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| **Exhibit No.:** | |
| **Issue:** | **Depreciation** |
| **Witness:** | **Thomas J. Sullivan** |
| **Type of Exhibit:** | **Rebuttal Testimony** |
| **Sponsoring Party:** | **Missouri Gas Energy** |

**Case No.: GR-2004-0209**

**Date Filed: May 24, 2004**

**Before the Public Service Commission**

**of the State of Missouri**

# Rebuttal Testimony

**Of**

**Thomas J. Sullivan**

**On Behalf of Missouri Gas Energy**

**Jefferson City, Missouri**

**May 2004**

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**Q. Please state your name and business address.**

A. Thomas J. Sullivan, 11401 Lamar, Overland Park, Kansas 66211.

**Q. What is your occupation?**

A. I am a Director in the Enterprise Consulting Division of Black & Veatch Corporation. I also serve as the Leader of the Financial Advisory Services group of that Division.

**Q. How long have you been with Black & Veatch?**

A. I have been employed with Black & Veatch since 1980.

**Q. What is your educational background?**

A. I received a Bachelor of Science Degree in Civil Engineering Summa Cum Laude from the University of Missouri - Rolla in 1980 and a Master of Business Administration Degree in Business Administration from the University of Missouri - Kansas City in 1985.

**Q. Are you a registered professional engineer?**

A. Yes, I am a Registered Professional Engineer in the State of Missouri.

**Q. To what professional organizations do you belong?**

A. I am a member of the American Society of Civil Engineers.

**Q. What is your professional experience?**

A. I have been responsible for the preparation and presentation of numerous studies for gas, electric, water, and wastewater utilities. Clients served include investor owned utilities, publicly owned utilities, and their customers. Studies involve valuation and depreciation, cost of service, cost allocation, rate design, cost of

capital, supply analysis, load forecasting, economic and financial feasibility, cost recovery mechanisms, and other engineering and economic matters.

Prior to joining the Enterprise Consulting Division in 1982, I worked as a staff engineer in the Company's Power and Civil-Environmental Divisions.

**Q. Have you previously appeared as an expert witness?**

A. Yes, I have. In Schedule TJS-1, I list cases where I have filed expert witness testimony and appeared as an expert witness.

**Q. For whom are you testifying in this matter?**

A. I am testifying on behalf of Missouri Gas Energy ("MGE" or "Company").

**Q. What is the purpose of your rebuttal testimony in this matter?**

A. In my rebuttal testimony, I will address the prepared direct testimony of Ms. Jolie L. Mathis of the Missouri Public Service Commission Staff with regard to MGE's depreciation rates. In this regard, I will primarily focus on the average service life ("ASL") and depreciation rate Staff recommends for Account 380 – Services.

**Q. Do you sponsor any schedules with your rebuttal testimony?**

A. Yes, in addition to Schedule TJS-1, I sponsor the following five schedules, all of which were prepared by me or under my supervision and direction:

1. Schedule TJS-2 – MPSC Staff response to MGE Date Request No. 42
2. Schedule TJS-3 – Report on Depreciation Accrual Rates Prepared for Missouri Gas Energy by Black & Veatch Corporation dated June 2000
3. Schedule TJS-4 – Summary of Recommended Depreciation Rates
4. Schedule TJS-5 – Typical Service Installation

5. Schedule TJS-6 – Analysis of MGE's Account 380 Plant Investment Compared to Laclede Gas Company

6. Schedule TJS-7 – MPSC Staff response to MGE Date Request No. 43

7. Schedule TJS-8 – Missouri Gas Energy - Comparison of Predicted and Actual Survivor Curves (Account 380 – Services) for an R2.5 44-year Iowa Curve

8. Schedule TJS-9 – Missouri Gas Energy - Comparison of Predicted and Actual Survivor Curves (Account 380 – Services)

9. Schedule TJS-10 – Comparison of Depreciation Rates for 8 Gas Distributors (Case No. GR-2001-292)

10. Schedule TJS-11 – Comparison of Depreciation Rates for 13 Gas Distributors

11. Schedule TJS-12 – Depreciation Rates for Account 380 - Services for Missouri Gas Distributors

12. Schedule TJS-13 - Photograph of 2939 Bellefontaine, Kansas City, Missouri

**Q. How have you organized the balance of your testimony?**

A. I will first summarize the issue by outlining Staff's and my position with regard to the appropriate depreciation rates to use for MGE. I will then address some background and recent history regarding the development of MGE's depreciation expense rates. I will then specifically focus on the reasonableness (or lack thereof) of Staff's recommended 44-year ASL for Services.

## Summary of Issue

**Q. Please summarize Staff's position with regards to MGE's depreciation rates.**

A. In her direct testimony, Ms. Jolie Mathis of the Missouri Public Service Commission Staff recommends "no change to the currently authorized depreciation rates determined in Case No. GR-2001-291(sic)" (Page 4, Lines 9-10). These rates are based upon "the Stipulation and Agreement in that prior MGE rate case" (Page 4, Line 2). She further states on Page 3 that these rates are based upon the rates proposed by Paul W. Adam in that case. In her response to Company Data Request No. 0042, which I have provided as Schedule TJS-2, she states that "Mr. Adam relied on average service lives and depreciation rates determined for Laclede Gas Company…"

**Q. Are MGE's current rates based on Mr. Adam's recommended rates?**

A. Not exactly. The rates for everything but Mains are based upon the average service lives Mr. Adam recommended in the Company's prior case. The ASL used for Mains used in the settlement was the same ASL that was used for Services.

**Q. Did Ms. Mathis indicate why she did not use information specific to MGE?**

A. In her direct testimony on Page 3, Lines 15-18, Ms. Mathis states:

"In Case No. GR-2001-292, Staff witness Paul W. Adam of the Engineering and Management Service Department stated in his direct testimony, on page 3, lines 8 and 9, the absence of company-specific historical retirement data files prevents a study of Company-specific average service lives (ASLs) account by account."

**Q. Is this statement accurate?**

A. No, it is not. The lack of retirement data files does not prevent a study of Company specific average service lives. First, there is not an absence of retirement data files. The files exist but they only have a short historical record of retirements. Second, the lack of this history simply makes it inconvenient for the Staff to perform analyses using certain software analyses with which they are familiar and comfortable; it does not prevent a study. Schedule TJS-3 is a copy of the study I prepared for MGE, and which MGE provided to the Staff, in June 2000, based on Company specific data. Further, as discussed later in my testimony, there is adequate retirement data in the Company's continuing property record to perform analyses other than the standard retirement analysis which would appear to be the only analysis upon which the Staff is willing to perform or rely.

**Q. Is the use of average service lives that were found applicable to Laclede reasonable for use on MGE's system?**

A. No, there are two serious problems with the Staff's suggestion. First, and most importantly, it ignores available Company specific data that provides valuable information related to the mortality (expected life) of MGE's properties. Second, even if no data existed for MGE, using one company's results is no more reasonable than using one company to determine an allowed rate of return on

equity. A more reasonable approach, similar to what is used to determine rate of return on equity, is to use information from a larger sample of comparable companies.

**Q. Are you saying that sufficient Company specific data exists upon which to estimate the mortality of MGE's properties?**

A. Yes. The analyses performed in connection with my study, which is attached as Schedule TJS-3, relies upon Company specific data. Table 3-1 and 3-2 on Page 6 of the June 2000 report are examples of analyses performed on Company specific data. I will provide additional analysis later in my rebuttal testimony that further demonstrates that sufficient retirement data exists to test the reasonableness of specific Iowa curves and average service lives following a retirement analysis approach.

**Q. Does Schedule TJS-3 contain an analysis of comparable companies?**

A. Yes, it does. This analysis is summarized in Table 3-3 on Pages 8-10 of the June 2000 report (Schedule 3). Further, I provide additional analyses later in my rebuttal testimony that demonstrate how unreasonable it is for Staff to rely on one "comparable" company.

**Q. Are the rates summarized in Table 3-4 of Schedule 3 of the June 2000 report the rates you are recommending for MGE?**

A. No, they are not. It is my understanding that the Company is not contesting the Staff's proposed treatment of cost of removal and salvage. Therefore, I have

prepared Schedule TJS-4 which shows the deprecation rates recommended in the June 2000 report (Schedule TJS-3) adjusted to eliminate cost of removal and salvage allowances. I am recommending the rates shown in column (F) of Schedule TJS-4. These rates are based on consideration of both Company specific data and a reasonable sample of comparable companies. The Staff's recommended rates are based on neither.

## Background

**Q. Why is the background or history of MGE's depreciation rates relevant to your rebuttal testimony?**

A. This background represents the important foundation upon which my rebuttal of Staff's proposals with regard to depreciation rates rests.

**Q. Please provide some background with regard to the determination of depreciation rates for MGE.**

A. In 1995, Black & Veatch was retained to perform a depreciation rate study for MGE. This 1995 study was filed with the Missouri PSC in June 1995. Prior to the issuance of this study, we informed Staff that an adequate continuing property record did not exist to perform survivor curve analysis as a basis to determine ASLs for MGE. In the June 1995 study, we recommended modifications to rates for some accounts with no overall change in the total annual depreciation expense for MGE. The June 1995 study was accepted as meeting the filing requirements of 4 CSR 240.040(6). Neither the Company nor Staff proposed any change in depreciation rates at that time.

In its general rate filing in Case No. GR-98-140, the Company proposed no change in its depreciation rates. Black & Veatch did provide recommended rates for the Company's automated meter reading ("AMR") equipment that did not exist at the time of the June 1995 study. The Staff recommended changes to the depreciation rates for Accounts 376 (Mains), 380 (Services), 381 (Meters), and 382 (Meter Installations); rates for the AMR equipment; and recommended that MGE be ordered to reconstruct a continuing property record.

In its order in Case No. GR-98-140, the Commission found:

> "...that there is not sufficient evidence upon which to support any changes to the existing depreciation rates. Given the fact that MGE will be filing a new depreciation study by June 2000, the Commission finds it would be appropriate to defer any change in existing depreciation rates for existing plant until then. The Commission expects the depreciation study and other documentation submitted pursuant to Rule 4 CSR 240-40.040(6) filed by the Company to be as complete as possible and further expects the Company to cooperate with Staff and OPC in evaluating the need for changes to the existing property depreciation rates at that time."

With regard to the AMR equipment, the Commission found:

> "... the evidence shows that the ERT devices have a service life of 20 years and that a depreciation rate for the ERT devices of five percent would be appropriate."

The ERTs are the encoder-receiver-transmitter devices that are booked to Account 397.1. Finally, with regard to the issue of the Company's continuing property record, the Commission found:

> "... it would not be appropriate to require the reconstruction or re-creation of records that apparently do not exist or cannot be completed by any reasonable efforts of MGE."

**Q. Did Black & Veatch prepare a depreciation study for MGE to meet the requirements of 4 CSR 240.040(6) in June 2000?**

A. Yes, this report is contained in Schedule TJS-3 attached to my rebuttal testimony.

**Q. Did the Company cooperate with Staff in the preparation of the June 2000 report?**

A. Yes. The Company and Black & Veatch met with Staff, including Mr. Adam, on several occasions prior to and after the issuance of the June 2000 report.

**Q. Did these meetings have a direct impact on your June 2000 report?**

A. Yes. Based on our meeting with Staff, we changed certain elements of the June 2000 report to accommodate Staff's requests.

In both our 1995 and 2000 studies, we performed a survey of the depreciation rates of other Midwestern gas utilities as one consideration in developing rates for MGE. Prior to issuance of the June 2000 report, Staff indicated that it was concerned with using the survey in the 1995 study because it had no basis to determine what methodology was used to determine the rates for these utilities. Therefore, at Staff's request, we added this information to Table 3-3 in the June 2000 report to the extent that it could be determined.

**Q. Were Mr. Adams' recommended deprecation rates in the Company's prior rate case consistent with the understanding you reached in the meetings between the Company and Staff?**

A. No, there were two significant deviations. One was with regard to the treatment of net salvage. The other was with regard to his use of one Company as the basis for his recommendations. The comparable company analysis in the June 2000

report was specifically tailored at the request of the Staff to provide as much readily available information regarding how those companies determined their depreciation rates. Further, we specifically included the major Missouri gas utilities in our sample.

**Q. Were Mr. Adam's recommendations in Case No. GR-2001-292 consistent with the recommendations of the Staff in the Case No. GR-98-140?**

A. No, they were not. In Case No. GR-98-140, Staff witness Mr. Woodie Smith made recommendations with regard to the depreciation rates applicable to Mains, Services, Meters, and Meter Installations. These recommendations were primarily based on consideration of Missouri Public Service Company's gas distribution depreciation rates. On Page 12 of his direct testimony in Case No. GR-98-140, Mr. Smith states:

> "Q. Why would you compare the impact of Missouri Public Service's depreciation rates on MGE's plant property and not Union Electric's or Laclede's depreciation rates?
> A. In my opinion, the existing prescribed Missouri Public Service depreciation rates are based on an analysis of plant property history which would closely match MGE's plant property history, if it were available."

Further on Page 14, Lines 1-3, Mr. Smith states:

> "Staff proposes the depreciation rates developed for Missouri Public Service in 1988 through actuarial analysis be prescribed for Accounts 376 (Mains), 380 (Services), 381 (Meters), and 382 (Meter/House Regulator Installations)."

**Q. Did you file rebuttal testimony in Case No. GR-2001-292?**

A. Yes, I did.

**Q. What has occurred subsequently to the preparation of your rebuttal testimony in Case No. GR-2001-292?**

A. The Staff and other parties along with the Company entered into a settlement on all issues in that case. As part of that settlement, the depreciation rates agreed to and currently being used are the same as the depreciation rates recommended by Mr. Adam (exclusive of net salvage) with the exception of the rate for Mains, which was set equal to the rate for Services. In the current rate case, the Company initially proposed the same depreciation rates that the Company proposed in the prior rate case. Staff is proposing the depreciation rates that resulted from the settlement in the prior case (i.e. the current depreciation rates).

**Q. Were Mr. Adam's recommended average service lives (ASLs) for MGE based on a study of MGE?**

A. No, they were not. His recommended ASLs were based on a study of Laclede Gas Company ("Laclede"). His recommendations for MGE were based on superimposing the ASLs he had determined for Laclede onto MGE. Staff's "study" of MGE in Case No. GR-2001-292 was even less comprehensive than the "study" the Staff provided in MGE's Case No. GR-98-140, which was rejected by the Commission.

**Q. What was the basis for the average service lives recommended by Mr. Adam?**

A. Based on Mr. Adam's workpapers in Case No. GR-2001-292, all of his recommended average service lives with the exception of two accounts were set equal to the average service lives he recommended for Laclede. The two exceptions were with regard to MGE's automated meter reading equipment. For Account 397.1 – Electronic ERT Equipment, he recommended the same depreciation rate approved by the Commission in Case No. GR-98-140. For Account 385 – EGM (electronic gas measuring) Equipment, he recommended an ASL that was the average of Laclede and Union Electric ("AmerenUE").

**Q. What was Mr. Adam's rationale for almost totally relying upon analyses of Laclede Gas Company to determine average service lives for MGE facilities?**

A. On Page 3, Lines 13 through 17 of his direct testimony in Case No. GR-2001-292, Mr. Adam stated:

> "Until there is sufficient historical retirement data to allow Company-specific ASLs to be determined, Staff recommend that ASLs of comparable plant owned and operated by other Missouri Public Service Commission-regulated gas utility companies be used, along with engineering judgment, to determine the account-by-account ASLs and depreciation rates for this Company."

Further, on Page 4, Lines 1 through 10 of his testimony in Case No. GR-2001-292, Mr. Adam stated:

> "Q. What conclusions have you arrived at as a result of your plant visits and conversations?
> A. I have concluded that MGE's plant is similar to the plant of Laclede Gas Company in St. Louis.
> Q. What do you know about Laclede's plant that brought you to this conclusion?
> A. Over the past six years, I have worked with Laclede's data several times to determine ASLs and depreciation rates account by account. I

have made several plant tours and discussed Laclede's plant with their operations personnel and engineers. It is my opinion that Laclede's data is current and valid.

Q. Are there other Missouri Public Service Commission-regulated gas companies whose plant histories could be used to help establish ASL and depreciation rates for MGE's plant?

A. This may be the case with AmerenUE's gas plant but I have less exposure to it. UtiliCorp's currently ordered depreciation rates for gas plant are from Case No. GR-88-194. These rates do not have associated ASLs and would need to be brought current to be used as a "go by" for the MGE plant. I have little first-hand knowledge of UtiliCorp's gas plant."

**Q. What is your impression of Mr. Adam's line of reasoning?**

A. Mr. Adam ignores the standard he set for himself on Page 3 of his testimony in Case No. GR-2001-292 by limiting his consideration almost exclusively to one Missouri PSC regulated utility, Laclede Gas Company. Even a cursory reading of Mr. Adam's testimony in Case No. GR-2001-292 leads one to conclude that he used Laclede because that was the only gas utility with which he was intimately familiar. So, Mr. Adam was really saying that depreciation rates for MGE should only be based on companies with which he was intimately familiar. His choice of Laclede was not based on any analysis of comparability; it was the only company he could have used because that was the only company with which he felt sufficiently familiar.

A closer reading of Mr. Adam's testimony in Case No. GR-2001-292 roots out his real standard - data. Mr. Adam was searching for data that, in his opinion, was "current and valid". Laclede was the only gas utility which had data with which Mr. Adam was familiar. Even though there was some data available for MGE (and Southern Union) upon which some analyses could have been based, Mr. Adam ignored this data, apparently because he felt more comfortable

with Laclede's data. Strictly focusing on Laclede because Laclede had data with which Mr. Adam was familiar and comfortable is unreasonable.

Finally, Mr. Adam's focus on historical data misses a key point in any depreciation rate study. Actuarial analysis of historical retirement data (retirement analysis) is but one statistical tool that provides an estimate of the ASL based on the plant that has already been retired. The intent of a current depreciation study is to determine the appropriate ASL for the plant that has yet to be retired. As such, depreciation rate analysis is not simply a mathematical exercise that strictly focuses on historical data or experience. In the real world, data is rarely perfect or even as complete as we would wish. By narrowly focusing on historical retirement data (especially data with which he personally felt comfortable), Mr. Adam was essentially giving up on other data, tools and analyses that are available and are more specific to MGE.

**Q. Is it possible to develop reasonable depreciation rates considering comparable companies if the analysis is limited to one company?**

A. It is highly unlikely. Mr. Adam's recommendation was like setting return on equity based on one company, with no meaningful explanation or analysis of how the companies are comparable, because that is the only company the analyst knows anything about. It hardly seems reasonable to conclude that Mr. Adam's analysis was based on an analysis of comparable companies when he first limited his universe to Missouri gas utilities, then further limited it to gas utilities with which he was familiar, namely Laclede, and never provided any meaningful explanation or analysis of how the companies are comparable.

In order to set a reasonable test of comparability, a sufficiently large universe should be considered such that unique circumstances or characteristics of one sample or outliers do not skew the results. There is sufficient variability from one utility to another that simply relying on one utility's experience to reach a conclusion is not reasonable.

**Q. Is it common for analyses of comparable companies to be based on just one company?**

A. No. Mr. Adam's limited focus on Laclede was inconsistent with the comparability standard used by Staff in other circumstances. I understand that the Commission Staff usually goes outside the state of Missouri to establish a comparable universe of companies to determine return on equity for major utilities. In Case No. GR-98-140, Staff witness Woodie Smith did not limit his depreciation analysis to Laclede. I do not believe that the comparability standard is intended to be a search for one company that is the most similar. Rather, I think it is intended to be an analysis based on a sample of utilities that are reasonably similar. In addition, the sample should be large enough so that atypical results for one utility in the sample do not skew the results.

**Q. What depreciation rates does the Company propose in this matter?**

A. MGE initially proposed the same depreciation rates as the Company proposed in Case No. GR-2001-292. The initially proposed rates represent the average of the existing rates (rates in effect at the time MGE filed Case No. GR-2001-292) and

the rates recommended in Black & Veatch's June 2000 report titled "*Report on Depreciation Accrual Rates*". A copy of this report was included as Schedule TJS-1 to my prepared rebuttal testimony in that case. The depreciation rates recommended in that report serve as the basis for my recommendation in Case No. GR-2001-292 and for my recommendation in the present case.

**Q. What depreciation rates does the Company now support?**

A. The Company supports the depreciation rates shown column (F) of Schedule TJS-4.

**Q. What are the primary differences between the depreciation rates you recommended in Case No. GR-2001-292 and those recommended by Mr. Adam?**

A. The primary differences are between the ASLs for Mains (Account 376) and Services (Account 380).

**Q. Did you and Mr. Adam differ on the service life for any accounts other than Mains and Services?**

A. Yes, we did. I identified various differences between Mr. Adam's and my recommendations in my prepared rebuttal testimony from Case No. GR-2001-292. However, with the exception of differences in the recommended service lives for Mains and Services, differences in other accounts do not materially affect the overall annual accrual. As shown in Schedule TJS-4, 68 percent ($13.2 million) of Staff's total proposed depreciation expense of $19,366,823 relates to Mains and Services. The current depreciation rate applicable to Mains is based

on a service life more in line with the 40-year life I proposed than the 71-year ASL recommended by Staff. I therefore focus my rebuttal testimony in this case on Ms. Mathis' recommended 44-year ASL for Services.

**Q. What is the dollar impact associated with the difference between your recommended ASL of 30 years and Staff's recommended ASL of 44 years?**

A. Based on the December 31, 2003 plant balances applicable to Services of $270,090,903, the annual depreciation accrual based on Staff's recommended 2.27 percent (44-year ASL) amounts to $6,131,063. The annual accrual based on my recommended 3.33 percent (30-year ASL) depreciation rate amounts to $9,003,030. This difference amounts to $2,871,967 (Schedule TJS-4, Line 6).

## Definition of a Service

**Q. Please define what you mean by a Service.**

A. The FERC Uniform System of Accounts defines Account 380 – Services as follows:

"380 Services.

A. This account shall include the cost installed of service pipes and accessories leading to the customers' premises.

B. A complete service begins with the connection on the main and extends to but does not include the connection with the customer's meter. A stub service extends from the main to the property line, or the curb stop.

C. Services which have been used but have become inactive shall be retired from utility plant in service immediately if there is no prospect for reuse, and in any event, shall be retired by the end of the second year following that during which the service became inactive unless reused in the interim.

Items

1. Curb valves and curb boxes.

2. Excavation, including shoring, bracing, bridging, pumping, backfill, and disposal of excavated material.
3. Landscaping, including lawns, and shrubbery.
4. Municipal inspection.
5. Pavement disturbed, including cutting and replacing pavement, pavement base, and sidewalks.
6. Permits.
7. Pipe and fitting, including, saddle, T, or other fitting on street main.
8. Pipe coating.
9. Pipe laying.
10. Protection of street openings.
11. Service drips.
12. Service valves, at head of service, when installed or furnished by the utility."

In simpler terms, a Service line includes all of the materials, labor, and cost of installation associated with the facilities between the main and the meter set. The meter set includes the meter, regulator and associated piping between the regulator and meter and up to the customer's house piping. Schedule TJS-5 graphically depicts these components.

## Services – Average Service Life (ASL)

**Q. What ASL does Ms. Mathis recommend for Services?**

A. Ms. Mathis recommends a 44-year ASL for Services. This recommendation is based on Mr. Adam's recommendation in Case No. GR-2001-292 which is based on the ASL he found reasonable for Laclede.

**Q. Have you been provided access to Mr. Adam's analyses for Laclede, including underlying property records, accounting and financial information of Laclede, so that you could determine how this 44-year ASL is determined?**

A. No. The Company has requested this data, but as of the date of this testimony, Staff has not provided a complete response. I have included Staff's response to this data request as Schedule TJS-2.

**Q. Have you been provided any data by the Staff to test their claim of comparability?**

A. No, I have not. The data I have requested might allow me to do two things. First, it would allow me to compare Laclede to MGE to determine whether they are comparable to the point of almost being interchangeable as the Staff would suggest. Second, I might be able to run retirement analyses to isolate the time period over which both companies were performing safety line replacements ("SLRP"), again to test the comparability of the two companies.

**Q. Have you been provided any information or has the Staff provided any evidence as to the reasonableness of the 44-year ASL for Laclede?**

A. The Staff has provided no information supporting either the reasonableness of using this 44-year ASL for MGE, nor have Staff provided any evidence as to why this rate is reasonable for Laclede.

**Q. Did Mr. Adam perform any tests of the reasonableness of his proposal to impute an ASL for MGE's Services based on the results of Staff recommendations made in 1998 for Laclede?**

A. No, he did not. Mr. Adam based his recommendation solely on his unsubstantiated assertion that the characteristics of MGE's Services are similar to Laclede's.

**Q. Have you done any analysis to attempt to determine the magnitude of Laclede's SLRP relative to MGE's?**

A. Yes, I have. I performed an analysis comparing Laclede's and MGE's gross plant investment in Services. I have included a copy of this analysis as Schedule TJS-6. Over the period (1989-2000), when both utilities were fully engaged in safety line replacement programs ("SLRP"), MGE's gross plant investment in Services increased by 188 percent whereas Laclede's only increased by 86 percent. Further, over 80 percent of MGE's investment in Service lines in 2000 had been added since 1989.

In addition, MGE was replacing an average of 20,000 Services per year between 1989 and 2000 and approximately 50 percent of MGE's customers had a replaced Service by 2000, whereas Laclede was replacing an average 1,373 Services per year by the year 2000, affecting about 2 percent of its customer base.

**Q. Has Ms. Mathis performed any analysis to test the reasonableness of her recommended 44-year service life for Services?**

A. No, she has not as indicated in her response to Company Data Request No. 43, which is included as Schedule TJS-7.

**Q. Does the fact that the parties agreed to and the Commission approved the rates she recommends mean that they are reasonable?**

A. No, it does not. The parties agreed to and the Commission approved a total package that included as one part a 2.27 percent depreciation rate for Services. Because of the settlement, the reasonableness of Mr. Adam's recommendation was not tested nor did the Commission have an opportunity to evaluate the facts and assumptions Staff used.

**Q. What ASL did you recommend for Services in the prior case?**

A. Based on the results of my June 2000 report, I recommended an ASL of 30 years for Services. I based my recommendation on MGE and Southern Union Gas experience, consideration of the experience of 12 Midwest utilities, engineering judgment, and consideration of circumstances specific to MGE. Data specific to MGE included historical plant additions and plant balances.

**Q. Do you continue to believe that the 30-year ASL you recommended in the prior case and in your June 2000 report is appropriate for MGE?**

A. Yes.

## Simulated Plant Balance Analysis

**Q. Ms. Mathis describes a problem with MGE's plant retirement data. Does she reasonably describe the situation?**

A. No, she does not. Staff claims, "the absence of Company-specific historical retirement data files prevents a study of Company specific average services lives." I agree that Company specific data is insufficient to perform retirement analysis, following traditional approaches and using generally available tools. However, with the passage of time, there are methods other than retirement analyses that may be used and there are other approaches that may be used.

**Q. Is the June 2000 Black & Veatch report based on MGE specific information?**

A. Yes. In addition to other available information, I performed a simulated plant balance ("SPB") analysis using MGE specific data.

**Q. What do you mean by a simulated plant balance analysis?**

A. Simulated plant balance analysis is one of the traditional approaches used as a tool to evaluate retirement (service life) characteristics. In performing retirement analysis, we fit a standard curve type (typically Iowa Curves) to retirement history. In this regard, we select the Iowa Curve (and ASL) which best predicts retirements given vintage additions and retirements.

We often encounter situations such as with MGE's data, where reliable retirement history by vintage is not available. In many cases, where a detailed history of retirements is not available, we can develop a history of annual plant additions and balances. Following the simulated plant balance approach, we select the Iowa Curve (and ASL) which best predicts annual plant balances given vintage additions and annual plant balances.

**Q. Does the simulated plant balance approach produce reliable results?**

A. Not always, but then neither does retirement analysis. I do not consider simulated plant balance analyses to be as rigorous as retirement analysis. However, when the extensive and rigorous data requirements required by retirement analysis are not available, the simulated plant balance approach can provide valuable information. Further, I have found the SPB approach quite informative as a test of the reasonableness of the results of retirement analyses. The mere fact that the approach may not be as rigorous as another does not mean that it should be dismissed out of hand, especially if data necessary to perform other analyses are not available or are compromised.

**Q. Did the simulated plant balance analysis you performed in connection with the June 2000 Black & Veatch report produce reliable results?**

A. The analysis indicated a service life reasonably in line with, but slightly less than, expected based on my experience and other available information. In addition, depending on the data set used, the curve types that produced the best fits are unusually flat or steep. As shown in Tables 3-1 and 3-2 of Schedule TJS-3 (the June 2000 report), the results of my simulated plant balance analysis showed that the ASL of Services was between 21 and 27 years.

**Q. Ms. Mathis indicates that in the next case Staff will determine whether sufficient information is available to develop average**

**service lives. In your opinion, will adequate information be available?**

A. Based on retirement data I obtained from MGE, there will not be sufficient information to "develop average service lives" using a traditional retirement analysis approach and generally available tools. I attempted to do so in this case using data through 2003 relating to Services and found the results so unreliable that I expect many more years of data will be required in order to perform reliable retirement analyses using traditional approaches and tools.

However, as demonstrated in the Black & Veatch June 2000 report, with data only through 1998, I can use a simulated plant balance approach, based on MGE specific data to test the reasonableness of the results of other analyses.

**Q. Have you performed any additional tests of the reasonableness of the 44-year ASL recommended by Staff?**

A. Yes, I have. I tested the reasonableness of Staff's specific conclusion that a survivor curve based on data for Laclede represents the service life characteristics of MGE's service investment.

## Retirement Analysis

**Q. Although you indicate that data are insufficient to perform a traditional retirement analysis, is the MGE data sufficient to perform an analysis using other approaches and other tools?**

A. Yes, it is. Contrary to Ms. Mathis' conclusion, existing data is more than sufficient to test the hypothesis of whether a specific ASL and curve shape lies within a range of reasonableness.

**Q. If MGE's data does not provide sufficient information to perform traditional analyses, how can you use it to test the hypothesis of whether a specific curve shape and ASL is reasonable?**

A. Retirement analysis requires two pieces of information. One is the original cost of additions by vintage. The other is retirements by vintage and transaction year. Mathematically, two independent variables (plant additions and retirements) are "combined" to predict the dependent variable (average service life).

MGE's data prior to 1994 is limited. However, beginning in 1994, MGE maintains a complete continuing property record. This data includes information regarding additions and retirements (by vintage) for each year (beginning in 1994). Vintages retired include investment from 1900 to date. This data is precisely the information required to perform retirement analyses.

From MGE's continuing property record, we can perform retirement analysis on retirements made beginning in 1994 on property-installed beginning in 1994. We cannot perform retirement analysis on retirements made beginning in 1994 on property installed prior to 1994 because the continuing property record contains no information with regard to the original investment. For property installed prior to 1994, the only information we have available are plant balances by vintage for each year beginning with 1994.

If we can find a way to determine the level of original additions, we can evaluate the reasonableness of service lives based on retirements reported during the 1994 through 2003 period. Retirements so considered can include retirements related to property not only installed subsequent to 1994 but also for retirements during the period associated with vintages prior to 1994.

For a specified survivor curve, I can calculate the original investment based on plant balances by vintage (age). I have this information. MGE supplies me with the continuing property record and Mr. Adam supplies me with the survivor curve and ASL. From this information I can determine, assuming that Mr. Adam is right the original investment by vintage.

For example, the plant balance applicable to Services at the beginning of 1994, for the 1985 vintage, amounts to $4,458,596. Using an R2.5 44-year Iowa Curve, survivors (plant balance) at the beginning of 1994 amount to 98.42 percent of 1985 additions of $4,530,173 ($4,458,596 / 98.42 percent). I then divide the plant balance (1985 vintage) as of the end of 2003 ($4,080,204) by the 1985 additions to calculate that 90.07 percent ($4,080,204 / $4,530,173) of the original additions remain in service at the end of 2003. I have thus determined that if an R2.5 44-year Iowa Curve explains retirement history, actual survivors at the end of 2003 amount to 90.07 percent of the investment originally installed in 1985.

The age of property installed in 1985 is 18½ years at the end of 2003. An R2.5 44-year Iowa Curve predicts that 94.25 percent of original additions would survive at the age of 18½ years. By comparing the predicted percent surviving based on the selected Iowa Curve age at the end of 2003 (94.25 percent), with the

percent actually surviving based on the plant balance at the end of 2003 (90.07 percent), I have determined definitively how well the R2.5 44-year curve predicts actual retirements for that vintage.

**Q. In the foregoing, predicted survivors are about 5 percent greater than what you term actual survivors. Doesn't this indicate that the R2.5 44-year curve over predicts actual service life?**

A. Yes, for the 1985 vintage. However we are concerned with not how well the curve fits for an individual vintage, but for how well it fits over a wide range of vintages (ages). In order to evaluate how well this curve compares with actual, I compare actual survivors with predicted survivors for all surviving vintages.

**Q. Have you prepared a summary of the results of your comparison?**

A. Yes, I have. In Schedule TJS-8, I compare predicted survivors with actual survivors for all surviving vintages. Schedule TJS-8 consists of a graphical comparison of survivors based on a R2.5 44-year Iowa Curve and actual survivors at the end of 2003. In Schedule TJS-8, I clearly demonstrate that R2.5 44-Iowa Curve does not reasonably predict actual survivors reported on the books and records of MGE.

As I show for the in Schedule TJS-8, the R2.5 curve shape appears generally to reflect the shape of actual survivors. However, over a wide range of observations, the R2.5 44-year curve lies above and to the right of actual. This relationship indicates that the life predicted by Mr. Adam's (and now Ms. Mathis) use of a R2.5 44-year Iowa Curve exceeds that based on actual experience.

**Q. In Schedule TJS-8, you show some information regarding correlation coefficients and retirements. What does this information indicate?**

A. This information provides some statistical indication of how well the specified curve predicts actual experience. Correlation coefficients represent a measure of how well a change in the value of one set of values corresponds to a change in the value of another set. For example, the 92.45 percent correlation coefficient I show for survivors indicates that the R2.5 44-year curve predicts about 92.50 percent of the change in actual survivors associated with a change in age. Likewise, the 77.71 percent correlation coefficient I show for retirements indicates that the R2.5 44-Year curve predicts about 75 percent of the change in retirements associated with a change in age.

The information regarding the dollar value of retirements provides another measure of how well the specified curve predicts actual. During the 10-year period, (1993 through 2003) MGE retired a total $25,759,235 of its investment in Services. The R2.5 44-year curve predicts that only $9,471,832 would be retired. Thus, the R2.5 44-year curve understates actual retirements by over 60 percent.

**Q. Based on the information set forth in Schedule TJS-8, do you reach any conclusion regarding the reasonableness of the 44-year ASL proposed by Staff?**

A. Yes, I have. A simple visual inspection demonstrates that the 44-year ASL that Staff proposes does not reflect actual experience on MGE's system. The various

statistics shown in Schedule TJS-8 further demonstrate the unreasonableness of the 44-year ASL recommended by Staff.

**Q. Have you examined how well other service lives compare with actual experience?**

A. Yes, I have. I show these comparisons in Schedule TJS-9.

**Q. Please explain Schedule TJS-9.**

A. In Schedule TJS-9, I present four graphical comparisons that are identical to the one I show in Schedule TJS-8. In preparing Schedule TJS-9, I observe that in Schedule TJS-8, the general shape of the R2.5 Iowa Curve type seems similar to MGE's actual experience. I therefore develop my initial comparisons in Schedule TJS-9 based on the R2.5 curve shape.

Using the R2.5 curve, I vary ASL in order to predict actual retirements. In Sheet 1 of Schedule TJS-9, I show the comparison using a 29-year service life. As shown, using a 29-year service life, I under predict actual retirements by about 6 percent. In Sheet 2, I use a 28-year service life and over predict actual retirements by about 2.5 percent. Therefore, I conclude that the ASL will likely fall between 28 and 29 years. I also observe that the correlation coefficients for both survivors and retirements are considerably higher than for the 44-year service life shown in Schedule TJS-8. Based on visual inspection of Schedule TJS-9 Sheets 1 and 2, I find that an R2.5 curve shape with a service life of 28 to 29 years reasonably predicts actual experience.

However, while I have evaluated service life, I have not confirmed that the R2.5 curve shape represents the curve shape that best matches actual experience.

I therefore examine whether a change in curve shape might affect my initial conclusion in Sheets 3 and 4. I again minimize the difference between actual and predicted retirements by varying age and using R2 and R3 curve shapes. As shown in these two sheets, the correlation coefficients using a R2 curve shape (Sheet 3) are not quite as good as when a R2.5 is used. The results using a R3 curve shape (Sheet 4) are about the same as when using an R2.5 curve shape.

Based on my review of the information set forth in Schedule TJS-9, I find that based on actual data specific to MGE, an ASL for Services to be about 28 years.

## Comparable Companies Analysis

**Q. What was the ASL for Services based on the comparable company analysis in your June 2000 report?**

A. In the June 2000 Black & Veatch report (Table 3-3), I show depreciation statistics for a number of Midwest gas distributors. The highest reported service life for the Services account is the 44-year ASL of Laclede and AmerenUE. Further, no distributor uses a depreciation rate for Services that is less than the 2.27 percent Staff proposes for MGE. The ASL for Services of the comparable companies shown in Table 3-3 is 39 years with a net salvage of negative 66 percent for an average rate of 5.20 percent. While this information does not definitively support a 30-year life, it certainly raises the question of the reasonableness of the 44-year life and the resulting depreciation rate recommended by Staff.

**Q. Did you perform any additional analysis of comparable companies in Case No. GR-2001-292?**

A. Yes, I did. That analysis is included as Schedule TJS-10. That analysis was based on the total composite depreciation rates (for all accounts) for the eight companies that the Staff used in that case to develop their rate of return on equity recommendation in that case. The average of those rates was 3.54 percent. In that case, my recommended rates based on my 2000 Study resulted in an overall composite rate of 3.24 percent and the Staff's recommendation in that case was 2.40 percent. In the current case, the overall composite depreciation that results from my recommended rates is 3.34 percent and the Staff's is 2.57 percent. When looked at on an overall composite basis, clearly the Staff's recommendation in that case as well as this case is significantly below any reasonable comparison to comparable companies.

**Q. Do you have any further information regarding the depreciation practices of other gas distributors?**

A. Yes, I have. As a further test of reasonableness, I surveyed the same 15 companies that Mr. John Dunn identified in his direct testimony regarding rates of return. Of the 15 companies surveyed, I received 13 responses. In Schedule TJS-11, I show a summary of depreciation rates for Mains, Services, and Distribution Plant by company. Some of the companies provided depreciation rates by FERC account, while others provided information sufficient only to calculate a composite depreciation rate for Distribution Plant.

The average depreciation rate for Services of the companies surveyed amounts to 3.59 percent. The average exceeds the Services rate recommended by Staff for MGE of 2.27 percent by over 58 percent. I recommend a depreciation rate of 3.33 percent, which is more in line with the other companies. The significant difference between Staff's recommended rate for MGE and that of other gas distributors again raises the question as to the reasonableness of the 44-year ASL recommended by Staff for Services. Schedule TJS-11 also summarizes the overall composite deprecation rate for Distribution Plant (of which Services and Mains are the major components). This analysis shows that the average depreciation rate of the comparable companies is 2.86 percent. The Staff's recommended depreciation rates produce an average of 2.35 percent and my recommended depreciation rates produce an average of 2.88 percent. Clearly, my recommended depreciation rates are more in line with this group of comparable companies.

**Q. Did you compare depreciation rates for Services for the gas companies specifically regulated by the Missouri PSC?**

A. Yes, I have. It is contained in Schedule TJS-12. As shown in this table, the average deprecation rate of the other gas companies (excluding MGE) for Services is 3.40 percent. Again, Staff's recommended 2.27 percent depreciation rate for MGE falls well below that of other gas distributors. The 3.40 percent depreciation rate compares reasonably well to the 3.33 percent depreciation rate I am recommending.

## Other Considerations

**Q. In Case No. GR-2001-292, you raised a question regarding how the age of the housing stock has a bearing on ASL. Please explain how the age of the houses have a bearing on the expected ASL of Services for MGE.**

A. The purpose of the MGE's safety line replacement program is to replace bare steel service lines installed prior to the early 1970's. Therefore, the newest houses in the program are at least 30 years old. Census tract data (1990) indicates that approximately 215,000 houses in Jackson County are 1970 vintage or older. The vast majority of MGE's service line replacements are in Jackson County. According to the census data, approximately 10 percent of these houses are vacant and another 30 percent are over 60 years old. To support a 44-year ASL, Staff must assume that on average, service lines to these 86,000 housing units (40 percent of 215,000) will remain in service on average for 44 years.

I have lived in Kansas City (Jackson County) my entire life and worked on volunteer projects for over 15 years in the inner City. I am intimately familiar with many areas in northern and eastern parts of the City (a significant part of Jackson County) where houses (with natural gas service) will be lucky to survive ten years. The economic life of the replacement Services on these houses is likely to be controlled by the mortality of the home to which the Services are attached rather than the physical life of the plastic pipe.

**Q. Please explain how a plastic Service line installed as part of the Company's SLRP would actually have a shorter expected life than an old steel Service or a plastic Service line installed on a new home?**

A. That is probably best done through an example. Schedule TJS-13 is a photograph of a house at 2939 Bellefontaine in the inner city of Kansas City. This home had its service line replaced in the late 1980's. This home has been condemned and is scheduled for demolition. The Company retired the service line for this home in late 2003 after about 15 years of service. The photo also shows an empty lot next to this home. This empty lot used to be a home at 2537 Bellefontaine, which had its service line replaced at the same time as 2939 Bellefontaine. Halfway down the block at 2509 Bellefontaine there is a similar story associated with this empty lot. In addition, there are several other empty lots on this block. All of these service lines were retired - not because of the physical life of the plastic pipe has expired, but because the service line has no economic value or use without the home being there.

**Q. Are there are other instances and circumstances where MGE has had to retire plastic Service lines due to factors other than the physical life of the pipe?**

A. Yes. Kansas City has thousands of examples similar to the one cited above. The primary reasons for these retirements are due to redevelopment and public improvement projects, in addition to the dangerous and/or demolished buildings

cited above. For example, MGE had to retire six customers earlier this year whose Service lines were replaced in 1992 when buildings were demolished for the new IRS complex at 25th & Broadway. Mayor Barnes recently announced a new downtown arena that would result in the demolition of buildings whose Service lines were replaced primarily in 1995-1996.

**Q. Wouldn't these factors apply to other urban utilities like Laclede?**

A. The forces at work in St. Louis may not be that dissimilar. However, the critical differentiating fact is that in MGE's urban core, the buildings that are being torn down are old buildings with very young Service lines that were installed as part of MGE's SLRP. As previously discussed, the magnitude of Laclede's SLRP has been a small fraction of MGE's. Simply put, MGE had to put in brand new plastic pipe to serve old buildings and homes, and as the homes and buildings are being torn down these relatively young service lines must be retired. To the extent that these factors are occurring in St. Louis, old buildings and homes are being torn down and relatively old service lines are being retired. The fact that the new plastic pipe would otherwise last for decades is irrelevant. The fact the new plastic pipe might last longer than bare steel is also irrelevant. The controlling factor in very many cases for MGE is not the life expectancy of the pipe, nor the fact that plastic pipe may last longer than bare steel, but the fact that the premise has a much shorter remaining life while the gas service facilities to the premise are relatively new.

## Recommendations

**Q. What is your recommendation with regard to Staff's recommended ASL of 44-years for Account 380 - Services?**

A. The Commission should reject Staff's recommendation because:

- Staff has performed no study of MGE or conditions specific to MGE's operation.
- Staff's recommendations are based on a methodology that is not as comprehensive as the analysis performed by Staff in MGE's Case No. GR-98-140. The Commission rejected Staff's recommendations in that case.
- Staff's results are clearly unreasonable when compared to other utilities, except Laclede.
- Staff has ignored MGE specific data and has overlooked significant differences between MGE and Laclede.

**Q. What depreciation rates are you recommending that the Commission adopt?**

A. I am recommending that the Commission adopt the depreciation rates recommended in Black & Veatch's June 2000 Report, excluding the cost of removal allowance. These rates are summarized in Schedule TJS-4. I have removed the cost of removal and salvage allowances from the rates recommended in the June 2000 Report in order to be consistent with the expensing method for cost of removal that has been proposed by Staff and adopted by the Company.

**Q. Why should the Commission accept the rates you are recommending for MGE and specifically with regards to Account 380 – Services?**

A. The Commission should accept my recommendations because:

- The rates I am recommending for Services and all accounts are based on the June 2000 Report based on a study of actual MGE experience and data, consideration of experience of 12 Midwest utilities, engineering judgment, and consideration of circumstances specific to MGE.
- The retirement analysis performed in connection with this rebuttal testimony clearly shows that a 30 year ASL for Services is much more reasonable than the 44 year ASL Staff is recommending.
- I have provided information in this rebuttal testimony that clearly demonstrates significant differences between MGE and Laclede and the inappropriateness of basing ASL's for Services on Laclede.
- I have provided information in this rebuttal testimony that clearly demonstrates that MGE's SLRP significantly impacts the ASL for Services on the MGE system.
- The comparable company analyses provided in connection with my rebuttal testimony clearly show that Staff's recommendation for Services is unreasonable and my recommendation is reasonable.

**Q. Does this conclude your rebuttal testimony?**

A. Yes, at this time.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

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|---|---|---|
| In the Matter of Missouri Gas Energy's Tariff Sheets Designed to Increase Rates for Gas Service in the Company's Missouri Service Area. | ) ) ) ) | Case No. GR-2004-0209 |

AFFIDAVIT OF THOMAS J. SULLIVAN

STATE OF KANSAS )
) ss.
COUNTY OF JOHNSON )

Thomas J. Sullivan, of lawful age, on his oath states: that he has participated in the preparation of the foregoing Rebuttal Testimony in question and answer form, to be presented in the above case; that the answers in the foregoing Rebuttal Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of his knowledge and belief.

Thomas J. Sullivan
THOMAS J. SULLIVAN

Subscribed and sworn to before me this 21st day of May 2004.

Carole R Bielefeld
Notary Public

My Commission Expires: 1-16-2007

NOTARY PUBLIC OFFICIAL SEAL STATE OF KANSAS
CAROLE L. BIELEFELD
MY COMMISSION EXPIRES
January 16, 2007

## *Expert Witness Testimony of Thomas J. Sullivan*

- *Peoples Natural Gas Company of South Carolina, South Carolina Public Service Commission Docket No. 88-52-G (1988).* Natural gas utility revenue requirements and rate design.
- *Peoples Natural Gas (UtiliCorp United, Inc.), Iowa Utilities Board Docket No. RPU-92-6 (1992).* Natural gas utility class cost of service study and peak day demand requirements.
- *Peoples Natural Gas (UtiliCorp United, Inc.), Kansas Corporation Commission Docket No. 193,787-U (1996).* Natural gas utility class cost of service study, rate design, and peak day demand requirements.
- *Southern Union Gas Company, Railroad Commission of Texas Gas Utilities Docket No. 8878 (1998).* Natural gas utility depreciation rates.
- *Southern Union Gas Company, City of El Paso (1999).* Natural Gas utility depreciation rates.
- *UtiliCorp United, Inc., Kansas Corporation Commission Docket No. 00-UTCG-336-RTS (1999).* Natural gas utility weather normalization, class cost of service, and rate design.
- *Philadelphia Gas Works, Pennsylvania Public Utility Commission Docket No. R-00006042 (2001)*. Natural gas utility revenue requirements.
- *Missouri Gas Energy, Missouri Public Service Commission Docket No. GR-2001-292 (2001).* Natural gas utility depreciation rates.
- *Aquila Networks, Iowa Utilities Board Docket No. RPU-02-5 (2002).* Natural gas utility class cost of service study, rate design, and weather normalization adjustment.
- *Aquila Networks, Michigan Gas Utilities, Michigan Public Service Commission Case No. U-13470 (2002).* Natural gas utility class cost of service study, rate design, and weather normalization adjustment.
- *Aquila Networks, Nebraska Public Service Commission Docket No. NG-0001, NG0002, NG0003 (2003).* Natural gas utility weather normalization adjustment.
- *Aquila Networks, Missouri Public Service Commission Docket No. GR-2003 (2003).* Natural gas utility class cost of service study, rate design, annualization adjustment, and weather normalization adjustment.
- *North Carolina Natural Gas, North Carolina Utilities Commission Docket No. G-21-Sub 442 (2003).* Filed intervenor testimony on behalf of the municipal customers regarding natural gas cost of service and rates related to intrastate transmission service.
- *Texas Gas Service Company, Division of ONEOK, Railroad Commission of Texas Gas Utilities Docket No. 9465 (2004)*. Natural gas utility depreciation rates.