length from just a few feet to several hundred feet. Plastic mains were typically installed as a repair or replacement of a specific portion of cast iron or steel main to address the safety and integrity of the system. Several years ago, Laclede shifted its focus from piecemeal repairs and replacements to a strategic plan that is orderly and efficiently accelerating the elimination of cast iron and steel. Our plan is to bring customers a safer system faster and in a cost-effective manner.

Q. PLEASE CONTINUE.

A. Cast iron and steel mains are typically installed deeper than is required or necessary for plastic pipe; however the original plastic pipe had to be installed at the same depth as the older mains to connect to them. These older mains are also commonly under pavement which is currently avoided where possible when we install plastic pipe for replacement of these mains. An attempt to utilize the plastic pipe that is being replaced would require tie in connects at a greater depth and in locations often under pavement which would significantly drive up cost. For example, an old cast iron main might be located in the street right-of-way six feet below the surface. The new plastic is more likely to be installed in an easement between the sidewalk and the street, and at a depth closer to three feet. As a result, it is not feasible in any way for the new plastic main to connect to any of the old main. Similar issues exist for service lines. The old service lines are at a completely different location and depth than the new main, rendering a connection of the old service line to the new main impractical.

Q. ASIDE FROM THESE ECONOMIC CONSIDERATIONS, WOULD CONTINUED USE OF THESE PLASTIC PIPELINE SEGMENTS COMPROMISE THE SAFETY AND OPERATIONAL INTEGRITY OF THE COMPANY'S DISTRIBUTION SYSTEM?

A. Yes, in several ways. The very nature of the construction process required to create deeper excavations and in locations which are generally exposed to more traffic creates higher safety risk for our crews. Also, the additional tie-in points would increase the number of connections and fittings required, which in general increases the risk of future leakage. Additionally, continuing to use these plastic segments may cause installations in

non-standard locations which may be more difficult to locate causing higher risk of third party damage.

Q. IF ONE ASSUMES, AS MR. HYNEMAN SEEMS TO, THAT THE ISRS STATUTE REQUIRES SOME KIND OF EQUIVALENCY BETWEEN THE AMOUNT OF NEW PIPE BEING INSTALLED AND THE AMOUNT OF CAST IRON OR STEEL BEING REPLACED, WAS THAT ACHIEVED ON THESE PROJECTS?

A. I don't agree that such an equivalency requirement exists in the ISRS, but if it did, then yes, such a requirement was more than met with these projects. Although Mr. Hyneman provides a lot of percentages in his testimony regarding the relative amount of plastic replaced on the various example projects, what he does not mention is that the total feet of cast iron and steel main pipe replaced on these projects significantly exceeded the total feet of new plastic main pipe being installed. Mains must be considered separately from service lines when comparing footage because service line replacements are typically necessary because of the nature of the main replacement work being done as described above. It is not surprising that sometimes more main will be retired on a work order than is being installed. This is due to more efficient installation methods as well as the reduced need to provide back-feed as the system is moved from low pressure to intermediate pressure. Mr. Buck will go into greater detail on the accounting and cost effects of installations and retirements.

Q. WHAT THEN WAS THE IMPACT OF RECOGNIZING THE REPLACEMENT OF THIS PLASTIC PIPE IN THE ISRS FILINGS UNDER CONSIDERATION IN THIS CASE?

A. As Laclede witness Glenn Buck explains in his rebuttal testimony, the effect of retiring the incidental portions of plastic main along with the cast iron and steel main was to reduce the amount of the ISRS. Given all of these considerations, and the fact that the overall purpose of these projects was to replace aged cast iron and steel pipe that was clearly worn out or in deteriorated condition, I do not believe that the incidental replacement of some plastic pipe as a necessary part of these replacement projects should have any bearing on the inclusion of any of the associated costs for the projects.

Q. **DOES THIS COMPLETE YOUR REBUTTAL TESTIMONY?**

A. Yes.