Exhibit No.: _____
Issue(s): Depreciation/Grow Missouri/ Ultrasonic Meter Investment
Witness/Type of Exhibit: Robinett/Surrebuttal
Sponsoring Party: Public Counsel
Case No.: GR-2021-0108

SURREBUTTAL TESTIMONY

OF

JOHN A. ROBINETT

Submitted on Behalf of the Office of the Public Counsel

SPIRE MISSOURI, INC.

CASE NO. GR-2021-0108

July 14, 2021

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Spire Missouri Inc.'s d/b/a Spire Request for Authority to Implement a General Rate Increase for Natural Gas Service Provided in the Company's Missouri Service Areas	)))))	Case No. GR-2021-0108

AFFIDAVIT OF JOHN A. ROBINETT

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

John A. Robinett, of lawful age and being first duly sworn, deposes and states:

1. My name is John A. Robinett. I am a Utility Engineering Specialist for the Office of the Public Counsel.

2. Attached hereto and made a part hereof for all purposes is my surrebuttal testimony.

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

John A. Robinett
Utility Engineering Specialist

Subscribed and sworn to me this 14th day of July 2021.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

TIFFANY HILDEBRAND
My Commission Expires
August 8, 2023
Cole County
Commission #15637121

Tiffany Hildebrand
Notary Public

My Commission expires August 8, 2023.

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OF
JOHN A. ROBINETT
SPIRE MISSOURI

CASE NO. GR-2021-0108

Q. What is your name and what is your business address?

A. John A. Robinett, PO Box 2230, Jefferson City, Missouri 65102.

Q. Are you the same John A. Robinett who filed direct and rebuttal testimony on behalf of the Missouri Office of the Public Counsel ("OPC") in this proceeding?

A. Yes.

Q. What is the purpose of your surrebuttal testimony?

A. In this surrebuttal testimony, I will address the rebuttal testimony of Spire depreciation consultant John J. Spanos' criticism of Staff's General Plant depreciation recommendations. Additionally I will address Staff witness Ms. Sarah L.K. Lange's rebuttal testimony on the Grow Missouri Program. Further, I will discuss concerns related to the change in average service life of Account 376.3 Mains-Plastic and discuss further concerns OPC has related to the replacement of current meter technology with the smart ultrasonic meter roll out.

Growing Missouri Program

Q. What is Staff's position related to the Grow Missouri Program?

A. Staff witness Ms. Sarah L.K. Lange does not recommend approval of the program as described in the proposed tariff nor if the tariff were to be amended to incorporate further details.

Q. Does Ms. Lange provide additional concerns with the program as filed?

A. Yes. Ms. Lange states the following at page 20 of her rebuttal testimony:

> Spire has provided a list of vague considerations it may take into account in selecting projects. Not only are these considerations not enumerated in the proposed tariff, they do not include whether such areas have existing or underutilized infrastructure, and whether or not areas have sufficient pipeline capacity.

Q. Does OPC support the Grow Missouri program?

A. No. As was discussed in my rebuttal testimony, OPC does not support the creation of the Grow Missouri Program. OPC is supportive of Staff's position to deny the creation of the Grow Missouri Program.

Q. Has Spire given any indication in other recent certificate of convenience and necessity ("CCN") request cases that Staff is using too short of a view to determine a project is economical?

A. Yes. In a current CCN case, GA-2021-0259, Spire in response to Staff's recommendation stated the following:

> Staff seems to believe that because the investment appears to not be recovered in three years, the project is not economically feasible. Spire disagrees with this position as a 3-year rate of return is not a specific requirement for extending service as required by Rule 20 CSR 4240-3.305 (1)(A) 5, and using complete recoverability of an investment in three years is not an appropriate basis by which to determine economic feasibility.

I would expect to see similar language here in surrebuttal from Spire in response to my rebuttal testimony.

Q. Do you agree with the Company's position?

A. No. Spire controls all of the financial inputs into the decision to extend services to these individual customers. If these are uneconomical, it is potentially because Spire is not collecting enough in contributions in aid of construction ("CIAC") initially, or deciding not to fully charge a potential new customer in order to induce a fuel switch.

Q. If the Commission decides to grant Spire's request for the Grow Missouri Program, do you have any conditions or tools that you think might be beneficial for future CCNs?

A. Yes. One option that I have been thinking about lately is a tool that I have seen used in the small water and sewer world. Specifically I think a plant held for future use scenario would be a tool the Commission could employ in which a portion of the project is placed in a holding account and not recovered in rates. The portion of the project is only placed into rates when certain metrics or criteria are met, for example a certain active customer count on the main has been achieved similar to a capacity adjustment used in small water and sewer cases for systems that are overbuilt to serve future expected needs. If the Commission were to approve the Grow Missouri Program, I would suggest implementing this tool in order to prevent subsidization provided by current ratepayers.

Mains Average Service Life – Plastic

Q. What are the current life recommendations for plastic mains?

A. Review of Staff direct testimony shows that it is currently recommending a 60 year life for plastic mains. Spire Missouri consultant Mr. John J. Spanos' depreciation study attached to his rebuttal testimony also recommends a 60-year life for plastic mains. Spire's direct

testimony is a recommendation of 2.34% with no detail on the average service life or net salvage percentages that make up the depreciation rate.

Q. What have been the most recent depreciation lives for Mains – Plastic in depreciation studies?

A. The depreciation study for Laclede Gas Company for gas plant at September 30, 2003 indicated a 70 year average service life with a -15% net salvage. The depreciation study for Laclede Gas Company for gas plant at September 30, 2009 indicated a 70 year average service life with a -15% net salvage. The depreciation study for Laclede Gas Company for gas plant at September 30, 2012 indicated a 75 year average service life with a -25% net salvage. The depreciation study for Laclede Gas Company for gas plant at September 30, 2016 indicated a 75 year average service life with a -30% net salvage. The depreciation study for Spire Missouri for gas plant at September 30, 2020 indicated a 60 year average service life with a -40% net salvage. Attached as Schedule OPC-JAR-S-1 are the depreciation tables from the studies received from Laclede Gas Company now Spire Missouri East.

Q. Do you have any concerns with the shortening of average service life for Account 376.3 Mains-Plastic?

A. Yes. In Case No. GR-2017-0215 and 0216, I raised concerns that the accelerated nature of the ISRS and the retiring of sections of new plastic patches would have a negative impact on the average service life of the mains - plastic account. Below is the Direct Testimony I filed in cases GR-2017-0215 and GR-2017-0216 that lays out my concern related to early

retirements of plastic segments and a depreciation recommendation to label retirements as outliers to be eliminated from the study:

ISRS Plastic Retirements

Q. What is OPC's position regarding the depreciation treatment of plastic pipe being replaced as part of ISRS projects?

A. OPC requests that the Commission order Laclede and MGE to record the early retirements of plastic pipe being replaced under Laclede and MGE's ISRS as transaction code 7 "outlier retirements" for purposes of the depreciation study data base.

Q. Why is this recommendation important?

A. Laclede and MGE's new practice that began in 2011 is to replace and abandon large amounts of plastic pipe before the useful life of those pipes has ended. Many of the replaced pipes were in the ground only a few years before being abandoned. Over time these multiple short lived asset retirements will cumulatively decrease the overall estimated average service life of plastic pipe installed in the entire system. This distortion in the average service life on this plant by continuous early retirements may result in a skewed and abnormal relationship between the plant and reserve balance. This skewed and abnormal relationship, if not noted and removed from the depreciation study, will likely indicate an increase in depreciation rates when no increase is actually needed. This potential increase in depreciation rates will increase Laclede and MGE's cost of service artificially and unnecessarily.

Q. How to you propose Laclede and MGE address this concern?

A. OPC requests that the Commission order Laclede and MGE to record the early retirements of plastic pipe being replaced under Laclede and MGE's ISRS as transaction code 7 "outlier retirements" for purposes of the depreciation study data base. By recording early retirements in this manner, the early retirements will not skew future depreciation studies.

Q. Were your recommended retirement coding recommendations ordered?

A. No they were not.

Q. Have your concerns from the 2017 case been realized in the current case?

A. Yes. Based on Staff's and Mr. Spanos' depreciation recommendations there has been a shift in the recommended average service lives for plastic mains of 15 years. Mr. Spanos'

recommendation in his depreciation study for Laclede Gas Company for gas plant at September 30, 2016, indicated a 75 year average service life with a -30% net salvage. Mr. Spanos filed his depreciation study as a schedule to his rebuttal testimony for Spire Missouri for gas plant at September 30, 2020, and indicated a 60 year average service life with a -40% net salvage. The current ordered rate for Mains-Plastic is a 1.57% depreciation rate which is driven by a 70 year average service life and -10% net salvage.

Q. Do you have an amended depreciation recommendation for Account 376.3 Mains-Plastic?

A. Yes. My original recommendation was for the current ordered rates for Spire Missouri East to remain in effect and be used for Spire Missouri West save for several modifications for newly created smart meter and smart meter installation accounts and for account 376.2 Mains-Cast Iron. For Account 376.3 Mains– Plastic, I recommend utilizing a 75 average service life, which is consistent with the September 30, 2012 and 2016 depreciation studies performed by Mr. Spanos on behalf of Spire Missouri East. Consistent with the current depreciation study that has seen an increase in cost of removal, I recommend utilizing the -40% net salvage as calculated by both Staff and Mr. Spanos. Utilizing the -40% net salvage and 75-year average service life, I recommend a depreciation rate of 1.87% for Account 376.3 Mains- Plastic. Based on Staff's direct Accounting schedules this would be a reduction of depreciation expense of approximately $3.2 million for Spire Missouri East and a $2.9 million reduction for Spire Missouri West.

General Plant Amortization

Q. Is Spire recommending adoption of General Plant Amortization?

A. It appears that the rebuttal recommendation of Spire consultant Mr. John J. Spanos is for adoption of general plant amortization. However, that request was not present in Spire's direct testimony or schedules. Spire's direct depreciation recommendation was buried in schedules attached to Mr. Wesley E. Selinger's direct testimony (now adopted by Mr. Scott A Weitzel) Schedule WES-1 H-11-Depr Adj Page 38 of 45. That recommendation gave no background information on average service lives or the net salvage percentages.

Q. What was Spire's direct recommendation for general plant, and how does it compare to Staff's direct recommendation for general plant?

A. Spire's direct recommendation is fairly similar to Staff's recommendation for general plant. In fact, Spire's direct depreciation recommendation for rates for the square curve accounts likely to be amortized matches Staff for Accounts 391 Office furniture and equipment; 391.1 Mechanical office equipment; 391.2 data processing software/systems; 393 Stores equipment; 394 Tools, shop, and garage equipment; 397.1 Communication equipment- ERTS; 397.1 Communication equipment- AMR; and 398 Miscellaneous Equipment. In addition, 395 Laboratory equipment has only a difference of 0.01% between Staff and Spire. Although it is not a square curve account, Staff and Spire also recommended the same depreciation rates for account 392 Transportation equipment-trucks and account 392.1 Transportation equipment- automobiles.

Q. What did Mr. Spanos have to say about Staff's general plant depreciation recommendations?

A. Beginning at page 18 of his rebuttal testimony, Mr. Spanos discusses how Staff's recommended rate of 4.71% for Account 391 Office Furniture and Equipment will result in a under recovery of future assets. He continues by saying this will occur for other general plant accounts represented by amortization accounting. It is important to point out Spire's direct position is the exact same 4.71% recommended by Staff. To make matters worse, review of Mr. Spanos' own study (Schedule JJS-R2 page 52 of 396 VI-6) shows that he recommends a rate of 4.71% for Account 391 Total Office Furniture and Equipment, which is a dollar weighted rate in which Mr. Spanos sets "fully accrued plant" to 0.00% depreciation rate and utilizes a depreciation rate consistent with the proposed amortization period for all not fully accrued plant. In doing so, Mr. Spanos has failed to acknowledge that Staff and Spire essentially accepted and adopted Mr. Spanos' whole/total account rate. Mr. Spanos' criticism of Staff should fall back on himself as failing to clearly indicate to Spire what his actual recommendation was, since Spire also recommended what Staff did for most general plant accounts.

Q. Do you agree with Mr. Spanos that Staff's recommendation will not fully recover general plant in accounts if amortization accounting were to be approved by the Commission?

A. Yes. If the Commission were to approve the use of general plant amortization for Spire utilizing the lives Staff recommends, Staff's depreciation rates would not recover the assets

in the same time frame. However, as noted earlier, Spire's direct recommendation is the same as Staff for these accounts and would also not fully collect the asset value over the ordered lives.

Q. Do you agree with Mr. Spanos that fully amortized plant should be ordered to zero depreciation rates if they remain on the books?

A. No. At the time the rates are set, Spire's rates are set with a level of fully accrued plant and depreciation expense built in to rates utilizing the entire plant balance. Ratepayers should receive the benefit of increased reserves if the utility does not timely retire fully accrued dollars. If general plant amortization is approved, it is Spire's decision how regularly to retire fully amortized general plant, which could be monthly, quarterly, bi-annually, or annually.

Q. Has the Commission approved and ordered General Plant amortizations for Spire?

A No.

Q. Did Spire request General Plant amortization as part of their direct testimony?

A No discussion of general plant amortization can be found in Spire's direct case, it is only in Mr. Spanos' rebuttal testimony.

Q. Have other utilities been granted general plant amortization?

A. I must acknowledge that this type of accounting has been previously ordered for electric utilities in Missouri: Ameren Missouri and Evergy. Additionally, the useful lives that have been selected for General Plant Amortization, at least for electric utilities, use the historical depreciation rates previously ordered for those accounts.

Q. Do you recommend using General Plant Amortization or Vintage Year Accounting for General Plant Accounts?

A. No. I recommend that the Commission not take either approach.

Q. Why?

A. General Plant Amortization threatens the ability to perform any sort of prudence review of plant added into these accounts because it fails to track retirement units and original costs. Under the General Plant Amortization method, or Vintage Amortization method, only two values matter: the total additions for an account in a vintage year and the amortization period over which the original investments are to be recouped. Because only these two values are tracked, the method does not require the recording of the original cost of any particular asset. Stated differently, the total additions do not reflect the costs per retirement unit (a "retirement unit" being the smallest measurable breakdown of a particular type of asset to be recorded as capital). Not reflecting the costs per retirement unit is concerning because it will hamper the ability of parties to evaluate the prudency of capital expenditures. This is because it is difficult to make any type of prudency evaluation for a given asset when all the assets are lumped together in one account instead of being broken out by asset (*i.e.* cost per retirement unit). In addition, General Plant Amortization will only produce historical data for depreciation that matches the amortization period for the selected account. This is a problem because the amortization periods may or may not match the useful life of the assets. In other words, the data will only show the retirements booked in strictly dollar amounts and will not show retirement of any actual physical assets unless

the Commission orders otherwise. Therefore, any future depreciation study cannot properly analyze the lives of the assets, since they are not being tracked, to develop the appropriate depreciation rate. Depreciation is designed to determine a return of investment to the Company based on the useful lives of its assets. With General Plant Amortization, plant assets may actually retire prior to the amortization period or may survive many years past the amortization period. Moving to General Plant Amortization removes the need for asset experience data, as the data will only match the authorized amortization period on a going forward basis. Under General Plant Amortization plant recovery will be the same percentage of recovery per year for the whole amortization period, rather than recovery based on historical data experienced.

Q. Are there any other aspects of General Plant Amortizations that cause concern?

A. Yes. I understand that if the method is approved, Spire should retire all assets in each requested account that are older vintages than the amortization period. Moving to General Plant Amortization will consequently mean that any assets that are of an older vintage than the amortization period would be considered fully recovered. Leaving these assets in service would lead to a higher initial recovery and the possibility, but not guarantee, of an over collection occurring by the next rate case. Also, I note that additional amortizations may be needed on an account-by-account basis to correct for reserve imbalances if Spire's request to use General Plant Amortization is approved.

Q. Is denying the Company's proposal to change to General Plant Amortization in the public interest?

A. Yes. Denying Spire's proposed change, and continuing the Company's current methodology, is in the public interest because it enables the Commission, Staff, and OPC to conduct prudence reviews after the fact. Spire will continue to track retirements and costs, and it will provide data useful for conducting future depreciation studies that would otherwise be unavailable.

Q. Do you have any recommendations if the Commission determines that General Plant Amortization is appropriate?

A. Yes. If the Commission approves Spire's request for General Plant Amortization, I recommend that the Commission order Spire to continue specifying the original cost and associated retirement units for all additions to the accounts where General Plant Amortization accounting treatment will occur. Additionally, Spire should be placed under a standing order to treat all general plant that exceeds the amortization period as retired for ratemaking purposes.

Q. If the Commission approves General Plant Amortization despite your concerns, what amount of retirements do you recommend?

A. At this time I do not have specific numbers for the required retirements for assets. However, Spire should retire all plant in each requested account that exceeds the amortization period. Consider, for example, an item in the general amortization account of 10 years that actually came into service in 2009. Spire may still be using the 2009 piece of equipment; however,

under General Plant Amortization, the dollars associated with the 2009 asset need to be retired from the account since the asset is older than 10 years. This would be true for all assets in the general plant accounts that are older than the recommended period for Spire. More discovery is required for me to identify the values that would need to be retired**.**

Existing Meter Infrastructure

Q. Does Staff discuss the existing metering infrastructure?

A. Yes. At page 2 of Mr. J Luebbert's rebuttal testimony he discusses the existing meter infrastructures.

Q. Does Staff discuss the potential for a stranded asset?

A. Yes. At page 5 of Mr. Luebbert's rebuttal testimony he is discussing Spire's response to Staff data request 0293 in which Staff asked if Spire had plans to retire existing meters. In that DR response Spire states:

> When a meter is off and customer service needs to be re-stablished, the meter is being replaced regardless of age. At this point, the change in the frequency of replacements has not been targeted to a level that has warranted an evaluation of the impact to the retirement of the meter plant in service. For Spire Missouri East if a replacement schedule is finalized that will have a material impact, such analysis will be performed.

This response is concerning because Spire has not considered its plan to retire the existing meter and communication equipment attached to the meters let alone the affects the retirements will have on the depreciation reserves.

Q. Has Spire answered any other Staff data requests that lead you to believe a reserve deficiency may already exist and will only worsen with the decision to fully covert to ultrasonic meters?

A. Yes. Spire's response to Staff data request 0443 specifically questions 14 and 15

> 14. Has Spire Missouri retired the existing diaphragm meters that were removed for testing within the meter sampling process which meet the accuracy standard? Explain and cite any adjustments Spire Missouri made within this case to account for the retirements.
> **Spire has been retiring most existing diaphragm meters that were removed for testing and met the accuracy standard for years**. [emphasis added] This has been the case in all regions and is consistent across the industry. **For some time, there has been a disconnect between the asset depreciation and the practical life of a meter**. [emphasis added] Spire agrees that this needs to be analyzed and that further conversations and discussions with Staff and other interested parties are beneficial. Meters removed for accuracy testing have been retired when still testing accurately for the following reasons:
> - Fundamentally the Company has found that refurbishing a meter is not cost effective when all of the cost factors are considered from the time a meter is removed to the time it is delivered to be reinstalled.
> - The meter condition was such that refurbishment simply was not possible or practical.
> - The meter was of a type and size that is no longer used by Spire. For example, meters sized below a capacity of 250 CFH are no longer used in any Spire region.
>
> 15. Does Spire Missouri intend to retire the existing diaphragm meters that were removed for testing within the meter sampling process which meet the accuracy standard? If not, explain why it is not appropriate to do so.
>
> Yes the meter is retired.

Spire in their responses to Staff have admitted that they have been retiring meters that meet accuracy standards for years. Additionally, Spire states that "[f]or some time, there has

been a disconnect between the asset depreciation and the practical life of a meter." Additionally, Spire's response to OPC data request 8521 indicates that the average retirement of meters in Spire Missouri East is 22.1 years and Spire Missouri West is 18.8 years, well short of the 35-year average service life for sample year 2018.

Q. Should ratepayers have to pay for Spire's created under recovery for diaphragm meters?

A. No. First, Spire, in its responses to Staff data request 0443, admits that it has "for years" been retiring meters that met accuracy standards instead of placing them back into inventory and eventually the field. Spire has thus created this problem by how it managed its meters and inventory. Second, in that same data request Spire indicates knowledge of a disconnect between the asset depreciation and practical life of a meter, yet the Company has apparently done nothing to attempt to rectify this problem. For both of these reasons, Spire's customers should not have to pay for the under recovery of diaphragm meters.

Q. Did Spire recommend a shortened depreciation life for diaphragm meters in this case?

A. No. Spire's direct recommendation as well as Mr. Spanos' rebuttal depreciation study recommends a life of 35 years for diaphragm meters.

Q. Are you aware of what the depreciation average service lives recommendations have been for the past several depreciation studies?

A. Yes. Please refer to Schedule OPC-JAR-S-1. In Laclede Gas Company's depreciation study for plant as of September 30, 2003, the average service life recommendation for the meters account was 37 years with a positive 5% net salvage. In Laclede Gas Company's

depreciation study for plant as of September 30, 2009, the average service life recommendation for the meters account was 37 years with a positive 5% net salvage. In Laclede Gas Company's depreciation study for plant as of September 30, 2012, the average service life recommendation for the meters account was 33 years with a positive 3% net salvage. In Laclede Gas Company's depreciation study for plant as of September 30, 2016, the average service life recommendation for the meters account was 35 years with a positive 3% net salvage. In Spire Missouri's depreciation study for plant as of September 30, 2020, the average service life recommendation for the meters account was 35 years with a positive 3% net salvage. Consistently Mr. Spanos has recommended average service lives for diaphragm meters ranging from 33-37 years even while Spire has known of a disconnect in depreciable lives and actual lives "for years."

Q. Does Staff in their rebuttal testimony recommend inclusion of the new smart meters in rates?

A. No. Staff cites throughout Mr. Luebbert's rebuttal testimony a lack of support as the main reason for the disallowance.

Q. Do you have any suggestions for the Commission on how to handle the remaining plant balance for the diaphragm meters and the communication equipment ERT and AMI?

A. Yes, the Commission has several options with how to handle the potentially large reserve shortfall for current meters. First, the Commission could essentially punt the issue to a future rate case, as no parties have really discussed how the stranded asset should be handled and all parties will have a better understanding of the true magnitude of the

shortfall in the next rate case. In this scenario, the Commission would just order a depreciation rate consistent with the current recommendations of all the parties. A second option the Commission could employ is a depreciation rate adjustment to account for the extremely truncated life expectancy of the remaining in-service and inventoried diaphragm meters and electronic reading devices. This adjustment will increase the depreciation expense to be collected over the remaining life period of the existing meter; however, this will greatly increase the depreciation expense from current levels and drive up the revenue requirement in this case. The main issue is that there is currently no set plan for meter replacements with a full conversion date to set new depreciation rates to in order to match the recovery to the period the meters are expected to remain in-service. The next option for the Commission to consider would be to create a regulatory asset for the remaining uncollected balance. In this scenario, the Commission would have multiple decisions it needs to make, the first being to determine whether the regulatory asset should still be in rate base and getting a return on and of the investment. Second, the Commission would need to determine over what period of time the recovery is to take place, which would create the amortization period and define the yearly amortization expense associated with the diaphragm meter regulatory asset. An additional option for the Commission to consider could be a disallowance of a portion of the remaining investment needed to be recovered due to the Company's operation that created a reserve shortfall without making depreciation recommendations to make up for the realized disconnect in depreciation lives to actual experience that Spire has known about "for some time". Finally, the Commission

could do a hybrid method of increasing depreciation rates slightly to recover a higher percentage before meters are completely retired and still create a regulatory asset and set up amortization of the allowed[1] asset amount to be recovered over a set period of time.

Q. Of the options you just listed, which do you recommend?

A. My first recommendation is to disallow any future realized under recovery of the diaphragm meters and related equipment based on Spire's admitted knowledge and lack of action to alleviate the issue. OPC witness Dr. Geoff Marke goes into much greater detail on this issue and I will defer further analysis to him. Should the Commission determine that complete disallowance is not appropriate, I recommend the Commission set up a regulatory asset for the unrecovered portion of diaphragm meters, not grant rate base treatment so Spire gets recovery of the investment but not a return on investment, and set up the amortization period for 20 years to minimize the impact on customers' bills.

Spire Missouri Rebuttal Depreciation Study

Q. What is Spire's recommendation for depreciation rates?

A. That is a very good question. Spire's depreciation study filed by its consultant in rebuttal testimony does not yield the same rates as was filed in attached schedules to Mr. Wesley E. Selinger's direct testimony on behalf of Spire that has now been adopted by Mr. Scott A. Weitzel. Spires's direct recommendations on certain accounts like 376.2 Mains- Cast

[1] Allowed asset amount would be entire value of unrecovered original cost unless the Commission decided a disallowance was appropriate. Then allowed asset amount would be unrecovered original cost less the disallowance.

Iron indicate Spire did not accept its consultant's recommendation. Therefore, I cannot fully determine exactly what Spire is recommending for depreciation rates.

Q. Is Mr. Spanos critical of your disregard for historical data for Spire Missouri West?

A. Yes. Mr. Spanos discusses how the 26 years of data is more than enough time to have developed statistically valid life characteristics. While this may be true for Spire Missouri West due to the age of the existing systems records being lost, I am aware of another natural gas local distribution company in the State that has, on two separate occasions, requested a waiver from the depreciation study rule for lack of historical retirements. Summit Natural Gas of Missouri requested waivers in Docket Nos. GE-2014-0010 and GE-2020-0009; in each of these instances the Staff of the Commission and OPC reviewed information provided by Summit and recommended the granting of the waiver from performing a depreciation study due to lack of historical retirements.

Q. At page 3 of his rebuttal testimony Mr. Spanos implies you failed to use informed judgment to make your depreciation rate recommendation in this case and it is not sound methodology for performing a depreciation study to ignore historical data for Spire Missouri West. Do you agree with his analysis?

A. No. Mr. Spanos' first mistake is to assume I performed a depreciation study. I did not perform a study, as OPC does not have depreciation software needed to perform a study. Mr. Spanos and Staff have the ability and resources to perform a study that I do not. As to the rest of Mr. Spanos' allegation, I can confirm that I did use informed judgment, based on my history of working depreciation cases since 2010. In my opinion it was appropriate

to recommend Spire Missouri East rates be applied to Spire Missouri West due to my comfort with the historical data that has been experienced by Spire Missouri East, formerly Laclede Gas Company, over more than 150 years. Spire Missouri East is the entity that bought former Missouri Gas Energy, so it is Spire Missouri East's practices that will be used and controlling going forward. Additionally, in working the ISRS cases, I became aware of an issue related to account 376.2 Mains- Cast Iron where the account has been driven into an under-recovery situation based on Spire's accelerated method of replacement due to the placement of large additions in plant in service related to joint encapsulations being added to existing cast iron mains and being retired with cast iron mains being replaced. The issue is that the joint encapsulations were being booked to the cast iron mains account with average service lives of 70-80 years, which was not even remotely close to what was being experienced by the joint encapsulations. The joint encapsulations at most last 10 years for the larger diameter cast iron mains but were receiving depreciation expense as if they were to last 70-80 years. Under these parameters, Spire was only recovering from customers approximately 1/7 of original investment and only if the encapsulations were on the largest mains that feed the distribution system as they are last to retire under Spire's replacement processes. As part of this surrebuttal testimony, I am making an informed adjustment to plastic mains account that I previously discussed in the 2017 case as a potential problem occurring due to accelerated retirements of new plastic mains. In addition, over past several ISRS cases Spire made a compelling argument for extending

the lives of plastic (polyethylene) mains to lives that exceed metallic mains as they lack the inherent flaw of corrosion that exists in the other main types.

> Q. Is it your opinion that plastic is going to last longer than the cast iron or unprotected steel?
> A. Yeah. The industry right now, no indication that there will be any issues with the plastic. Early on when the plastic was first involved there were some issues with what's called legacy plastic. We do not have any of that, for instance, in Missouri East. Other companies may have a little bit of that. They're going to replace it. But the plastic we're putting in, the polyethylene, it should last indefinitely.[2]

Q. Mr. Spanos is highly critical of both Staff and your depreciation recommendations for various reasons such as focusing on the math or disregarding historical data. Are there any accounts where Mr. Spanos relies too heavily on the data or has no data to support his recommendations?

A. Most definitely. As has previously been identified relating to the diaphragm meter issues for nearly 20 years over 5 studies, Mr. Spanos has recommended depreciation lives for meters ranging from 37 to 33 to 35 years. Mr. Spanos even discusses the importance or relying on conversations with management to gain an understanding of how plans of the utility may affect the retirement date and rate of a particular asset class at page III-3 of his depreciation study (page 36 of 396 of Schedule JJS-R2). Mr. Spanos in the current case continued to recommend a depreciable average service life for diaphragm meters at 35 years with no adjustments to recognize Spire's plans to accelerate their retirement. Spire's responses to Staff and OPC data requests discuss a known disconnect "for some time"

[2] Case Nos: GO-2016-0332, GO-2016-0333, GO-2017-0201, GO-2017-0202, GO-2018-0309, and GO-2018-0310 Tr. Vol.3, Pg.374 ln. 23 – Pg. 375 ln.6, Cross examination of Spire witness Craig R. Hoeferlin.

within the company of actual lives of meters to depreciable lives and yet a change was not recommended by Spire or its depreciation consultant. As was discussed in my rebuttal testimony, Spire recommended changes to the newly created smart meter and smart meters installation accounts that were not supported by any historical analysis since the first meters were installed in mid-year 2020. OPC asked data request number 8511 which sought Mr. Spanos' rational for changing the lives of the smart meters and smart meters installations accounts with no historical retirement data for Spire Missouri. Spire's answer, which is signed by Mr. Weitzel, indicates that:

> The 15 year life is based on the understanding of the nature of the smart meters and informed judgment of the life cycle of smart meters which includes the life estimates of other utilities in the industry that have experienced more defined life characteristics for smart meters.

In this answer, which I will assume was at least informed by Mr. Spanos, he seems to indicate no reliance on experience by Spire. This answer appears to be only based on what Mr. Spanos has seen at **other** utilities, of which there is no evidence in his testimony or attached schedules that would support what other gas utilities have done or are doing with ultrasonic meters. Moreover, it is unclear what type of utilities are being referenced in this answer. OPC asked an additional data request, number 2140, answered by Spire's witness, Mr. James Rieske, that discusses the smart meter infrastructure being deployed by Spire. Mr. Rieske's response was that the average service life of an ultrasonic meter is 20 years.

Q. Do you have any other concerns related to Mr. Spanos' study and depreciation recommendations?

A. Yes. Page 380 of 396 of Schedule JJS-R2 is a generated report from the software that used Spire's recommended rate and net salvage parameter to determine the annual accrual based on the vintage additions. One important note is there are no output files from the retirement rate calculation function that analyzes the historical retirement and remaining original investment in order to determine the average service life based on the retirement rate. No retirement data once again means Mr. Spanos is relying on what other utilities are doing for their enterprise software but doesn't present any information about what the other utilities are doing or if their systems are using the same software platforms as Spire. Again, this account seems to be driven by other utilities actions and has zero historical retirement basis of Spire that would have driven a change in depreciation rates.

Q. Do you have any other thoughts on Mr. Spanos' study and its disconnection to Spire's direct recommendation?

A. Yes. Mr. Spanos condemns Staff's interpretation of his study that was nearly identical to the interpretation provided by Spire. It appears that Mr. Spanos failed to inform Spire of what his actual recommendation was or allowed Spire to misinterpret it. It is also important to note, in my opinion, that in Spire's direct case it rejected the recommendation of Mr. Spanos related to account 376.2 Mains-Cast Iron and instead recommended a depreciation rate that was in line with Staff's recommendation, which Mr. Spanos ironically then went on to claim indicated Staff had not recognized the trend and new ISRS statute. This is once

again another case of Mr. Spanos chastising Staff when Spire rejected his recommendation, and instead recommended adopting a depreciation rate that was in line with Staff's recommendation. If Spire doesn't recommend its hired consultant's depreciation rates, that should be given serious weight in deciding which set of depreciation rates to order. Remember this case began in direct testimony with Spire citing a rule that it claimed meant that it did not need to provide a depreciation study for this case. As was discussed in my rebuttal testimony, Spire has provided now, at rebuttal testimony, a minimum of three potential depreciation recommendations.

Q. Does this conclude your surrebuttal testimony?

A. Yes, it does.

LACLEDE GAS COMPANY

ST. LOUIS, MISSOURI

DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS
RELATED TO GAS PLANT
AT SEPTEMBER 30, 2003

Gannett Fleming
Valuation and Rate Division

Harrisburg, Pennsylvania Calgary, Alberta Valley Forge, Pennsylvania

LACLEDE GAS COMPANY
St. Louis, Missouri

DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS

RELATED TO GAS PLANT

AT SEPTEMBER 30, 2003

GANNETT FLEMING, INC. - VALUATION AND RATE DIVISION

Harrisburg, Pennsylvania

Gannett Fleming

GANNETT FLEMING, INC.
P.O. Box 67100

Harrisburg, PA 17106-7100

Location:
207 Senate Avenue
Camp Hill, PA 17011

Office: (717) 763-7211
Fax: (717) 763-4590
www.gannettfleming.com

February 17, 2005

Laclede Gas Company
720 Olive Street
St. Louis, MO 63101

ii

Attention Mr. Glenn W. Buck
Manager of Financial Services

Ladies and Gentlemen:

Pursuant to your request, we have conducted a depreciation study related to the gas plant of Laclede Gas Company. The study results include annual depreciation rates and amortization amounts as of September 30, 2003. The attached report presents a description of the methods used in the estimation of depreciation, summaries of annual and accrued depreciation, the statistical support for the life and net salvage estimates and the detailed tabulations of depreciation by year installed for each account.

Respectfully submitted,

GANNETT FLEMING, INC.

John J. Spanos

JOHN J. SPANOS
Vice President
Valuation and Rate Division

JJS:krm

A Tradition of Excellence

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PART III. RESULTS OF STUDY

LACLEDE GAS COMPANY

TABLE 2. ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, AND
CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AT SEPTEMBER 30, 2003

	Depreciable Group	Survivor Curve	Net Salvage	Original Cost at September 30, 2003	Calculated Annual Accrual		Calculated Accrued Depreciation
					Amount	Rate	
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)
DEPRECIABLE PLANT							
MANUFACTURED GAS PLANT - LPG							
305	Structures and Improvements	60-R0.5	(15)	894,503.00	17,179	1.92	367,910
307	Other Power Equipment	30-R3	(10)	159,015.00	5,825	3.66	92,032
311	Liquefied Petroleum Gas						
	Equipment	33-R1	(5)	3,004,137.00	95,577	3.18	1,152,396
	Storage Caverns	55-S3	0	4,827,377.00	87,858	1.82	2,617,891
	Total Account 311			7,831,514.00	183,435	2.34	3,770,287
	Total Manufactured Gas Plant - LPG			8,885,032.00	206,439		4,230,229
UNDERGROUND STORAGE PLANT							
	Structures and Improvements						
351.2	Compressor Station	45-S1.5	(15)	603,561.00	15,409	2.55	414,262
351.4	Other Structures	55-R1.5	(10)	886,580.00	17,749	2.00	457,322
	Total Account 351			1,490,141.00	33,158	2.23	871,584
352	UGS Wells	90-S2.5	(10)	5,913,764.00	72,207	1.22	2,776,250
352.2	UGS Reservoirs	90-S2.5	(10)	245,023.00	2,992	1.22	94,954
352.3	UGS Non-Recoverable Gas	90-S2.5	0	2,186,039.00	24,265	1.11	764,708
352.4	UGS Wells - Oil and Vent Gas	90-S2.5	(10)	653,292.00	7,977	1.22	263,859
	Total account 352			8,998,118.00	107,441	1.19	3,899,771
353	Lines	70-R2.5	(20)	2,364,905.00	40,582	1.72	1,282,261
354	Compressor Station Equipment	55-S2	(5)	2,398,165.00	45,829	1.91	1,473,602
355	Measuring & Regulating Equipment	50-S0.5	0	1,809,024.00	36,180	2.00	889,835
356	Purification Equipment	42-R2	(5)	273,304.00	6,830	2.50	172,966
357	Other Equipment	20-L2.5	0	47,003.00	2,350	5.00	29,774
	Total Underground Storage Plant			17,380,660.00	272,370		8,619,793

LACLEDE GAS COMPANY

TABLE 2. ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, AND
CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AT SEPTEMBER 30, 2003

	Depreciable Group	Survivor Curve	Net Salvage	Original Cost at September 30, 2003	Calculated Annual Accrual		Calculated Accrued Depreciation
					Amount	Rate	
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)
TRANSMISSION PLANT							
367	Mains	75-R4	(20)	2,013,842.00	32,141	1.60	1,307,035
371.7	Other Equipment	45-S3	(5)	17,180.00	400	2.33	14,723
	Total Transmission Plant			2,031,022.00	32,541		1,321,758
DISTRIBUTION PLANT							
	Structures and Improvements						
375	District Measuring & Regulating	40-R0.5	(10)	216,140.00	5,944	2.75	106,187
	Service Centers	50-R0.5	(15)	6,429,619.00	147,719	2.30	2,149,278
	Garage	50-S0	(10)	642,882.00	14,143	2.20	300,748
	Other Small Structures	40-R0.5	0	103,277.00	2,582	2.50	38,190
	Total Account 375			7,391,918.00	170,388	2.31	2,594,403
	Mains						
376	Steel	80-R2	(20)	195,033,763.00	2,925,507	1.50	65,607,184
	Cast Iron	80-S1	(80)	14,665,105.00	329,965	2.25	16,942,491
	Plastic & Copper	70-R3	(15)	161,677,822.00	2,658,792	1.64	26,438,942
	Total Account 376			371,376,690.00	5,914,264	1.59	108,988,617
378	Meas and Reg Equipment - General	35-O1	(30)	6,256,013.00	231,458	3.70	2,318,758
379	Meas and Reg Equipment - City Gate	31-R0.5	(30)	2,100,789.00	88,124	4.19	617,766
380	Services						
	Steel	44-R0.5	(90)	38,418,750.00	1,657,001	4.31	30,921,420
	Plastic & Copper	40-R2.5	(65)	316,289,885.00	13,046,958	4.13	139,035,312
	Total Account 380			354,708,635.00	14,703,959	4.15	169,956,732
381	Meters	37-S1	5	125,949,058.00	3,228,924	2.56	33,114,379
383	House Regulator	50-R3	0	17,843,650.00	356,873	2.00	4,757,570
385	Industrial Meas and Reg Equipment	39-S0	(10)	8,728,513.00	245,795	2.82	1,956,070
386	Other Property on Customer Premises	13-L3	0	27,157.00	1,552	5.71	21,361
387	Other Equipment	30-R0.5	0	295,072.00	9,763	3.31	109,702
	Total Distribution Plant			894,677,495.00	24,951,100		324,435,358

LACLEDE GAS COMPANY

TABLE 2. ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, AND
CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AT SEPTEMBER 30, 2003

	Depreciable Group	Survivor Curve	Net Salvage	Original Cost at September 30, 2003	Calculated Annual Accrual		Calculated Accrued Depreciation
					Amount	Rate	
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)
GENERAL PLANT							
390	Structures & Improvements - General	30-S1	(5)	395,740.00	13,837	3.50	134,817
391	Office Furniture and Equipment	20-SQ	0	3,376,348.00	141,369	4.19	1,670,326
	Mechanical Office Equipment	15-SQ	0	542,352.00	26,076	4.81	336,886
	DP Systems	5-SQ	0	6,211,882.00	1,043,178	16.79	3,227,276
	DP Equipment	5-SQ	0	3,994,571.00	120,844	3.03	3,542,041
	Total Account 391			14,125,153.00	1,331,467	9.43	8,776,529
392.1	Transportation Equipment - Autos	6-L3	15	2,972,763.00	421,226	14.17	1,480,661
392.2	Transportation Equipment - Trucks	11-S2.5	10	13,160,129.00	1,073,874	8.16	6,033,793
	Total Account 392			16,132,892.00	1,495,100	9.27	7,514,454
393	Stores Equipment	25-SQ	0	360,832.00	9,517	2.64	187,010
394	Tools, Shop and Garage Equipment	20-SQ	0	8,634,168.00	353,041	4.09	4,402,676
395	Laboratory Equipment	20-SQ	0	243,176.00	8,265	3.40	152,357
396	Power Operated Equipment	13-L2	15	17,375,053.00	1,134,985	6.53	5,392,992
397	Communication Equipment	15-SQ	0	2,169,741.00	88,347	4.07	1,371,283
398	Miscellaneous Equipment	15-SQ	0	500,056.00	24,144	4.83	279,895
	Total General Plant			59,936,811.00	4,458,703		28,212,013
	Total Depreciable Plant			**982,911,020.00**	**29,921,153**		**366,819,151**
NONDEPRECIABLE PLANT							
301	Organization			2,500.22			
302	Franchises & Consents			8,484.49			
304	Land			189,823.86			
350.1	Land			1,201,600.30			
350.2	Right-of-Way			791,725.24			
352.1	Stge Leasehold Rights			2,054,721.60			
360	Land & Land Rights			80,320.94			
361	Structures & Improvements			272,943.53			
362	Holders			1,908,901.92			
363.3	Compressor Equipment			810,860.57			
365.7	Right-of-Way			41,152.62			
374	Land Rights			1,428,414.61			

LACLEDE GAS COMPANY

TABLE 2. ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, AND
CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AT SEPTEMBER 30, 2003

	Depreciable Group	Survivor Curve	Net Salvage	Original Cost at September 30, 2003	Calculated Annual Accrual		Calculated Accrued Depreciation
					Amount	Rate	
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)
375.21	Structures & Improvements			4,789.91			
375.41	Structures & Improv Leased Property			6,448.03			
389.7	Land & Rights			10,088.75			
390.1	Structures & Improvements - Office			1,976,395.13			
390.3	Structures & Improvements Leased Property			35,641.38			
390.71	Structures & Improvements Leased Property			48,769.00			
390.81	Structures & Improvements Leased Property			30,034.02			
391.3	General DP Software			24,587,957.99			
	Subtotal Nondepreciable Plant			35,491,574.11			
	Total Gas Plant			**1,018,402,594.11**	**29,921,153**		**366,819,151**

LACLEDE GAS COMPANY

TABLE 2. COMPARISON OF CALCULATED ACCRUED DEPRECIATION AND BOOK DEPRECIATION RESERVE AT SEPTEMBER 30, 2003 AND CALCULATION OF ANNUAL AMORTIZATION OF THE RESERVE VARIANCE BASED ON A COMPOSITE REMAINING LIFE PERIOD

	Depreciable Group	Original Cost at September 30, 2003	Calculated Accrued Depreciation	Book Depreciation Reserve	Variance	Remaining Life	Annual Amortization True Up
	(1)	(2)	(3)	(4)	(5)=(3)-(4)	(6)	(6)=(5)/(6)
	DEPRECIABLE PLANT						
	MANUFACTURED GAS PLANT - LPG						
305	Structures and Improvements	894,503.00	367,910	674,686	(306,776)	25.0	(12,271)
307	Other Power Equipment	159,015.00	92,032	102,872	(10,840)	14.2	(763)
311	Liquefied Petroleum Gas						
	Equipment	3,004,137.00	1,152,396	2,005,284	(852,888)	21.0	(40,614)
	Storage Caverns	4,827,377.00	2,617,891	4,696,386	(2,078,495)	25.0	(83,140)
	Total Account 311	7,831,514.00	3,770,287	6,701,670	(2,931,383)		(123,754)
	Total Manufactured Gas Plant - LPG	8,885,032.00	4,230,229	7,479,228	(3,248,999)		(136,788)
	UNDERGROUND STORAGE PLANT						
	Structures and Improvements						
351.2	Compressor Station	603,561.00	414,262	533,800	(119,538)	18.2	(6,568)
351.4	Other Structures	886,580.00	457,322	731,031	(273,709)	25.0	(10,948)
	Total Account 351	1,490,141.00	871,584	1,264,831	(393,247)		(17,516)
352	Wells	5,913,764.00	2,776,250	6,185,034	(3,408,784)	25.0	(136,351)
352.2	Reservoirs	245,023.00	94,954	184,476	(89,522)	25.0	(3,581)
352.3	Non-Recoverable Gas	2,186,039.00	764,708	2,406,384	(1,641,676)	10.0	(164,168)
352.4	Wells - Oil and Vent Gas	653,292.00	263,859	509,690	(245,831)	25.0	(9,833)
	Total account 352	8,998,118.00	3,899,771	9,285,584	(5,385,813)		(313,933)
353	Lines	2,364,905.00	1,282,261	2,358,695	(1,076,434)	25.0	(43,057)
354	Compressor Station Equipment	2,398,165.00	1,473,602	2,155,414	(681,812)	22.8	(29,904)
355	Measuring & Regulating Equipment	1,809,024.00	889,835	1,787,936	(898,101)	25.0	(35,924)
356	Purification Equipment	273,304.00	172,966	218,810	(45,844)	16.7	(2,745)
357	Other Equipment	47,003.00	29,774	20,386	9,388	7.3	1,286
	Total Underground Storage Plant	17,380,660.00	8,619,793	17,091,656	(8,471,863)		(441,793)

LACLEDE GAS COMPANY

TABLE 2. COMPARISON OF CALCULATED ACCRUED DEPRECIATION AND BOOK DEPRECIATION RESERVE AT SEPTEMBER 30, 2003 AND CALCULATION OF ANNUAL AMORTIZATION OF THE RESERVE VARIANCE BASED ON A COMPOSITE REMAINING LIFE PERIOD

	Depreciable Group (1)	Original Cost at September 30, 2003 (2)	Calculated Accrued Depreciation (3)	Book Depreciation Reserve (4)	Variance (5)=(3)-(4)	Remaining Life (6)	Annual Amortization True Up (6)=(5)/(6)
TRANSMISSION PLANT							
367	Mains	2,013,842.00	1,047,849	1,603,608	(555,759)	25.0	(22,230)
371	Other Equipment	17,180.00	14,723	19,311	(4,588)	10.0	(459)
	Total Transmission Plant	2,031,022.00	1,062,572	1,622,919	(560,347)		(22,689)
DISTRIBUTION PLANT							
	Structures and Improvements						
375	District Measuring & Regulating	216,140.00	106,187	61,419	44,768	22.1	2,026
	Service Centers	6,429,619.00	2,149,278	1,795,085	354,193	25.0	14,168
	Garage	642,882.00	300,748	210,852	89,896	25.0	3,596
	Other Small Structures	103,277.00	38,190	55,980	(17,790)	25.0	(712)
	Total Account 375	7,391,918.00	2,594,403	2,123,336	471,067		19,078
	Mains						
376	Steel	195,033,763.00	65,607,184	118,845,856	(53,238,672)	25.0	(2,129,547)
	Cast Iron	14,665,105.00	16,942,491	6,289,513	10,652,978	25.0	426,119
	Plastic & Copper	161,677,822.00	26,438,942	33,813,581	(7,374,639)	25.0	(294,986)
	Total Account 376	371,376,690.00	108,988,617	158,948,950	(49,960,333)		(1,998,414)
378	Meas and Reg Equipment - General	6,256,013.00	2,318,758	876,850	1,441,908	25.0	57,676
379	Meas and Reg Equipment - City Gate	2,100,789.00	617,766	139,733	478,033	24.0	19,918
380	Services						
	Steel	38,418,750.00	30,921,420	28,046,507	2,874,913	25.0	114,997
	Plastic & Copper	316,289,885.00	139,035,312	96,158,971	42,876,341	25.0	1,715,054
	Total Account 380	354,708,635.00	169,956,732	124,205,478	45,751,254		1,830,051
381	Meters	125,949,058.00	33,114,379	30,030,438	3,083,941	25.0	123,358
383	House Regulator	17,843,650.00	4,757,570	5,793,048	(1,035,478)	25.0	(41,419)
385	Industrial Meas and Reg Equipment	8,728,513.00	1,956,070	2,271,277	(315,207)	25.0	(12,608)
386	Other Property on Customer Premises	27,157.00	21,361	149,808	(128,447)	10.0	(12,845)
387	Other Equipment	295,072.00	109,702	262,874	(153,172)	19.0	(8,062)
	Total Distribution Plant	894,677,495.00	324,435,358	324,801,792	(366,434)		(23,267)

LACLEDE GAS COMPANY

TABLE 2. COMPARISON OF CALCULATED ACCRUED DEPRECIATION AND BOOK DEPRECIATION RESERVE AT SEPTEMBER 30, 2003 AND CALCULATION OF ANNUAL AMORTIZATION OF THE RESERVE VARIANCE BASED ON A COMPOSITE REMAINING LIFE PERIOD

	Depreciable Group (1)	Original Cost at September 30, 2003 (2)	Calculated Accrued Depreciation (3)	Book Depreciation Reserve (4)	Variance (5)=(3)-(4)	Remaining Life (6)	Annual Amortization True Up (6)=(5)/(6)
GENERAL PLANT							
390	Structures & Improvements - General	395,740.00	134,817	41,311	93,506	20.3	4,606
391	Office Furniture and Equipment	3,376,348.00	1,670,326	1,020,283	650,043	12.1	53,723
	Mechanical Office Equipment	542,352.00	336,886	(55,666)	392,552	7.9	49,690
	DP Systems	6,211,882.00	3,227,276	4,596,573	(1,369,297)	2.9	(472,171)
	DP Equipment	3,994,571.00	3,542,041	191,764	3,350,277	3.7	905,480
	Total Account 391	14,125,153.00	8,776,529	5,752,954	3,023,575		536,722
392.1	Transportation Equipment - Autos	2,972,763.00	1,480,661	2,830,551	(1,349,890)	10.0	(134,989)
392.2	Transportation Equipment - Trucks	13,160,129.00	6,033,793	7,220,187	(1,186,394)	5.4	(219,296)
	Total Account 392	16,132,892.00	7,514,454	10,050,738	(2,536,284)		(354,285)
393	Stores Equipment	360,832.00	187,010	194,064	(7,054)	18.3	(385)
394	Tools, Shop and Garage Equipment	8,634,168.00	4,402,676	2,279,662	2,123,014	12.0	176,918
395	Laboratory Equipment	243,176.00	152,357	119,318	33,039	11.0	3,004
396	Power Operated Equipment	17,375,053.00	5,392,992	8,935,141	(3,542,149)	8.3	(426,765)
397	Communication Equipment	2,169,741.00	1,371,283	1,109,946	261,337	9.0	29,037
398	Miscellaneous Equipment	500,056.00	279,895	201,094	78,801	9.1	8,659
	Total General Plant	59,936,811.00	28,212,013	28,684,228	(472,215)		(22,489)
	Total Depreciable Plant	**982,911,020.00**	**366,559,965**	**379,679,823**	**(13,119,858)**		**(647,026)**

Note: Composite Remaining Life by account determined not to exceed 25.0 years.

Exhibit No.:	
Issue:	**Depreciation**
Witness:	**John J. Spanos**
Type of Exhibit:	**Direct Testimony**
Sponsoring Party:	**Laclede Gas Company**
Case No.:	**GR-2010-**
Date Testimony Prepared:	**December 4, 2009**

LACLEDE GAS COMPANY

GR-2010-

DIRECT TESTIMONY

OF

JOHN J. SPANOS

DIRECT TESTIMONY OF
JOHN J. SPANOS

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SCHEDULE JJS-1

LACLEDE GAS COMPANY

TABLE 1. ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, AND
CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AT SEPTEMBER 30, 2009

	Depreciable Group	Survivor Curve	Net Salvage	Original Cost at September 30, 2009	Calculated Annual Accrual		Calculated Accrued Depreciation
					Amount	Rate	
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)
DEPRECIABLE PLANT							
MANUFACTURED GAS PLANT - LPG							
305	Structures and Improvements	60-R0.5	(15)	1,082,676.00	20,793	1.92	412,000
307	Other Power Equipment	30-R3	(10)	159,015.00	5,825	3.66	112,595
311	Liquefied Petroleum Gas						
	Equipment	33-R1	(5)	4,632,069.00	147,369	3.18	1,257,961
	Storage Caverns	55-S3	0	4,829,688.00	87,900	1.82	3,022,381
	Total Account 311			9,461,757.00	235,270	2.49	4,280,342
	Total Manufactured Gas Plant - LPG			10,703,448.00	261,887		4,804,937
UNDERGROUND STORAGE PLANT							
	Structures and Improvements						
351.2	Compressor Station	45-S1.5	(15)	614,207.00	15,681	2.55	449,508
351.4	Other Structures	55-R1.5	(10)	1,000,691.00	20,034	2.00	528,904
	Total Account 351			1,614,898.00	35,715	2.21	978,412
352	Wells	90-S2.5	(10)	6,128,278.00	74,826	1.22	3,133,321
352.2	Reservoirs	90-S2.5	(10)	245,023.00	2,992	1.22	111,341
352.3	Non-Recoverable Gas	90-S2.5	0	6,167,263.00	68,457	1.11	914,566
352.4	Wells - Oil and Vent Gas	90-S2.5	(10)	741,207.00	9,050	1.22	293,004
	Total account 352			13,281,771.00	155,325	1.17	4,452,232
353	Lines	70-R2.5	(20)	2,885,559.00	49,516	1.72	1,476,454
354	Compressor Station Equipment	55-S2	(5)	2,411,310.00	46,080	1.91	1,622,677
355	Measuring and Regulating Equipment	50-S0.5	0	2,013,702.00	40,274	2.00	1,002,338
356	Purification Equipment	42-R2	(5)	233,043.00	5,824	2.50	170,387
357	Other Equipment	20-L2.5	0	61,691.00	3,085	5.00	28,498
	Total Underground Storage Plant			22,501,974.00	335,818		9,730,998

LACLEDE GAS COMPANY

TABLE 1. ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, AND
CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AT SEPTEMBER 30, 2009

	Depreciable Group	Survivor Curve	Net Salvage	Original Cost at September 30, 2009	Calculated Annual Accrual		Calculated Accrued Depreciation
					Amount	Rate	
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)
TRANSMISSION PLANT							
367	Mains	80-R2	(20)	2,013,842.00	30,208	1.50	1,176,164
371	Other Equipment	45-S3	(5)	17,180.00	400	2.33	15,495
	Total Transmission Plant			2,031,022.00	30,608		1,191,659
DISTRIBUTION PLANT							
	Structures and Improvements						
375	District Measuring and Regulating	40-R0.5	(10)	246,429.00	6,777	2.75	119,077
	Service Centers	50-R0.5	(15)	8,038,592.00	184,725	2.30	2,658,422
	Garage	50-S0	(10)	659,256.00	14,504	2.20	330,039
	Other Small Structures	40-R0.5	0	107,507.00	2,688	2.50	45,568
	Total Account 375			9,051,784.00	208,694	2.31	3,153,106
	Mains						
376	Steel	80-R2	(20)	214,772,107.00	3,221,582	1.50	78,748,190
	Cast Iron	80-S1	(80)	14,334,442.00	322,525	2.25	17,308,610
	Plastic and Copper	70-R3	(15)	231,246,343.00	3,802,846	1.64	44,581,027
	Total Account 376			460,352,892.00	7,346,953	1.60	140,637,827
378	Meas and Reg Equipment - General	35-O1	(30)	9,153,338.00	339,147	3.71	2,852,386
379	Meas and Reg Equipment - City Gate	31-R0.5	(30)	2,107,931.00	88,512	4.20	749,332
380	Services						
	Steel	44-R0.5	(90)	38,622,201.00	1,665,776	4.31	33,748,361
	Plastic and Copper	40-R2.5	(65)	450,965,367.00	18,602,321	4.13	204,905,473
	Total Account 380			489,587,568.00	20,268,097	4.14	238,653,834
381	Meters	37-S1	5	118,155,709.00	3,030,488	2.56	36,544,510
383	House Regulator	50-R3	0	21,532,948.00	430,659	2.00	6,593,858
385	Industrial Meas and Reg Equipment	39-S0	(10)	11,353,611.00	319,718	2.82	2,959,206
386	Other Property on Customer Premises	13-L3	0	22,974.00	1,230	5.35	19,886
387	Other Equipment	30-R0.5	0	402,259.00	13,335	3.32	142,499
	Total Distribution Plant			1,121,721,014.00	32,046,833		432,306,444

LACLEDE GAS COMPANY

TABLE 1. ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, AND
CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AT SEPTEMBER 30, 2009

	Depreciable Group	Survivor Curve	Net Salvage	Original Cost at September 30, 2009	Calculated Annual Accrual		Calculated Accrued Depreciation
					Amount	Rate	
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)
GENERAL PLANT							
390	Structures and Improvements - General	30-S1	(5)	502,734.00	17,572	3.50	189,010
391	Office Furniture and Equipment	20-SQ	0	4,971,237.00	207,945	4.18	2,310,225
	Mechanical Office Equipment	15-SQ	0	346,321.00	9,579	2.77	292,796
	DP Systems	5-SQ	0	7,702,016.00	1,334,131	17.32	4,537,681
	DP Equipment	5-SQ	0	1,452,920.00	95,030	6.54	1,284,977
	Total Account 391			14,472,494.00	1,646,685	11.38	8,425,679
392.1	Transportation Equipment - Autos	6-L3	15	886,568.00	123,193	13.90	248,036
392.2	Transportation Equipment - Trucks	11-S2.5	10	4,979,667.00	394,527	7.92	2,566,989
	Total Account 392			5,866,235.00	517,720	8.83	2,815,025
393	Stores Equipment	25-SQ	0	346,351.00	7,877	2.27	226,513
394	Tools, Shop and Garage Equipment	20-SQ	0	10,510,881.00	424,589	4.04	5,502,845
395	Laboratory Equipment	20-SQ	0	309,445.00	8,736	2.82	200,067
396	Power Operated Equipment	13-L2	15	16,743,818.00	1,093,735	6.53	6,100,746
397	Communication Equipment	15-SQ	0	1,210,084.00	65,824	5.44	800,777
398	Miscellaneous Equipment	15-SQ	0	1,299,990.00	76,366	5.87	445,037
	Total General Plant			51,262,032.00	3,859,104		24,705,699
	Total Depreciable Plant			**1,208,219,490.00**	**36,534,250**		**472,739,737**
NONDEPRECIABLE PLANT							
301	Organization			2,500.22			
302	Franchises & Consents			8,484.49			
304	Land			179,176.40			
350.1	Land			1,201,600.30			
350.2	Right-of-Way			775,517.59			
352.1	Stge Leasehold Rights			2,055,421.60			
360	Land & Land Rights			50,653.53			
361	Structures & Improvements			102,382.63			
362	Holders			665,815.99			
363.3	Compressor Equipment			374,035.25			
365	Right-of-Way			41,152.62			
374	Land Rights			1,589,031.11			

LACLEDE GAS COMPANY

TABLE 1. ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, AND
CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AT SEPTEMBER 30, 2009

	Depreciable Group	Survivor Curve	Net Salvage	Original Cost at September 30, 2009	Calculated Annual Accrual		Calculated Accrued Depreciation
					Amount	Rate	
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)
375.2	Structures & Improvements			9,664.54			
375.4	Structures & Improv Leased Property			6,448.03			
389	Land & Rights			10,088.75			
390.1	Structures & Improvements - Office			3,865,934.23			
390.3	Structures & Improvements Leased Property			35,641.38			
390.7	Structures & Improvements Leased Property			100,159.70			
390.8	Structures & Improvements Leased Property			30,034.02			
391.3	DP Software			37,929,667.64			
	Subtotal Nondepreciable Plant			49,033,410.02			
	Total Gas Plant			**1,257,252,900.02**	**36,534,250**		**472,739,737**

SCHEDULE JJS-2

LACLEDE GAS COMPANY

TABLE 2. COMPARISON OF CALCULATED ACCRUED DEPRECIATION AND BOOK DEPRECIATION RESERVE AT SEPTEMBER 30, 2009 AND CALCULATION OF ANNUAL AMORTIZATION OF THE RESERVE VARIANCE BASED ON A COMPOSITE REMAINING LIFE PERIOD

	Depreciable Group	Original Cost at September 30, 2009	Calculated Accrued Depreciation	Book Depreciation Reserve	Variance	Remaining Life	Annual Amortization True Up
	(1)	(2)	(3)	(4)	(5)=(3)-(4)	(6)	(7)=(5)/(6)
DEPRECIABLE PLANT							
MANUFACTURED GAS PLANT - LPG							
305	Structures and Improvements	1,082,676.00	412,000	728,139	(316,139)	25.0	(12,646)
307	Other Power Equipment	159,015.00	112,595	134,942	(22,347)	21.5	(1,039)
311	Liquefied Petroleum Gas						
	Equipment	4,632,069.00	1,257,961	2,241,330	(983,369)	25.0	(39,335)
	Storage Caverns	4,829,688.00	3,022,381	5,017,216	(1,994,835)	-	-
	Total Account 311	9,461,757.00	4,280,342	7,258,546	(2,978,204)		(39,335)
	Total Manufactured Gas Plant - LPG	10,703,448.00	4,804,937	8,121,627	(3,316,690)		(53,020)
UNDERGROUND STORAGE PLANT							
	Structures and Improvements						
351.2	Compressor Station	614,207.00	449,508	641,720	(192,212)	25.0	(7,688)
351.4	Other Structures	1,000,691.00	528,904	846,973	(318,069)	25.0	(12,723)
	Total Account 351	1,614,898.00	978,412	1,488,693	(510,281)		(20,411)
352	Wells	6,128,278.00	3,133,321	6,149,252	(3,015,931)	25.0	(120,637)
352.2	Reservoirs	245,023.00	111,341	184,476	(73,135)	25.0	(2,925)
352.3	Non-Recoverable Gas	6,167,263.00	914,566	2,406,384	(1,491,818)	25.0	(59,673)
352.4	Wells - Oil and Vent Gas	741,207.00	293,004	437,896	(144,892)	25.0	(5,796)
	Total account 352	13,281,771.00	4,452,232	9,178,008	(4,725,776)		(189,031)
353	Lines	2,885,559.00	1,476,454	2,487,174	(1,010,720)	25.0	(40,429)
354	Compressor Station Equipment	2,411,310.00	1,622,677	2,311,555	(688,878)	25.0	(27,555)
355	Measuring & Regulating Equipment	2,013,702.00	1,002,338	1,976,114	(973,776)	25.0	(38,951)
356	Purification Equipment	233,043.00	170,387	210,469	(40,082)	20.6	(1,946)
357	Other Equipment	61,691.00	28,498	21,495	7,003	6.7	1,045
	Total Underground Storage Plant	22,501,974.00	9,730,998	17,673,508	(7,942,510)		(317,278)

LACLEDE GAS COMPANY

TABLE 2. COMPARISON OF CALCULATED ACCRUED DEPRECIATION AND BOOK DEPRECIATION RESERVE AT SEPTEMBER 30, 2009 AND CALCULATION OF ANNUAL AMORTIZATION OF THE RESERVE VARIANCE BASED ON A COMPOSITE REMAINING LIFE PERIOD

	Depreciable Group	Original Cost at September 30, 2009	Calculated Accrued Depreciation	Book Depreciation Reserve	Variance	Remaining Life	Annual Amortization True Up
	(1)	(2)	(3)	(4)	(5)=(3)-(4)	(6)	(7)=(5)/(6)
TRANSMISSION PLANT							
367	Mains	2,013,842.00	1,176,164	1,769,901	(593,737)	25.0	(23,749)
371	Other Equipment	17,180.00	15,495	19,311	(3,816)	-	-
	Total Transmission Plant	2,031,022.00	1,191,659	1,789,212	(597,553)		(23,749)
DISTRIBUTION PLANT							
	Structures and Improvements						
375	District Measuring & Regulating	246,429.00	119,077	92,026	27,051	20.4	1,326
	Service Centers	8,038,592.00	2,658,422	2,675,925	(17,503)	25.0	(700)
	Garage	659,256.00	330,039	297,916	32,123	24.2	1,327
	Other Small Structures	107,507.00	45,568	67,251	(21,683)	25.0	(867)
	Total Account 375	9,051,784.00	3,153,106	3,133,118	19,988		1,086
	Mains						
376	Steel	214,772,107.00	78,748,190	124,410,808	(45,662,618)	25.0	(1,826,505)
	Cast Iron	14,334,442.00	17,308,610	6,843,815	10,464,795	23.6	443,424
	Plastic & Copper	231,246,343.00	44,581,027	50,103,233	(5,522,206)	25.0	(220,888)
	Total Account 376	460,352,892.00	140,637,827	181,357,856	(40,720,029)		(1,603,969)
378	Meas and Reg Equipment - General	9,153,338.00	2,852,386	1,288,552	1,563,834	22.9	68,290
379	Meas and Reg Equipment - City Gate	2,107,931.00	749,332	432,410	316,922	20.3	15,612
380	Services						
	Steel	38,622,201.00	33,748,361	31,518,020	2,230,341	22.6	98,688
	Plastic & Copper	450,965,367.00	204,905,473	145,417,062	59,488,411	25.0	2,379,536
	Total Account 380	489,587,568.00	238,653,834	176,935,082	61,718,752		2,478,224
381	Meters	118,155,709.00	36,544,510	18,017,609	18,526,901	23.2	798,573
383	House Regulator	21,532,948.00	6,593,858	7,913,164	(1,319,306)	25.0	(52,772)
385	Industrial Meas and Reg Equipment	11,353,611.00	2,959,206	3,502,319	(543,113)	25.0	(21,725)
386	Other Property on Customer Premises	22,974.00	19,886	154,523	(134,637)	-	-
387	Other Equipment	402,259.00	142,499	314,534	(172,035)	25.0	(6,881)
	Total Distribution Plant	1,121,721,014.00	432,306,444	393,049,167	39,257,277		1,676,438

LACLEDE GAS COMPANY

TABLE 2. COMPARISON OF CALCULATED ACCRUED DEPRECIATION AND BOOK DEPRECIATION RESERVE AT SEPTEMBER 30, 2009 AND CALCULATION OF ANNUAL AMORTIZATION OF THE RESERVE VARIANCE BASED ON A COMPOSITE REMAINING LIFE PERIOD

	Depreciable Group	Original Cost at September 30, 2009	Calculated Accrued Depreciation	Book Depreciation Reserve	Variance	Remaining Life	Annual Amortization True Up
	(1)	(2)	(3)	(4)	(5)=(3)-(4)	(6)	(7)=(5)/(6)
GENERAL PLANT							
390	Structures & Improvements - General	502,734.00	189,010	84,545	104,465	15.8	6,612
391	Office Furniture and Equipment	4,971,237.00	2,310,225	1,196,209	1,114,016	7.8	142,823
	Mechanical Office Equipment	346,321.00	292,796	(31,901)	324,697	3.0	108,232
	DP Systems	7,702,016.00	4,537,681	5,494,360	(956,679)	3.0	(318,893)
	DP Equipment	1,452,920.00	1,284,977	(393,352)	1,678,329	1.5	1,118,886
	Total Account 391	14,472,494.00	8,425,679	6,265,316	2,160,363		1,051,048
392.1	Transportation Equipment - Autos	886,568.00	248,036	808,259	(560,223)	-	-
392.2	Transportation Equipment - Trucks	4,979,667.00	2,566,989	2,260,538	306,451	4.4	69,648
	Total Account 392	5,866,235.00	2,815,025	3,068,797	(253,772)		69,648
393	Stores Equipment	346,351.00	226,513	240,482	(13,969)	15.4	(907)
394	Tools, Shop and Garage Equipment	10,510,881.00	5,502,845	2,201,562	3,301,283	7.3	452,231
395	Laboratory Equipment	309,445.00	200,067	175,995	24,072	10.4	2,315
396	Power Operated Equipment	16,743,818.00	6,100,746	9,853,337	(3,752,591)	9.6	(390,895)
397	Communication Equipment	1,210,084.00	800,777	455,638	345,139	5.7	60,551
398	Miscellaneous Equipment	1,299,990.00	445,037	200,809	244,228	8.6	28,399
	Total General Plant	51,262,032.00	24,705,699	22,546,481	2,159,218		1,279,002
	Total Depreciable Plant	**1,208,219,490.00**	**472,739,737**	**443,179,995**	**29,559,742**		**2,561,393**

Note: Composite Remaining Life by account determined not to exceed 25.0 years.

LACLEDE GAS COMPANY
St. Louis, Missouri

DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS

RELATED TO GAS PLANT

AT SEPTEMBER 30, 2012

GANNETT FLEMING, INC. - VALUATION AND RATE DIVISION

Harrisburg, Pennsylvania

Gannett Fleming

Excellence Delivered ***As Promised***

December 13, 2012

Laclede Gas Company
720 Olive Street
St. Louis, MO 63101

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Attention Mr. Glenn W. Buck
Manager of Financial Services

Ladies and Gentlemen:

Pursuant to your request, we have conducted a depreciation study related to the gas plant of Laclede Gas Company. The study results include the annual depreciation rates and reserve variance as of September 30, 2012. The attached report presents a description of the methods used in the estimation of depreciation, summaries of annual and accrued depreciation, the statistical support for the life and net salvage estimates and the detailed tabulations of depreciation by year installed for each account.

Respectfully submitted,

GANNETT FLEMING, INC.

John J. Spanos

JOHN J. SPANOS
Sr. Vice President
Valuation and Rate Division

JJS:krm

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PART III. RESULTS OF STUDY

LACLEDE GAS COMPANY

TABLE 1. ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, AND
CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AT SEPTEMBER 30, 2012

	Depreciable Group	Survivor Curve	Net Salvage	Original Cost at September 30, 2012	Calculated Annual Accrual		Calculated Accrued Depreciation
					Amount	Rate	
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)
	DEPRECIABLE PLANT						
	MANUFACTURED GAS PLANT - LPG						
305	Structures and Improvements	60-R1.5	(15)	1,351,572.00	25,957	1.92	536,723
307	Other Power Equipment	50-R4	(10)	159,015.00	3,498	2.20	97,874
311	Liquefied Petroleum Gas Equipment	33-R2	(15)	4,194,768.00	145,828	3.48	1,539,025
	Total Manufactured Gas Plant - LPG			5,705,355.00	175,283		2,173,622
	UNDERGROUND STORAGE PLANT						
	Structures and Improvements						
351.2	Compressor Station	50-R0.5	(10)	612,742.00	13,480	2.20	341,384
351.4	Other Structures	50-R0.5	(20)	1,009,062.00	24,218	2.40	550,440
	Total Account 351			1,621,804.00	37,698	2.32	891,824
352	Wells	90-R2.5	(20)	6,233,515.00	83,030	1.33	3,336,481
352.2	Reservoirs	90-R2.5	0	245,023.00	2,720	1.11	99,533
352.3	Non-Recoverable Gas	90-R2.5	0	6,167,263.00	68,457	1.11	1,018,676
352.4	Wells - Oil and Vent Gas	90-R2.5	(20)	1,825,170.00	24,311	1.33	336,298
	Total account 352			14,470,971.00	178,518	1.23	4,790,988
353	Lines	80-R2.5	(25)	2,891,804.00	45,184	1.56	1,478,205
354	Compressor Station Equipment	60-R3	(10)	2,411,310.00	44,296	1.84	1,757,278
355	Measuring and Regulating Equipment	50-R2.5	(10)	2,247,514.00	49,445	2.20	1,364,728
356	Purification Equipment	42-R2	(10)	233,043.00	6,101	2.62	186,827
357	Other Equipment	20-L2.5	(5)	61,691.00	3,059	4.96	35,554
	Total Underground Storage Plant			23,938,137.00	364,301		10,505,404

LACLEDE GAS COMPANY

TABLE 1. ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, AND
CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AT SEPTEMBER 30, 2012

	Depreciable Group	Survivor Curve	Net Salvage	Original Cost at September 30, 2012	Calculated Annual Accrual		Calculated Accrued Depreciation
					Amount	Rate	
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)
TRANSMISSION PLANT							
367	Mains	85-R2	(40)	2,013,842.00	33,269	1.65	1,372,831
371	Other Equipment	45-S3	(5)	17,180.00	400	2.33	15,820
	Total Transmission Plant			2,031,022.00	33,669		1,388,651
DISTRIBUTION PLANT							
	Structures and Improvements						
375	District Measuring and Regulating	45-R1	(10)	316,165.00	7,721	2.44	138,049
	Service Centers	55-R1.5	(25)	9,352,838.00	212,617	2.27	3,563,168
	Garage	60-S0	(20)	698,664.00	14,001	2.00	333,223
	Other Small Structures	45-R1	(10)	70,344.00	1,718	2.44	46,799
	Total Account 375			10,438,011.00	236,056	2.26	4,081,239
	Mains						
376	Steel	85-R2	(40)	220,535,978.00	3,643,254	1.65	94,902,592
	Cast Iron	80-R0.5 *	(140)	18,327,272.00	603,561	3.29	33,008,281
	Plastic and Copper	75-R2.5	(25)	284,433,363.00	4,728,705	1.66	54,541,749
	Total Account 376			523,296,613.00	8,975,520	1.72	182,452,622
378	Meas and Reg Equipment - General	35-L0	(30)	10,396,174.00	386,530	3.72	2,696,078
379	Meas and Reg Equipment - City Gate	35-L1	(30)	2,083,974.00	77,482	3.72	880,225
380	Services						
	Steel	45-R0.5	(110)	38,152,317.00	1,778,661	4.66	37,888,979
	Plastic and Copper	46-R2	(85)	522,074,507.00	20,958,681	4.01	234,627,373
	Total Account 380			560,226,824.00	22,737,342	4.06	272,516,352
381	Meters	33-S0	3	125,369,844.00	3,683,619	2.94	39,489,037
383	House Regulators	55-R3	0	22,928,314.00	417,295	1.82	6,927,860
385	Industrial Measuring and Regulating Equipment	42-S0	(15)	12,900,543.00	353,088	2.74	3,263,336
386	Other Property on Customer's Premises	15-L3	0	22,974.00	1,067	4.64	19,882
387	Other Equipment	40-R1	(10)	399,370.00	10,974	2.75	157,190
	Total Distribution Plant			1,268,062,641.00	36,878,973		512,483,821

LACLEDE GAS COMPANY

TABLE 1. ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, AND
CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AT SEPTEMBER 30, 2012

	Depreciable Group	Survivor Curve	Net Salvage	Original Cost at September 30, 2012	Calculated Annual Accrual		Calculated Accrued Depreciation
					Amount	Rate	
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)
GENERAL PLANT							
390	Structures and Improvements - General	35-S0	(5)	569,964.00	17,116	3.00	177,223
391	Office Furniture and Equipment						
	Fully Accrued	20-SQ	0	955,527.00	0	-	955,527
	Amortized	20-SQ	0	4,309,218.00	215,461	5.00	1,663,936
	Total Office Furniture and Equipment			5,264,745.00	215,461	4.09	2,619,463
	Mechanical Office Equipment						
	Fully Accrued	15-SQ	0	76,110.00	0	-	76,110
	Amortized	15-SQ	0	63,541.00	4,238	6.67	40,837
	Total Mechanical Office Equipment			139,651.00	4,238	3.03	116,947
	DP Systems						
	Fully Accrued	5-SQ	0	3,185,293.00	0	-	3,185,293
	Amortized	5-SQ	0	6,248,298.00	1,249,660	20.00	2,500,592
	Total DP Systems			9,433,591.00	1,249,660	13.25	5,685,885
	DP Equipment						
	Fully Accrued	10-SQ	0	880,031.00	0	-	880,031
	Amortized	10-SQ	0	479,393.00	47,939	10.00	300,073
	Total DP Equipment			1,359,424.00	47,939	3.53	1,180,104
	Total Account 391			16,197,411.00	1,517,298	9.37	9,602,399
392.1	Transportation Equipment - Autos	6-L2.5	15	1,745,509.00	247,330	14.17	446,478
392.2	Transportation Equipment - Trucks	11-L3	10	7,357,003.00	590,856	8.03	2,316,918
	Total Account 392			9,102,512.00	838,186	9.21	2,763,396
393	Stores Equipment						
	Fully Accrued	30-SQ	0	136,543.00	0	-	136,543
	Amortized	30-SQ	0	209,808.00	6,987	3.33	96,061
	Total Account 393			346,351.00	6,987	2.02	232,604

LACLEDE GAS COMPANY

TABLE 1. ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, AND
CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AT SEPTEMBER 30, 2012

	Depreciable Group	Survivor Curve	Net Salvage	Original Cost at September 30, 2012	Calculated Annual Accrual		Calculated Accrued Depreciation
					Amount	Rate	
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)
394	Tools, Shop and Garage Equipment						
	Fully Accrued	25-SQ	0	1,332,357.00	0	-	1,332,357
	Amortized	25-SQ	0	10,258,151.00	410,326	4.00	4,060,956
	Total Account 394			11,590,508.00	410,326	3.54	5,393,313
395	Laboratory Equipment						
	Fully Accrued	20-SQ	0	64,466.00	0	-	64,466
	Amortized	20-SQ	0	206,995.00	10,350	5.00	70,647
	Total Account 395			271,461.00	10,350	3.81	135,113
396	Power Operated Equipment	13-L2.5	15	17,214,622.00	1,124,590	6.53	6,438,425
397	Communication Equipment						
	Fully Accrued	15-SQ	0	235,958.00	0	-	235,958
	Amortized	15-SQ	0	975,902.00	65,093	6.67	757,734
	Total Account 397			1,211,860.00	65,093	5.37	993,692
398	Miscellaneous Equipment						
	Fully Accrued	20-SQ	0	122,184.00	0	-	122,184
	Amortized	20-SQ	0	1,612,604.00	80,630	5.00	430,536
	Total Account 398			1,734,788.00	80,630	4.65	552,720
	Total General Plant			58,239,477.00	4,070,576		26,288,885
	Total Depreciable Plant			**1,357,976,632.00**	**41,522,802**		**552,840,383**
	NONDEPRECIABLE PLANT AND ACCOUNTS NOT STUDIED						
301	Organization			2,500.22			
302	Franchises and Consents			8,484.49			
304	Land			119,929.40			
350.1	Land			1,201,600.30			
350.2	Right-of-Way			778,417.59			
352.1	Storage Leasehold Rights			2,055,421.60			
360	Land and Land Rights			50,653.53			
361	Structures and Improvements			107,232.63			
362	Holders			659,027.10			
363.3	Compressor Equipment			338,616.06			

LACLEDE GAS COMPANY

TABLE 1. ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, AND
CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AT SEPTEMBER 30, 2012

	Depreciable Group	Survivor Curve	Net Salvage	Original Cost at September 30, 2012	Calculated Annual Accrual		Calculated Accrued Depreciation
					Amount	Rate	
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)
365	Right-of-Way			41,152.62			
374	Land Rights			1,679,143.41			
375.2	Structures and Improvements			94,641.31			
375.4	Structures and Improvements Leased Property			6,448.03			
389	Land and Rights			10,088.75			
390.1	Structures and Improvements - Office			5,629,061.30			
390.3	Structures and Improvements Leased Property			35,641.38			
390.7	Structures and Improvements Leased Property			118,552.01			
390.8	Structures and Improvements Leased Property			52,745.49			
391.2	DP Systems			3,612.65			
391.3	DP Software			43,706,358.63			
	Total Nondepreciable Plant and Accounts Not Studied			56,699,328.50			
	Total Gas Plant			**1,414,675,960.50**	**41,522,802**		**552,840,383**

* Cast iron replacement program to continue through 12-2035.

NOTE: New assets related to the newBlue system will have a life of 15 years.

2016 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS
RELATED TO GAS PLANT
AS OF SEPTEMBER 30, 2016

Prepared by:

Excellence Delivered ***As Promised***

LACLEDE GAS COMPANY

St. Louis, Missouri

2016 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO GAS PLANT AS OF SEPTEMBER 30, 2016

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC

Camp Hill, Pennsylvania

Gannett Fleming

Excellence Delivered ***As Promised***

April 5, 2017

Laclede Gas Company
700 Market Street
St. Louis, MO 63101

Attention Mr. Glenn W. Buck
Director, Regulatory and Finance

Ladies and Gentlemen:

Pursuant to your request, we have conducted a depreciation study related to the gas plant of Laclede Gas Company as of September 30, 2016. The study results include annual depreciation rates and amounts for regulatory reporting purposes. The attached report presents a description of the methods used in the estimation of depreciation, summaries of annual and accrued depreciation, the statistical support for the life and net salvage estimates and the detailed tabulations of depreciation by year installed for each account.

Respectfully submitted,

GANNETT FLEMING VALUATION
AND RATE CONSULTANTS, LLC

John J. Spanos

JOHN J. SPANOS
Senior Vice President

JJS:mlw

062173.000

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LACLEDE GAS COMPANY

TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, AND CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AS OF SEPTEMBER 30, 2016

	DEPRECIABLE GROUP (1)	SURVIVOR CURVE (2)	NET SALVAGE (3)	ORIGINAL COST AS OF SEPTEMBER 30, 2016 (4)	CALCULATED ANNUAL ACCRUAL AMOUNT (5)	CALCULATED ANNUAL ACCRUAL RATE (6)	CALCULATED ACCRUED DEPRECIATION (7)
	MANUFACTURED GAS PLANT - LPG						
305	STRUCTURES AND IMPROVEMENTS	60-R2	(15)	1,869,054.12	35,895	1.92	691,145
307	OTHER POWER EQUIPMENT	55-R4	(10)	159,015.53	3,183	2.00	101,887
311	LIQUEFIED PETROLEUM GAS EQUIPMENT	38-R2.5	(5)	4,749,844.99	131,167	2.76	1,986,397
311.1	LIQUEFIED PETROLEUM GAS STORAGE CAVERNS	75-R4	(10)	4,829,688.40	70,658	1.46	3,007,878
	TOTAL MANUFACTURED GAS PLANT - LPG			**11,607,603.04**	**240,903**	**2.08**	**5,787,307**
	UNDERGROUND STORAGE PLANT						
	STRUCTURES AND IMPROVEMENTS						
351.2	COMPRESSOR STATION	50-R1	(10)	612,741.42	13,480	2.20	407,439
351.4	OTHER STRUCTURES	50-R1	(20)	1,009,838.01	24,236	2.40	662,538
	TOTAL ACCOUNT 351			1,622,579.43	37,716	2.32	1,069,977
352	WELLS	90-R3	(10)	6,090,514.06	74,365	1.22	3,398,036
352.2	RESERVOIRS	90-R3	0	245,023.20	2,720	1.11	114,345
352.3	NON-RECOVERABLE GAS	90-R3	0	6,503,627.92	72,190	1.11	1,353,338
352.4	WELLS - OIL AND VENT GAS	90-R3	(20)	1,932,818.32	25,745	1.33	455,345
	TOTAL ACCOUNT 352			14,771,983.50	175,020	1.18	5,321,064
353	LINES	80-R3	(30)	2,876,382.42	46,741	1.62	1,768,119
354	COMPRESSOR STATION EQUIPMENT	60-R3	(10)	2,747,710.09	50,475	1.84	1,897,818
355	MEASURING AND REGULATING EQUIPMENT	50-R2.5	(5)	2,247,516.42	47,198	2.10	1,419,794
356	PURIFICATION EQUIPMENT	40-R2.5	(10)	233,042.45	6,409	2.75	207,963
357	OTHER EQUIPMENT	20-L2.5	(5)	66,895.63	2,915	4.36	43,529
	TOTAL UNDERGROUND STORAGE PLANT			**24,566,109.94**	**366,474**	**1.49**	**11,728,264**
	TRANSMISSION PLANT						
367.7	MAINS	90-R2	(50)	2,013,840.16	33,530	1.67	1,500,241
371.7	OTHER EQUIPMENT	45-S3	(5)	9,654.34	225	2.33	9,232
	TOTAL TRANSMISSION PLANT			**2,023,494.50**	**33,755**	**1.67**	**1,509,473**

LACLEDE GAS COMPANY

TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, AND CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AS OF SEPTEMBER 30, 2016

	DEPRECIABLE GROUP (1)	SURVIVOR CURVE (2)		NET SALVAGE (3)	ORIGINAL COST AS OF SEPTEMBER 30, 2016 (4)	CALCULATED ANNUAL ACCRUAL AMOUNT (5)	CALCULATED ANNUAL ACCRUAL RATE (6)	CALCULATED ACCRUED DEPRECIATION (7)
	DISTRIBUTION PLANT							
	STRUCTURES AND IMPROVEMENTS							
375.1	MEASURING AND REGULATING	50-R1.5		(15)	786,502.80	18,090	2.30	177,238
375.2	SERVICE CENTERS	60-R1.5		(25)	7,906,885.66	165,056	2.09	2,542,668
375.3	GARAGE	60-S0.5		(20)	290,197.25	5,816	2.00	175,032
375.4	OTHER SMALL STRUCTURES	50-R1.5		(10)	69,047.88	1,519	2.20	48,130
	TOTAL ACCOUNT 375				9,052,633.59	190,481	2.10	2,943,068
	MAINS							
376.1	STEEL	90-R2		(50)	230,024,332.42	3,829,905	1.67	108,246,450
376.2	CAST IRON	80-R0.5	*	(150)	15,938,104.89	571,977	3.59	35,055,522
376.21	CAST IRON ENCAPSULATIONS	80-R0.5	*	0	5,376,623.41	499,784	9.30	858,127
376.3	PLASTIC AND COPPER	75-R2.5		(30)	446,155,810.43	7,714,034	1.73	80,611,036
	TOTAL ACCOUNT 376				697,494,871	12,615,700	1.81	224,771,135
378	MEASURING AND REGULATING STATION EQUIPMENT - GENERAL	35-L0.5		(40)	12,743,245.68	510,240	4.00	3,966,582
379	MEASURING AND REGULATING STATION EQUIPMENT - CITY GATE	37-S0		(25)	2,844,287.36	95,851	3.37	1,068,119
	SERVICES							
380.1	STEEL	45-R0.5		(110)	38,744,839.45	1,781,169	4.60	38,940,892
380.2	PLASTIC AND COPPER	46-R2		(70)	639,248,536.46	23,581,879	3.69	278,865,883
	TOTAL ACCOUNT 380				677,993,375.91	25,363,048	3.74	317,806,775
381	METERS	35-S0		3	130,177,442.89	3,610,387	2.77	44,900,195
383	HOUSE REGULATORS	60-R3		0	25,415,418.28	424,437	1.67	7,936,776
385	INDUSTRIAL MEASURING AND REGULATING EQUIPMENT	47-S0		(15)	14,403,174.98	352,806	2.45	3,907,540
386	OTHER PROPERTY ON CUSTOMER'S PREMISES	15-L3		0	22,975.29	1,067	4.64	20,886
387	OTHER EQUIPMENT	45-R1		(10)	406,070.19	9,908	2.44	168,499
	TOTAL DISTRIBUTION PLANT				**1,570,553,495.32**	**43,173,925**	**2.75**	**607,489,575**

LACLEDE GAS COMPANY

TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, AND CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AS OF SEPTEMBER 30, 2016

	DEPRECIABLE GROUP	SURVIVOR CURVE	NET SALVAGE	ORIGINAL COST AS OF SEPTEMBER 30, 2016	CALCULATED ANNUAL ACCRUAL AMOUNT	CALCULATED ANNUAL ACCRUAL RATE	CALCULATED ACCRUED DEPRECIATION
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	GENERAL PLANT						
390.2	STRUCTURES AND IMPROVEMENTS - GENERAL	35-S0.5	0	2,767,765.48	79,158	2.86	317,954
391	OFFICE FURNITURE AND EQUIPMENT	20-SQ	0	4,037,660.11	187,486	4.64	913,757
391.1	MECHANICAL OFFICE EQUIPMENT	15-SQ	0	30,559.16	0	-	30,559
391.2	DP SYSTEMS	5-SQ	0	13,326,598.02	1,811,865	13.60	8,779,731
391.3	DP EQUIPMENT	10-SQ	0	329,979.36	12,350	3.74	226,390
	TOTAL ACCOUNT 391			13,687,136.54	1,824,215	13.33	9,036,680
	TRANSPORTATION EQUIPMENT						
392.1	AUTOS	6-L2.5	20	3,028,976.96	403,944	13.34	1,061,492
392.2	TRUCKS	11-L3	15	16,233,388.19	1,254,273	7.73	4,621,147
	TOTAL ACCOUNT 392			19,262,365.15	1,658,217	8.61	5,682,639
393	STORES EQUIPMENT	30-SQ	0	332,530.18	6,097	1.83	239,657
394	TOOLS, SHOP AND GARAGE EQUIPMENT	25-SQ	0	14,528,823.12	512,019	3.52	6,703,460
395	LABORATORY EQUIPMENT	20-SQ	0	306,723.12	11,865	3.87	183,610
396	POWER OPERATED EQUIPMENT	14-L2.5	10	23,044,115.96	1,480,570	6.42	9,259,789
397	COMMUNICATION EQUIPMENT	15-SQ	0	1,237,097.89	25,707	2.08	1,179,976
398	MISCELLANEOUS EQUIPMENT	20-SQ	0	3,134,503.30	151,920	4.85	663,612
	TOTAL GENERAL PLANT			82,338,720.85	5,937,254	7.21	34,181,134
	TOTAL DEPRECIABLE PLANT			**1,691,089,423.65**	**49,752,311**	**2.94**	**660,695,753**

LACLEDE GAS COMPANY

TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, AND CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AS OF SEPTEMBER 30, 2016

	DEPRECIABLE GROUP	SURVIVOR CURVE	NET SALVAGE	ORIGINAL COST AS OF SEPTEMBER 30, 2016	CALCULATED ANNUAL ACCRUAL		CALCULATED ACCRUED DEPRECIATION
					AMOUNT	RATE	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	NONDEPRECIABLE PLANT AND ACCOUNTS NOT STUDIED						
301	ORGANIZATION			2,501.22			
302	FRANCHISES AND CONSENTS			8,484.49			
304	LAND			119,929.40			
321	ASSET RETIREMENT COSTS			(512,256.63)			
350.1	LAND AND LAND RIGHTS			1,201,600.30			
350.2	RIGHTS-OF-WAY			778,417.59			
352.1	STORAGE LEASEHOLD RIGHTS			2,055,421.60			
358	ASSET RETIREMENT COSTS			1,788,347.39			
360	LAND AND LAND RIGHTS			50,653.53			
361	STRUCTURES AND IMPROVEMENTS			107,232.63			
362	GAS HOLDERS			659,027.10			
363.3	COMPRESSOR EQUIPMENT			338,616.06			
363.6	ASSET RETIREMENT COSTS			1,759,258.30			
365.2	RIGHTS-OF-WAY			41,152.62			
374	LAND AND LAND RIGHTS			3,025,142.49			
375.2	STRUCTURES AND IMPROVEMENTS - LEASED PROPERTY			94,641.31			
375.4	STRUCTURES AND IMPROVEMENTS - LEASED PROPERTY			6,448.03			
388	ASSET RETIREMENT COSTS			5,188,174.00			
389	LAND AND RIGHTS			10,088.75			
390.3	STRUCTURES AND IMPROVEMENTS LEASED PROPERTY			35,641.38			
390.7	STRUCTURES AND IMPROVEMENTS LEASED PROPERTY			119,737.67			
390.8	STRUCTURES AND IMPROVEMENTS LEASED PROPERTY			52,745.49			
391.2	DP SYSTEMS			3,612.42			
391.3	DP SOFTWARE			24,464,031.72			
391.3	DP SOFTWARE - OCT 2012 FORWARD			9,836,359.97			
391.5	ENTERPRISE SOFTWARE - EIMS			116,467,968.80			
399.1	ASSET RETIREMENT COSTS			(55,452.38)			
	TOTAL NONDEPRECIABLE PLANT AND ACCOUNTS NOT STUDIED			**167,647,525.25**			
	TOTAL GAS PLANT			**1,858,736,948.90**	**49,752,311**		**660,695,753**

*Cast iron replacement program to continue through 12-2025

2020 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS
RELATED TO GAS PLANT
AS OF SEPTEMBER 30, 2020

Prepared by:

Excellence Delivered ***As Promised***

SPIRE MISSOURI, INC.

St. Louis, Missouri

2020 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS
RELATED TO GAS PLANT
AS OF SEPTEMBER 30, 2020

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC

Harrisburg, Pennsylvania

Gannett Fleming

Excellence Delivered ***As Promised***

December 11, 2020

Spire Missouri, Inc.
700 Market Street
St. Louis, MO 63101

Attention Scott Weitzel
Managing Director of Regulatory and Legislative Affairs

Ladies and Gentlemen:

Pursuant to your request, we have conducted a depreciation study related to the gas plant of Spire Missouri, Inc as of September 30, 2020. The study results include annual depreciation rates and amounts for regulatory reporting purposes. The attached report presents a description of the methods used in the estimation of depreciation, summaries of annual and accrued depreciation, the statistical support for the life and net salvage estimates and the detailed tabulations of depreciation by year installed for each account.

Respectfully submitted,

GANNETT FLEMING VALUATION
AND RATE CONSULTANTS, LLC

JOHN J. SPANOS
President

JJS:mle

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Gannett Fleming Valuation and Rate Consultants, LLC
207 Senate Avenue • Camp Hill, PA 17011-2316
t: 717.763.7211 • f: 717.763.4590

www.gfvrc.com

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SPIRE MISSOURI, INC.

TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVE, NET SALVAGE PERCENT, ORIGINAL COST AND CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AS OF SEPTEMBER 30, 2020

	DEPRECIABLE GROUP	SURVIVOR CURVE	NET SALVAGE PERCENT	ORIGINAL COST AS OF SEPTEMBER 30, 2020	CALCULATED ANNUAL ACCRUAL AMOUNT	CALCULATED ANNUAL ACCRUAL RATE	CALCULATED ACCRUED DEPRECIATION
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)
	GAS PLANT						
	MANUFACTURED GAS PLANT - LPG						
305.00	STRUCTURES AND IMPROVEMENTS	65-R2	(15)	1,869,054.12	33,101	1.77	749,551
307.00	OTHER POWER EQUIPMENT	55-R4	(5)	33,139.28	633	1.91	24,215
311.00	LIQUEFIED PETROLEUM GAS EQUIPMENT	40-R2	(5)	4,577,999.04	120,172	2.62	1,905,352
311.10	LIQUEFIED PETROLEUM GAS STORAGE CAVERNS	75-R4	(5)	4,827,936.02	67,422	1.40	3,097,748
	TOTAL MANUFACTURED GAS PLANT - LPG			**11,308,128.46**	**221,328**	**1.96**	**5,776,866**
	UNDERGROUND STORAGE PLANT						
350.20	RIGHTS OF WAY	80-R4	0	778,417.59	9,730	1.25	554,263
	STRUCTURES AND IMPROVEMENTS						
351.20	COMPRESSOR STATION	55-R1	(10)	830,419.83	16,625	2.00	425,637
351.40	OTHER STRUCTURES	55-R1	(10)	1,093,320.91	21,888	2.00	611,709
	TOTAL ACCOUNT 351			1,923,740.74	38,513	2.00	1,037,346
352.00	WELLS	90-R4	(10)	7,488,601.17	91,436	1.22	3,865,260
352.10	STORAGE LEASEHOLDS AND RIGHTS	90-R3	0	2,126,881.60	23,608	1.11	1,220,145
352.20	RESERVOIRS	90-S2.5	0	245,023.20	2,720	1.11	126,949
352.30	NON-RECOVERABLE GAS	90-R4	0	8,978,077.80	99,657	1.11	1,762,425
352.40	WELLS - OIL AND VENT GAS	55-R2	(20)	2,104,571.45	45,964	2.18	747,858
	TOTAL ACCOUNT 352			20,943,155.22	263,385	1.26	7,722,637
353.00	LINES	80-R3	(25)	3,238,917.76	50,608	1.56	1,849,428
354.00	COMPRESSOR STATION EQUIPMENT	55-R3	(10)	3,143,238.70	62,928	2.00	2,149,430
355.00	MEASURING AND REGULATING EQUIPMENT	55-R2.5	(5)	2,304,526.85	44,040	1.91	1,438,616
356.00	PURIFICATION EQUIPMENT	50-S0.5	(10)	233,042.45	5,127	2.20	168,390
357.00	OTHER EQUIPMENT	25-L2	(5)	66,895.63	2,810	4.20	42,342
	TOTAL UNDERGROUND STORAGE PLANT			**32,631,934.94**	**477,141**	**1.46**	**14,962,452**

SPIRE MISSOURI, INC.

TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVE, NET SALVAGE PERCENT, ORIGINAL COST AND CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AS OF SEPTEMBER 30, 2020

	DEPRECIABLE GROUP	SURVIVOR CURVE		NET SALVAGE PERCENT	ORIGINAL COST AS OF SEPTEMBER 30, 2020	CALCULATED ANNUAL ACCRUAL AMOUNT	CALCULATED ANNUAL ACCRUAL RATE	CALCULATED ACCRUED DEPRECIATION
	(1)	(2)		(3)	(4)	(5)	(6)=(5)/(4)	(7)
	TRANSMISSION PLANT							
371.70	OTHER EQUIPMENT	50-S2		(5)	9,654.34	203	2.10	8,691
	TOTAL TRANSMISSION PLANT				**9,654.34**	**203**	**2.10**	**8,691**
	DISTRIBUTION PLANT							
374.20	LAND RIGHTS	75-R4		0	4,156,695.97	55,284	1.33	796,780
375.00	STRUCTURES AND IMPROVEMENTS	50-S0		(20)	33,598,638.97	805,205	2.40	7,899,408
	MAINS							
376.10	STEEL	80-R1.5		(60)	510,971,302.43	10,219,426	2.00	224,650,798
376.20	CAST IRON	80-S0.5	*	(150)	69,513,156.74	8,583,484	12.35	87,331,895
376.30	PLASTIC AND COPPER	60-R2.5		(40)	1,281,561,622.30	29,962,911	2.34	264,414,011
	TOTAL ACCOUNT 376				1,862,046,081.47	48,765,821	2.62	576,396,704
378.00	MEASURING AND REGULATING STATION EQUIPMENT - GENERAL	45-R0.5		(40)	26,671,064.47	828,260	3.11	9,840,099
379.00	MEASURING AND REGULATING STATION EQUIPMENT - CITY GATE	45-S0.5		(20)	9,568,510.11	254,812	2.66	3,391,324
	SERVICES							
380.10	STEEL	46-R0.5		(110)	46,715,088.43	2,101,507	4.50	42,497,731
380.20	PLASTIC AND COPPER	43-R2		(70)	1,304,563,999.67	51,673,780	3.96	620,249,465
	TOTAL ACCOUNT 380				1,351,279,088.10	53,775,287	3.98	662,747,196
381.00	METERS	35-S0		3	186,824,843.81	5,180,924	2.77	63,254,960
381.10	SMART METERS	15-S2.5		0	2,413,908.68	161,008	6.67	80,456
382.00	METER INSTALLATIONS	55-R2		(5)	101,396,796.27	1,937,693	1.91	30,026,119
382.10	SMART METER INSTALLATIONS	15-S2.5		0	288,305.39	19,230	6.67	9,609
383.00	HOUSE REGULATORS	50-R3		0	46,956,966.66	939,116	2.00	17,348,144
385.00	INDUSTRIAL MEASURING AND REGULATING STATION EQUIPMENT	45-R1.5		(10)	20,776,637.44	507,365	2.44	5,340,811
386.00	OTHER PROPERTY ON CUSTOMERS' PREMISES	15-L3		0	22,975.29	627	2.73	21,666
387.00	OTHER EQUIPMENT	50-R1.5		(10)	406,070.19	8,927	2.20	191,550
	TOTAL DISTRIBUTION PLANT				**3,646,406,582.82**	**113,239,559**	**3.11**	**1,377,344,826**

SPIRE MISSOURI, INC.

TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVE, NET SALVAGE PERCENT, ORIGINAL COST AND CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AS OF SEPTEMBER 30, 2020

	DEPRECIABLE GROUP	SURVIVOR CURVE	NET SALVAGE PERCENT	ORIGINAL COST AS OF SEPTEMBER 30, 2020	CALCULATED ANNUAL ACCRUAL AMOUNT	CALCULATED ANNUAL ACCRUAL RATE	CALCULATED ACCRUED DEPRECIATION
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)
	GENERAL PLANT						
390.20	STRUCTURES AND IMPROVEMENTS	35-S0	0	1,041,497.59	28,456	2.73	437,916
391.00	OFFICE FURNITURE AND EQUIPMENT						
	FULLY ACCRUED	FULLY ACCRUED		629,198.84	0	-	629,198
	AMORTIZED	20-SQ	0	10,195,581.10	509,779	5.00	2,998,221
	TOTAL OFFICE FURNITURE AND EQUIPMENT			10,824,779.94	509,779	4.71	3,627,419
391.10	MECHANICAL OFFICE EQUIPMENT						
	FULLY ACCRUED	FULLY ACCRUED		29,663.83	0	-	29,663
	AMORTIZED	15-SQ	0	135,496.96	9,038	6.67	13,550
	TOTAL MECHANICAL OFFICE EQUIPMENT			165,160.79	9,038	5.47	43,213
391.20	DATA PROCESSING SOFTWARE/SYSTEMS						
	FULLY ACCRUED	FULLY ACCRUED		7,718,055.60	0	-	7,718,056
	AMORTIZED	5-SQ	0	11,865,592.95	2,373,119	20.00	6,244,997
	TOTAL DATA PROCESSING SOFTWARE/SYSTEMS			19,583,648.55	2,373,119	12.12	13,963,053
391.30	DATA PROCESSING EQUIPMENT						
	FULLY ACCRUED	FULLY ACCRUED		208,211.72	0	-	208,212
	AMORTIZED	10-SQ	0	17,957,303.76	1,795,730	10.00	7,657,065
	TOTAL DATA PROCESSING EQUIPMENT			18,165,515.48	1,795,730	9.89	7,865,277
391.95	ENTERPRISE SOFTWARE	10-SQ	0	157,417,440.67	15,741,744	10.00	90,984,615
	TOTAL ACCOUNT 391			206,156,545.43	20,429,410	9.91	116,483,577
	TRANSPORTATION EQUIPMENT						
392.10	AUTOS	8-L2	20	10,282,647.41	1,028,265	10.00	3,604,481
392.20	TRUCKS	11-S2	15	47,748,457.30	3,673,801	7.69	16,249,511
	TOTAL ACCOUNT 392			58,031,104.71	4,702,066	8.10	19,853,992
393.00	STORES EQUIPMENT						
	FULLY ACCRUED	FULLY ACCRUED		348,567.01	0	-	348,570
	AMORTIZED	30-SQ	0	644,806.96	21,472	3.33	316,444
	TOTAL STORES EQUIPMENT			993,373.97	21,472	2.16	665,014

SPIRE MISSOURI, INC.

TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVE, NET SALVAGE PERCENT, ORIGINAL COST AND CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AS OF SEPTEMBER 30, 2020

	DEPRECIABLE GROUP	SURVIVOR CURVE	NET SALVAGE PERCENT	ORIGINAL COST AS OF SEPTEMBER 30, 2020	CALCULATED ANNUAL ACCRUAL AMOUNT	CALCULATED ANNUAL ACCRUAL RATE	CALCULATED ACCRUED DEPRECIATION
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT						
	FULLY ACCRUED	FULLY ACCRUED		3,724,345.11	0	-	3,724,347
	AMORTIZED	25-SQ	0	35,029,062.13	1,401,162	4.00	10,626,484
	TOTAL TOOLS, SHOP AND GARAGE EQUIPMENT			38,753,407.24	1,401,162	3.62	14,350,831
395.00	LABORATORY EQUIPMENT						
	FULLY ACCRUED	FULLY ACCRUED		88,137.40	0	-	88,138
	AMORTIZED	20-SQ	0	232,362.33	11,618	5.00	125,402
	TOTAL LABORATORY EQUIPMENT			320,499.73	11,618	3.62	213,540
396.00	POWER OPERATED EQUIPMENT	14-L2.5	15	69,969,265.07	4,246,273	6.07	13,561,147
	COMMUNICATION EQUIPMENT						
397.00	COMMUNICATION EQUIPMENT						
	FULLY ACCRUED	FULLY ACCRUED		2,159,266.95	0	-	2,159,269
	AMORTIZED	15-SQ	0	14,583,717.50	972,734	6.67	3,105,428
	TOTAL COMMUNICATION EQUIPMENT			16,742,984.45	972,734	5.81	5,264,697
397.10	COMMUNICATION EQUIPMENT - ERT						
	FULLY ACCRUED	FULLY ACCRUED		6,553,742.30	0	-	6,553,741
	AMORTIZED	15-SQ	0	37,085,079.45	2,473,575	6.67	14,301,658
	TOTAL COMMUNICATION EQUIPMENT - ERT			43,638,821.75	2,473,575	5.67	20,855,399
397.20	COMMUNICATION EQUIPMENT - AMR	7.5-SQ	0	16,624,219.88	2,216,009	13.33	7,758,025
	TOTAL ACCOUNT 397			77,006,026.08	5,662,318	7.35	33,878,121
398.00	MISCELLANEOUS EQUIPMENT						
	FULLY ACCRUED	FULLY ACCRUED		477,830.86	0	-	477,833
	AMORTIZED	20-SQ	0	5,168,285.14	258,414	5.00	1,504,713
	TOTAL MISCELLANEOUS EQUIPMENT			5,646,116.00	258,414	4.58	1,982,546
	TOTAL GENERAL PLANT			**457,917,835.82**	**36,761,189**	**8.03**	**201,426,684**
	TOTAL DEPRECIABLE PLANT			**4,148,274,136.38**	**150,699,420**	**3.63**	**1,599,519,519**

SPIRE MISSOURI, INC.

TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVE, NET SALVAGE PERCENT, ORIGINAL COST AND CALCULATED ANNUAL AND ACCRUED DEPRECIATION RELATED TO GAS PLANT AS OF SEPTEMBER 30, 2020

	DEPRECIABLE GROUP	SURVIVOR CURVE	NET SALVAGE PERCENT	ORIGINAL COST AS OF SEPTEMBER 30, 2020	CALCULATED ANNUAL ACCRUAL AMOUNT	CALCULATED ANNUAL ACCRUAL RATE	CALCULATED ACCRUED DEPRECIATION
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)
	NONDEPRECIABLE PLANT AND ACCOUNTS NOT STUDIED						
301.00	ORGANIZATION			18,101.57			
302.00	FRANCHISES AND CONSENTS			22,307.39			
303.00	MISCELLANEOUS INTANGIBLE PLANT			773,928.74			
304.00	LAND AND LAND RIGHTS			119,929.40			
350.10	LAND AND LAND RIGHTS			1,201,600.30			
360.00	LAND AND LAND RIGHTS			50,653.53			
361.00	STRUCTURES AND IMPROVEMENTS - OTHER			107,232.63			
362.00	GAS HOLDERS			34,529.71			
363.30	COMPRESSOR EQUIPMENT			338,616.06			
365.20	RIGHTS OF WAY - TRANSMISSION			41,152.62			
374.00	LAND AND LAND RIGHTS			4,623,322.11			
375.21	STRUCTURES AND IMPROVEMENTS - LEASED PROPERTY			90,264.82			
389.00	LAND AND LAND RIGHTS			1,058,065.19			
390.11	STRUCTURES AND IMPROVEMENTS - MARKET LH			5,502,005.29			
390.30	STRUCTURES AND IMPROVEMENTS - LEASED PROPERTY - STC			35,641.38			
390.71	STRUCTURES AND IMPROVEMENTS - LEASED PROPERTY - MN			87,581.34			
390.81	STRUCTURES AND IMPROVEMENTS - LEASED PROPERTY - FRK			52,745.49			
	TOTAL NONDEPRECIABLE AND ACCOUNTS NOT STUDIED			**14,157,677.57**			
	TOTAL GAS PLANT			**4,162,431,813.95**	**150,699,420**		**1,599,519,519**

* CAST IRON REPLACEMENT PROGRAM TO CONTINUE THROUGH 12/2030.