Exhibit No.:	
Issue:	**Propriety of Including Telemetric Equipment and Regulator Stations as ISRS-Eligible Costs**
Witness:	**Patrick A. Seamands, D.E.**
Type of Exhibit:	**Direct Testimony**
Sponsoring Party:	**Laclede Gas Company**
Case No.:	**GO-2015-0341**
Date Prepared:	**August 28, 2015**

LACLEDE GAS COMPANY

GO-2015-0341

DIRECT TESTIMONY

OF

PATRICK A. SEAMANDS, D.E.

AUGUST 2015

TABLE OF CONTENTS

DIRECT TESTIMONY OF PATRICK A. SEAMANDS

Q. **PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A. My name is Patrick A. Seamands, 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, Field Operations Standards 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 March 2013. In this position, I am responsible for overseeing standards and testing for distribution operations, operations training and pipeline safety compliance for the Company. In that capacity, I have gained substantial experience with and knowledge of the various physical assets necessary to ensure that our distribution system is operating in a safe manner. I am also very familiar with the human resource side of ensuring the safe operation of our distribution system given my oversight of our training programs for employees who work to achieve that goal. Finally, and by necessity, I have working knowledge of the federal, state and local safety requirements with which the Company has to comply in providing distribution services.

Prior to that and starting in 1999, I was Chief Engineer for Laclede Gas Company. In that position, I also had the responsibility for environmental compliance, system planning, project engineering, GIS, measurement, and facilities. As Chief Engineer and in carrying out those additional responsibilities, I gained extensive experience in maintaining and enhancing active environmental compliance programs, designing efficient natural gas delivery systems, developing and maintaining efficient and accurate

mapping systems, designing and implementing natural gas facility construction projects in a compliant and in an efficient manner and maintaining efficient and compliant measurement programs.

Q. **WHAT WAS YOUR WORK EXPERIENCE PRIOR TO JOINING LACLEDE?**

A. Prior to joining Laclede in 1999, I worked for Southern Union Company as Vice President of Engineering and Chief Engineer. I have has also worked in an engineering capacity for CenterPoint Energy, Crystal Oil Company, and Pennzoil.

Q. **WHAT IS YOUR EDUCATIONAL BACKGROUND AND OTHER PROFESSIONAL QUALIFICATIONS AND EXPERIENCE?**

A. I have an M.B.A. and B.S., M.S., and Doctorate degrees in Chemical Engineering from Louisiana Tech University. I have also taught as an adjunct professor in the University of Kansas' Masters in Engineering Management program. I am a registered Professional Engineer in Missouri, Alabama, California (chemical), and Louisiana (chemical and environmental). I am also Chair of the Regulations Section of the Accredited Standards Committee (ASC) Z380, Gas Piping Technology Committee (GPTC). The GPTC develops and publishes ANSI Z380.1, Guide for Gas Transmission and Distribution Piping Systems. I served on a National Council of Examiners for Engineering and Surveying (NCEES) sub-committee that worked to review and update the PE exam. I am also a member of the American Institute of Chemical Engineers (AIChE) and the Society of Petroleum Engineers.

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

A. Yes. I filed testimony in Case No. GO-2015-0178.

PURPOSE OF TESTIMONY

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

A. The purpose of my testimony is to present evidence to the Commission concerning the appropriateness of including telemetric equipment and regulator stations in the Company's Infrastructure System Replacement Surcharge ("ISRS") filings. As discussed below, such plant and equipment is critical to the safe operation of our distribution equipment and to the Company's compliance with a number of safety rules and regulations. For these reasons, and because such plant and equipment was in a "deteriorated condition" within the meaning of the ISRS statute, I believe the investments made by the Company to replace and/or upgrade such equipment are fully eligible for inclusion in, and recovery through, our ISRS mechanism.

TELEMETRIC EQUIPMENT

Q. **WHAT IS TELEMETRIC EQUIPMENT AND WHAT PURPOSE DOES IT SERVE?**

A. Telemetric equipment is widely used in a variety of industries and applications to electronically transmit critical data from remote locations to a centralized location where trained personnel can monitor the data and take appropriate action if the data suggests that an anomaly has occurred. Such data is essential to determining whether our distribution system is operating within allowable pressure tolerances, whether a disruption to our facilities has occurred that could result in escaping gas, with a corresponding risk of an incident or service outage, and whether other system control conditions are operating at expected and safe levels. In terms of natural gas distribution operations, the telemetric instrumentation and equipment included in work orders such as

60418 and 60419 are pipeline system components that permit the Company to constantly monitor in "real time" critical pressure and other data from valve, meter and compression stations.

Q. **WHY IS IT NECESSARY TO OBTAIN SUCH DATA IN "REAL TIME"?**

A. Because a gas distribution system is a dynamic organism with gas constantly flowing at different pressures from a variety of different sources and to an even larger assortment of different end users, it is imperative that appropriate flows and pressures be maintained at all times to ensure the safety, integrity and reliability of our distribution system. That goal can best be achieved if Company personnel have a constant stream of data showing whether these pressures and flows are being maintained or, conversely, disrupted in some way. If the latter, the availability of real time data allows Company personnel to take remedial action on a more timely basis. Telemetric equipment allows for a constant stream of data collection and communication.

Q. IS HAVING SUCH A REAL TIME MONITORING SYSTEM IN PLACE TO EFFECTIVELY CONTROL PIPELINE PRESSURES AND FLOWS RECOGNIZED AS A REQUIREMENT FOR OPERATING A GAS DISTRIBUTION SYSTEM SAFELY?

A. Without question it is. Commission Rule 4 CSR-240-40.030(13)(S)(1) and Federal Rule 49 CFR Part 192.741 require a utility with more than one regulating station or more than 1,000 customers to maintain graphic telemetering to monitor gas pressures. Commission Rules 4 CSR 240-40.030(4)(CC)-(FF) are the specific state law requirements concerning pressure control. The equivalent federal cites are 49 CFR Parts 192.195-201.

Q. **WHY DID THE COMPANY DECIDE TO REPLACE THE TELEMETRIC EQUIPMENT THAT HAD PREVIOUSLY BEEN INSTALLED AND USED TO PERFORM THIS FUNCTION?**

A. The old telemetric equipment was obsolete. Its manufacturer was providing neither replacement parts nor service support. We viewed this equipment as having diminished reliability to perform its important function. In short, having gotten 10+ years of service out of this electronic equipment, we felt that it was at the end of its useful life. Significant consequences could have occurred had the equipment ceased to function prior to replacement, and we felt that we should begin the replacement of such equipment in a structured manner. Such a replacement program has been ongoing for several years now.

Q. **DOES THIS MEAN THE TELEMETRIC EQUIPMENT WAS IN A "DETERIORATED CONDITION" AND THUS ELIGIBLE FOR ISRS INCLUSION UNDER SECTION 393.1009(5)(a)?**

A. Yes. Depending on which dictionary you consult, being in a deteriorated condition means the telemetric equipment either: was diminished or lowered in quality, character or value, was made inferior in quality or value, was impaired, or had grown worse. Under any of the above definitions, there is no doubt that the old telemetric equipment was in a deteriorated condition. In fact, if the equipment could no longer be professionally serviced and/or supported in the event of a failure – as was the case with this equipment – then its quality or value for the function it was supposed to serve had been made severely "inferior" or "impaired". In addition, the equipment was over 10 years old and had lived out its useful life. It was both worn out and/or deteriorated. As a result, the replacements are ISRS eligible under Section 393.1009(5)(a) RSMo.

Q. DID LACLEDE REPLACE THE EQUIPMENT SIMPLY BECAUSE IT HAD BECOME OBSOLETE EVEN THOUGH IT WAS OPERATING NORMALLY WITH NORMAL QUALITY?

A. No. Had Laclede wanted to simply upgrade to newer technology, it would have replaced the telemetric equipment in 2007, after it received notice from the manufacturer that the existing Bristol Network equipment was on a path to retirement, and was being replaced by the Bristol ControlWave product line. (Attached hereto as Exhibit PAS-D1 is a 2007 notice from Bristol of the retirement of its Network 3000/3530 product family. The remote terminal units replaced in the ISRS filing were in the 3300 Series.) Laclede did not do so; rather, we kept the existing telemetric equipment until a time that we perceived to be the end of its useful life, when it was not only obsolete, but was bereft of support by its manufacturer. So even if the Commission decides that the state of being obsolete does not necessarily equate to deterioration, then the age of this equipment would certainly demonstrate that it was in an inferior and deteriorated condition. As stated earlier, Laclede bought this type of equipment between 2000 and 2002. Laclede approved the purchase of replacement Bristol ControlWave RTUs and other telemetric equipment in December 2011, and began placing such equipment in service in 2012, by which time the older equipment was 10-12 years old, a vintage in which Laclede expected to experience failures of the analog equipment. In summary, the equipment had become inferior in quality and value; it was obsolete, aged and unsupported, and was therefore in a worn out or deteriorated condition.

REGULATOR STATIONS

Q. WHAT IS A REGULATOR STATION?

A. A regulator station is an arrangement of pipes, fittings, valves, pressure regulators, and other possible appurtenances, such as telemetry equipment, which is designed to match the flow of gas through the station with the downstream gas demand, all the while maintaining the downstream pressure within acceptable limits.

Q. DO REGULATOR STATIONS HAVE TO BE PERIODICALLY REPLACED?

A. Yes. Like any other physical equipment, regulator stations wear out and deteriorate over time and have to be replaced.

Q. IS THE COMPANY IN THE PROCESS OF REPLACING MANY OF ITS REGULATOR STATIONS IN THE ST. LOUIS AREA?

A. Yes, as part of its Cast Iron Main Replacement Program, the Company is replacing its old low-pressure cast iron main system with a new intermediate pressure system. As an integral part of moving to the new intermediate pressure system the Company will be replacing the 120+ old regulator stations that were required to operate the low-pressure system with just 6 new regulator stations that will be needed to operate the intermediate pressure system.

Q. BESIDES REPLACING ITS WORN-OUT AND DETERIORATED CAST IRON MAINS, WHAT ADDITIONAL BENEFITS HAVE AND WILL BE ACHIEVED BY MOVING FROM A LOW TO AN INTERMEDIATE PRESSURE SYSTEM?

A. By moving to the new intermediate pressure system, the Company has been able to install smaller diameter plastic mains in place of the much larger cast iron piping that comprised the low pressure system. The use of smaller diameter pipe has, in turn, substantially reduced installation costs by allowing the Company to readily install it through directional boring, or insert the new pipe in existing pipes to be retired. It has also

significantly reduced the degree to which the Company has had to temporarily disrupt the physical infrastructure of the streets, sidewalks and yards of the area neighborhoods where the new system is being installed. In addition, the movement to an intermediate pressure system has enhanced public safety and reliability by avoiding the kind of water infiltration that occurred with its low pressure system – a factor that led to customer outages and its own set of safety concerns.

Q. IS THE FACT THAT THE COMPANY WILL BE ABLE TO REPLACE THESE OLD REGULATOR STATIONS WITH ONLY 6 REGULATOR STATIONS ANOTHER MAJOR SOURCE OF RATEPAYER SAVINGS?

A. Absolutely. The fact that the Company will be able to install only 1 new regulator station for every 20 or so that is being replaced is a major source of savings for our customers that they will benefit from for decades to come, a savings in net installation costs in excess of $25 million.

Q. GIVEN THESE CONSIDERATIONS, IS IT FAIR TO SAY THAT REPLACING THE COMPANY'S OLD, LOW-PRESSURE CAST IRON MAIN SYSTEM WITH A NEW INTERMEDIATE, RATHER THAN A NEW LOW-PRESSURE SYSTEM, WAS A "STRATEGIC" DECISION THAT COULD HAVE GONE EITHER WAY?

A. No. It was in fact that only feasible decision that could have been made by the Company. Whether looking at the cost of installation, the financial and societally disruptive impact on utility customers, or what type of system would best advance public safety, the installation of a new intermediate pressure system, with the far fewer regulator stations needed to operate it, was the only conceivable option for carrying out the Company's cast

iron main replacement program. Further, installation of an LP system is not occurring anywhere in the gas industry and, in fact, was a remnant of the age of manufactured gas in the latter part of the 19th and early 20th century. As a result, Laclede considers installation of the intermediate pressure system in and around the City of St. Louis to be part and parcel of its cast iron main replacement program.

Q. WHY THEN HAS THE COMPANY'S INCLUSION OF REGULATOR STATIONS IN ITS ISRS FILINGS BECOME AN ISSUE?

A. I can't honestly say. By way of background, it is my understanding that the inclusion of regulator stations as ISRS-eligible plant had never been an issue before. In fact, it was first raised by OPC in the Company's last ISRS filing. As the Commission may recall, the Company refiled its last ISRS after OPC raised concerns regarding the inclusion of telemetry and budgeted ISRS amounts – the two other issues being addressed in Company testimony. By accommodating OPC in this manner (with the understanding that the Company would be free to pursue these issues in a subsequent ISRS proceeding) the Company expected that it would be able to obtain more timely approval of the already delayed ISRS recovery. At the last minute, however, OPC raised the issue of whether including the cost of two regulator stations reflected in the Company's filing was appropriate. Given the delay and associated financial costs that the Company had already experienced in getting its ISRS charges reflected in rates, the Company agreed to remove those costs as well, again with the understanding that it could seek inclusion of such costs in a subsequent ISRS filing.

Q. IN YOUR OPINION IS THERE ANY BASIS FOR A CLAIM THAT THE COSTS OF THESE REGULATOR STATIONS ARE NOT ELIGIBLE FOR RECOVERY UNDER THE ISRS STATUES AND RULES?

A. No. Regulator stations are explicitly included in both the ISRS statute and rules as a component of gas plant that is specifically eligible for recovery under the ISRS mechanism. (§393.1009(5)a and 4 CSR 240-3.265(1).G.1) They are absolutely indispensable to safely operating a natural gas distribution system by ensuring that pressure flows are maintained at proper levels. If that does not occur, the consequences can be severe. Moreover, the regulator stations that the Company is seeking to include in this filing (and that it sought to include in its last ISRS filing) are replacing old regulator stations that were clearly in worn out or deteriorated condition within the meaning of the ISRS statute and rules, and some regulator stations themselves even have cast iron components that are brittle and can easily crack.

Q. UPON WHAT DO YOU BASE YOUR CONCLUSION THAT THE REGULATOR STATIONS BEING REPLACED WERE IN WORN OUT OR DETERIORATED CONDITION?

A. The regulator stations themselves were over 50 years old, meaning that they had exceeded their useful service lives, were no longer operating in a dependable manner, and could not be remotely controlled. Moreover, the new regulator station at Euclid and Hooke replaced a regulator station at the same location which had severe damage to its housing, was falling apart and needed to be replaced. The new regulator station at Osceola and Virginia is actually replacing a number of low-pressure regulator stations that are also old and worn, well past their estimated service lives and incompatible with

the intermediate pressure system that the Company is replacing pursuant to its cast iron replacement program. Without reservation, both of these regulator stations were clearly worn out or in a deteriorated condition.

Q. YOU MENTIONED THAT THE REGULATOR STATIONS BEING REPLACED HAD EXCEEDED THEIR USEFUL LIVES. WHAT SIGNIFICANCE DOES THAT HAVE?

A. It is important to note that the useful service life for a particular kind of gas plant, like a regulator station, is determined by depreciation experts based on extensive historical analyses of how long such assets have generally been able to function and serve their intended purpose before they wear out and have to be replaced. The estimated service lives resulting from these analyses are then presented in the ratemaking process where they are subject to further analysis and adjustment. They are then specifically approved by the Commission and used to set the depreciation rates upon which the utility's cost of service is based. The fact that the regulator stations being replaced in this instance exceeded by a number of years what the Commission itself has concluded is an average service life for such assets is yet another factor, and a very compelling one in my view, substantiating the worn out and deteriorated condition of these facilities.

DOES THIS COMPLETE YOUR DIRECT TESTIMONY?

A. Yes.

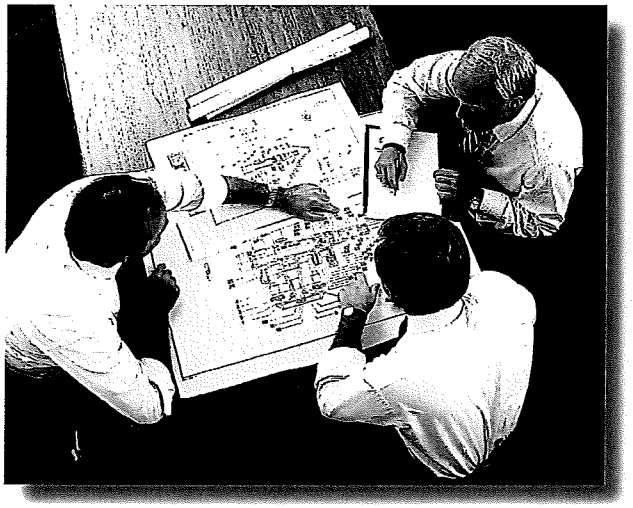
Bristol

Planning a Retirement Party
Product Direction Path

After years of loyal committed service to the Bristol® product line, the Network 3000/3530 product family has decided to retire and enjoy of the fruits of their labor. With nearly 20 years of services, this comes as no surprise, as the past few years have been dedicated to a transfer of knowledge to the next company leader, the Bristol ControlWave product family. ControlWave has humbly risen through the ranks since 2001 and has gained all of the experience necessary to replace the Network 3000, with the same loyalty and dedication as its predecessor.

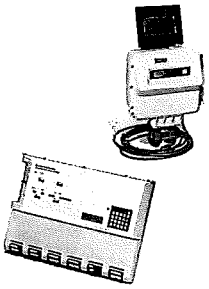
On a serious note, making light of a very difficult decision helps to emphasize the requirement for this action and recognize the stability that we have enjoyed for many years. The Network 3000/3530 products have aged gracefully and still remain serviceable. However, the recent announcement by Intel that they are discontinuing the processors used in 33XX and 3530 has signaled that the time has finally come to honor the past and embrace the future.

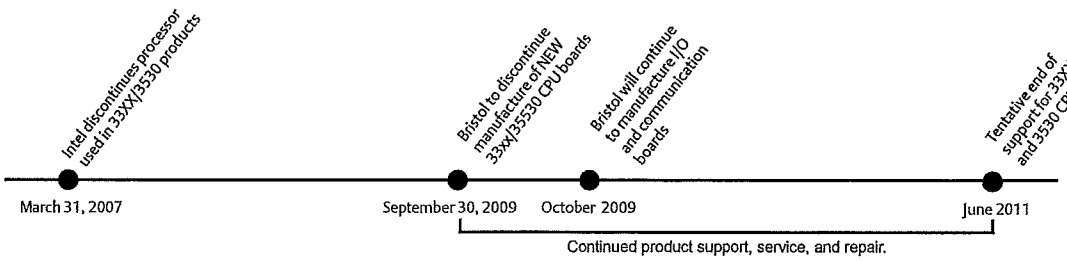
Since the 33XX/3530 products have performed so nobly throughout their career, we want to ensure they depart with grace and dignity. Retirement will begin slowly March 31, 2007 coincident with the processor end of life announced by Intel. We will continue to carry inventory necessary to manufacture new units through September of 2009. We will continue to manufacture I/O cards, Communication cards and power supplies, indefinitely, in order to meet our commitment of long term product support. We will continue to repair, service or replace CPU boards through our repair department and service exchange stock through at least June 2011.



While many of our customers have already transitioned to the ControlWave architecture, we are making this announcement now in order to allow all of our valued customers sufficient time to orchestrate a smooth transition.

ControlWave was born of the experience of our in-house engineering staff, most of which were part of the teams that created the most stable and efficient line of Distributed Process Controllers in the marketplace – The Network 3000. Using the latest processor and memory designs and years worth of experience, we have created a product line to seamlessly transition our customer's infrastructure without the burdening costs of new installations. We proudly release





EMERSON.
Process Management

Product Direction Path

this news to you and look forward to providing you with functionality to carry you into the foreseeable future.

Since the first introduction of ControlWave in 2001, the family of products has grown and matured to include a full line of PLCs, RTUs, and flow measurement products. As a result, the ControlWave architecture has become tremendously successful.

Now with ControlWave widely accepted throughout the industry, many people have asked about the future of Network 3000, which includes the popular 33XX and TeleProduct RTU and flow computer lines. The success of these products, first introduced in 1984, is a result of providing unique capabilities while maintaining continuity across the Network 3000 product line. ControlWave has adopted and expanded those same unique capabilities. ControlWave has been developed to allow our customers to take advantage of the advanced technology that is available today while maintaining continuity through the migration from Network 3000 to the ControlWave product line. Leveraging state of the art technology allows us to deliver significantly greater functionality with ControlWave at a lower price to our customers.

Recognizing the true benefits inherent in the ControlWave architecture, we have built a full network of products developed around this core technology. These include open architecture PLCs and RTUs surpassing the strong capabilities that were available in our Network 3000 products. The ControlWave Express and ExpressPAC are now being used in SCADA applications previously served by the RTU 3305, and TeleRTU, while ControlWave Micro offers the expandability previously provided by the 3310 and 3330. For in-plant control systems, ControlWave furthers the modular expansion, redundant control and Ethernet connectivity previously available in the 3335/3331.

With the availability of the CW_10 and CW_30 upgrade kits for 3310 and 3330, our customers have a cost effective path to gain the advantages of ControlWave while preserving their substantial investment in I/O modules and I/O wiring, cabinets, ACCOL application program development and communication infrastructure. The CW_35 and CW_31 bring the same benefits to 3335 and 3331 products.

The recent additions of our ControlWave EFM, GFC and XFC products bring the power of ControlWave to our flow measurement market while maintaining all functionality previously offered in the TeleFlow and TeleFlow Plus single and multi-run gas flow computers.

ControlWave has been designed specifically to meet the need for high performance, open architecture products in our core natural gas and water & wastewater markets, and to satisfy the growing demand in the international marketplace for control products that utilize the IEC 61131-3 software standards. The convergence of Network 3000 and ControlWave is based on the stability of ACCOL and BSAP as the common thread in the evolution process.

The ACCOL Translator tool makes the transition from ACCOL Workbench to ControlWave Designer with ACCOL III a simpler, more familiar process.

ControlWave Designer with ACCOL III and BSAP allow ControlWave to fit seamlessly into existing Network 3000 systems. We have developed the ACCOL Translator to make the transition from ACCOL Workbench to ControlWave Designer with ACCOL III a simpler, more familiar process for our existing customers. We have also added the alarm and historical functions

Product Direction Path

that are so important to both in-plant and remote SCADA systems. The new IEC 61131-3 programming, configuration tools, and communication interfaces are incorporated into the OpenBSI software product to provide a common system environment for both ControlWave and Network 3000. For years, Emerson's Remote Automation Solutions has maintained compatibility between generations of product, allowing our customers to preserve their engineering and material investment. That same philosophy continues with ControlWave and is fully supported by Emerson Process Management.

Over time, ControlWave has increasingly replaced Network 3000 as the hardware platform of choice by existing and new customers.

As mentioned earlier, Intel has announced that they are discontinuing their line of X86 embedded processors in March 2007. We do expect that these components will continue to be available through after market suppliers for some time to come. As a result of this development, we are announcing our product family succession plans to allow our existing customers to align their strategic plans with ours for a seamless transition to the future. Fortunately, Emerson's Remote Automation Solutions has been pro-active in addressing the eventual transition by escalating the ControlWave development and ensuring a compatible migration path from Network 3000. In addition, even in retirement, Network 3000 will continue to be a productive member of our technical society.

The Remote Automation Solutions division will continue the manufacture of new 33XX and Tele-Product offered as part of our Network 3000 family of products for the next three years. And, as always, we will continue to provide support and repair service for several years after the last unit is shipped. We are committed to our philosophy of offering our customers long term stability through generation compatibility, a clear migration strategy and continued product support.

In summary, Emerson Process Management will provide a family of products that support existing customers who utilize ACCOL and BSAP as well as new and existing customers who prefer the characteristics of the new Bristol ControlWave technology. We are convinced, as are many of our customers, that the ControlWave family of products will continue to set the standard in the process control industry for openness, flexibility, functionality and cost-effectiveness.

Emerson Process Management
Remote Automation Solutions

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EMERSON
Process Management

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Verified Application and Petition of Laclede Gas Company to Change its Infrastructure System Replacement Surcharge in its Laclede Gas Service Territory	))))	File No. G0-2015-0341

AFFIDAVIT

STATE OF MISSOURI	)	
	)	SS.
CITY OF ST. LOUIS	)	

Patrick A. Seamands, of lawful age, being first duly sworn, deposes and states:

1. My name is Patrick A. Seamands. My business address is 700 Market Street, St. Louis, MO 63101 and I am the Director, Field Operations Standards for Laclede Gas Company.

2. Attached hereto and made a part hereof for all purposes is my direct testimony on behalf of Laclede Gas Company.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct to the best of my knowledge and belief.

Patrick A. Seamands

Subscribed and sworn to before me this 28 day of August, 2015.

MARCIA A. SPANGLER
Notary Public - Notary Seal
STATE OF MISSOURI
St. Louis County
My Commission Expires: Sept. 24, 2018
Commission # 14030361

Notary Public