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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

Table of Contents

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

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 L Bielefeld
Notary Public

My Commission Expires: 1-16-2007

OFFICIAL SEAL
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.

Schedule TJS - 2

Data Request No.

MGE-DR NO. 0042

Data Information Request
from Missouri Gas Energy
to MPSC Staff
Case No. GR-2004-0209

Requested From: Jolie Mathis

Date of Request: 4/22/04

Requested By: Mike Noack

Information Requested: Please describe, and provide a copy of, the analysis undertaken by Staff witness Adam regarding average service lives for MGE in Case No. GR-2001-292 (as discussed on pages 3 and 4 of witness Mathis' direct testimony), including the identity of the company or companies used in the analysis. Appropriate response to this data request should also provide all material and information used by witness Adam in conducting the analysis, including workpapers developed by Mr. Adam, and underlying property records, accounting and financial information of the company or companies involved in the analysis.

Response: Mr. Adam relied on average service lives and depreciation rates determined for Laclede Gas Company because of his knowledge of their historical data, and the similarity of plant, to determine the average service lives for MGE. Please refer to the Direct Testimony of Paul Adam in Case No. GR-2001-292. Mr. Adam's depreciation study and workpapers are included in the Rebuttal Testimony for GR-2001-292 also. The Staff is not aware of any additional analysis.

The attached information provided to Missouri Gas Energy in response to the above data information request is accurate and complete and contains no material misrepresentations or omissions, based upon present facts of which the undersigned has knowledge, information or belief. The undersigned agrees to immediately inform Missouri Gas Energy if, during the pendency of Case No. GR-2004-0209 before the Missouri Public Service Commission, any matters are discovered which would materially affect the accuracy or completeness of the attached information.

If these data are voluminous, please (1) identify the relevant documents and their location (2) make arrangements with requestor to have documents available for inspection at a location mutually agreeable. Where identification of a document is requested, briefly describe the document (e.g. book, letter, memorandum, report) and state the following information as applicable for the particular document: name, title, number, author, date of publication and publisher, addresses, date written, and the name and address of the person(s) having possession of the document. As used in this data request the term "document(s)" includes publication of any format, workpapers, letters, memoranda, notes, reports, analyses, computer analyses, test results, studies of data, recordings, transcriptions and printed, typed or written materials of every kind in your possession, custody or control within your knowledge. The pronoun "you" or "your" refers to the person identified in the "Requested From" block above and all other employees, contractors, agents or others employed by or acting on behalf of the organization, group or governmental unit associated with that person.

Provided By: Jolie Mathis
(Please Print)

Date Signed: 5/5/04

Signed: Jolie Mathis

SCHEDULE TJS-3

MGE Missouri Gas Energy
3420 Broadway • Kansas City, MO • 64111-2404 • (816) 360-5755

ROBERT J. HACK
Vice President, Pricing & Regulatory Affairs

June 28, 2000

Mr. Paul Adam, P.E.
Missouri Public Service Commission
P.O. Box 360
Jefferson City, MO 65102

RE: Depreciation Study, Data Base and Property Unit Catalog

Dear Paul:

In accordance with 4 CSR 240-40(6), Missouri Gas Energy ("MGE") hereby submits a depreciation study, data base (in electronic format) and property unit catalog.

MGE and its depreciation consultant, Black & Veatch, appreciate your willingness to work with us and provide input into the development of the study.

If you have any questions regarding this matter or need additional information, please call me.

Sincerely,

Robert J. Hack

Enclosures

CC: Office of the Public Counsel
Bo Matisziw (w/o enc.)
Stuart Harbour (w/o enc.)
Tom Sullivan (w/o enc.)

REPORT ON DEPRECIATION ACCRUAL RATES

Prepared for

Missouri Gas Energy

BLACK & VEATCH
Corporation

June 2000

BLACK & VEATCH

8400 Ward Parkway
P.O. Box 8405
Kansas City, Missouri 64114 USA

Tel: (913) 458-2000

Black & Veatch Corporation

June 8, 2000

Mr. Robert J. Hack
Vice President, Pricing and Regulatory Affairs
Missouri Gas Energy
3420 Broadway
Kansas City, Missouri 64111

Dear Mr. Hack:

Our enclosed report summarizes the results of our analysis of the depreciation accrual rates for the gas utility properties of Missouri Gas Energy (Company). Our studies are based on plant balances as of December 31, 1998. The Executive Summary of the report summarizes our major findings and recommendations.

Ultimately, the appropriate level of depreciation expense rates is a management decision taking into consideration various factors. If management concludes that a change is warranted in depreciation expense rates at this time, we recommend implementation of the rates set forth in Column J of Table 3-4 of this report. We are also recommending that the Company redistribute the excess accumulated reserve balance of Account 380 – Services to other accounts. The net effect of this redistribution is zero. The restated accumulated depreciation reserve for each account is shown in Column M of Table 4-1 of this report.

We have enjoyed working with you on this matter. If you have any questions concerning the contents of this report, please do not hesitate to contact us.

Very truly yours,

BLACK & VEATCH CORPORATION

Thomas J. Sullivan

KAH:jjt
Enclosures

Contents

List of Tables

Executive Summary

This report describes the analyses conducted and the results obtained for the gas utility property of Missouri Gas Energy with respect to its depreciation expense rates. This report is based on plant activity through December 31, 1998. The depreciation rates developed in this report are considered appropriate for use in the near future. It is recommended these rates be reviewed at least every 3 to 5 years. Ultimately the appropriate level of depreciation expense rates is a management decision taking into account various factors.

If the Company concludes that a change in depreciation expense rates is appropriate at this time, we recommend the Company implement the depreciation expense rates based on the analyses set forth in Section 3. The individual accrual rates that we are recommending for each account recognize average service lives and reflect the results of simulated plant balance analysis, regional industry averages, reserve analysis, and our experience with similar utility property. We recommend a significant change to the following accounts:

- Account 376 - Mains. We recommend an accrual rate of 2.31 percent and an annual expense of $5.6 million as opposed to the existing accrual rate of 1.88 percent and annual expense of $4.6 million.
- Account 380 - Services. We recommend an accrual rate of 3.66 percent and an annual expense of $8.2 million as opposed to the existing accrual rate of 5.5 percent and annual expense of $12.3 million.
- Accounts 381-383 - Meters/Regulators/Installations. We recommend an accrual rate of 2.87 percent for Account 381, 2.89 percent for Account 382, and 2.49 percent for Account 383 as opposed to an existing rate of 2.05 percent for all three accounts. The recommended rates produce an annual accrual of $2.2 million versus $1.6 million based on the existing rates.
- Account 391 - Furniture and Equipment. We recommend an accrual rate of 10.27 percent and an annual expense of $328,300 as opposed to the existing accrual rate of 3.06 percent and annual expense of $97,800. This proposed accrual rate is based on the accrual rate determined for Southern Union Corporate Account 391.
- Account 394 – Tools. We recommend an accrual rate of 10 percent and an annual expense of $431,000 as opposed to the existing accrual rate of 4 percent and annual expense of $172,400.

We are also recommending that the Company redistribute the excess accumulated reserve balance of Account 380 to other accounts so that the net redistribution is zero. Based on

our recommended rates and analysis of the depreciation reserve balances, we determined that Account 380-Services has an excess of $22 million in accumulated reserve. We propose to redistribute this excess to the other accounts so that negative reserves are eliminated and reserve ratios are in line with the weighted dollar age of the account and the recommended average service lives.

In our 1995 study, we attempted several actuarial methods to determine the Company's annual depreciation expense rates. These methods included survivor curve analysis and simulated plant balance method. However, a sufficient retirement history did not exist to complete a study based on survivor curve analysis and other sources of data were inadequate to conduct a complete and reliable simulated plant balance analysis for each of the accounts. The issue of the lack of data was addressed by the Commission in its order in Case No. GR-98-140 when the Commission found "that 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." It is our understanding that, since its inception in February 1994, Missouri Gas Energy is capturing the necessary plant information on a prospective basis for future depreciation study needs.

The scope of this report includes a discussion of the practice of depreciation accounting (Section 2), the type of information examined in our analysis, the methods applied, and the results of the analyses conducted (Section 3), and a discussion of the Company's depreciation reserve (Section 4).

1.0 Introduction

This report presents the results of our analysis of the depreciation expense requirements for the gas utility property of Missouri Gas Energy (Company or MGE). The analysis is based on plant activity through December 31, 1998. It is our understanding that the current report is primarily being performed in order to meet the Missouri Public Service Commission's requirement that depreciation rates be reviewed every five years.

Missouri Gas Energy was acquired by Southern Union Company in February 1994. Existing depreciation accrual rates are based on plant activity through December 31, 1982. In June 1995, we provided the Company with an analysis of depreciation accrual rates based on plant activity through December 31, 1994. The 1995 study was also performed to fulfill the Commission's requirement that depreciation rates are reviewed at least every five years. KPL (the Company's predecessor) had previously submitted a study in 1990.

The rates recommended in this report reflect consideration of the simulated plant balance approach, industry norms, and our experience with other utilities. Because a sufficient retirement history does not yet exist to adequately perform survivor curve analysis, we used the simulated plant balance approach to estimate average service lives for each account. We also relied upon a survey of regional industry norms.

Section 2 of this report briefly discusses the practice of depreciation accounting. Section 3 discusses the type of information examined in the analysis and the methods applied to develop the depreciation rates. Section 3 also discusses the results of the analyses and the recommended rates. Section 4 discusses the Company's existing depreciation reserve.

2.0 Depreciation Accounting

Depreciation is the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of gas plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be considered are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and requirements of public authorities, and in the case of natural gas companies, the exhaustion of natural resources (FERC Uniform System of Accounts).

Depreciation accounting provides a method whereby charges for the loss in service value are made against current income. By properly charging depreciation, the cost of depreciable plant less estimated salvage value (or plus estimated cost of removal) is distributed over the useful life of the asset in such a way as to equitably allocate it to the period during which service is provided through the use and consumption of such facilities.

2.1 Annual Depreciation Expense

The annual depreciation expense represents the annual charge against income associated with the loss of service value of utility equipment. Historically, a number of different methods have been used by gas utilities to determine the level of depreciation expense to be charged against current income. Among the more common are:

1. A percentage of the investment in depreciable property.
2. A direct appropriation by management.
3. An amount equal to the original cost investment retired during the year.
4. A percentage of revenues.

The current practice is to calculate annual depreciation expense through the application of straight-line depreciation rates to the respective plant investment account balances. In essence, the annual depreciation expense rate is a percentage figure which, when applied to the dollar balance of investment in plant, yields a depreciation expense level which is expected to amortize the Company's investment over the life of the property.

The existing depreciation rates are based on those approved by the Missouri Public Service Commission in 1982 in Case No. GR-82-151. In 1990, the Company's proposed depreciation rates were rejected by the Commission Staff (Docket No. GR-91-291) because the Staff was unable to develop a database upon which a depreciation study could be supported. Then in 1995, Black & Veatch reviewed the Company's depreciation rates as part of the Commission's five year filing requirement.

2.2 Depreciation Reserve

The depreciation reserve account is a balance sheet item which reflects accumulation of the activity related to annual depreciation expense and retirement accounting. Under the FERC Uniform System of Accounts, depreciation reserve is shown on the balance sheet as "Accumulated Provision for Depreciation."

The depreciation expense charged annually is accumulated in depreciation reserve. The original cost of investment in property retired during the year is deducted from the depreciation reserve. A further adjustment to the reserve is made by adding the salvage value credit and deducting the cost of removal associated with property retired. The use of proper annual depreciation rates to amortize investment over its useful service life will result in accruals to the depreciation reserve which equal the total investment ultimately retired, as adjusted for salvage value and cost of removal.

3.0 Historical Information and Procedures

The determination of a reasonable annual depreciation expense rate is dependent on average service life, cost of removal, and salvage of the property in question. Normally, the determination of average service life is largely dependent on analysis of Company records which show additions by year of installation (vintage year) and retirements by year of installation and by year of retirement. The methods used to estimate average service lives in this report include actuarial analysis (survivor curve) and semi-actuarial analysis (simulated plant balance), analysis of retirement history, review of regional industry norms, and analysis of reserve. Results produced from application of the above tools must be evaluated in connection with other available information; past, present and anticipated future economic and environmental conditions; and sound engineering judgement.

3.1 Survivor Curve Analysis

To prepare a sound and credible survivor curve analysis, a sufficient history of retirement data must exist. Based upon historical plant activity (retirements), a survivor curve which explains the percent of additions surviving by age is developed for each property group (generally each account). Using a least squares analysis technique, this experienced survivor stub curve is compared to general survivor curve types to identify the best fitting curves and service lives. These curves provide an estimation of the average service life actually experienced historically. Based on this retirement history, remaining life of the property being analyzed can be estimated.

In our study in 1995, we determined that a sufficient retirement history was not available to perform survivor curve analysis. The issue of the lack of data was addressed by the Commission in its order in Case No. GR-98-140 when the Commission found "that 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." MGE's continuing property record only contains retirement history from 1994 to the present. This is not enough data to produce significantly reliable results using survivor curve analysis. Therefore as an alternative, we used a simulated plant balance approach to estimate average service lives of MGE's depreciable property.

3.2 Simulated Plant Balance

In this study, we conducted a simulated plant balance analysis to calculate average service lives. The simulated plant balance method may produce reliable results when aged retirement data is unavailable. The only data needed for a simulated plant balance analysis are

annual additions and end of year plant balances over an extended period. In the simulated plant balance method, actual end of year plant balances are compared to those simulated by applying the percent surviving at a given age to the initial additions. The curve type that best simulates actual plant balances is the curve that best explains the mortality characteristics of the plant.

The simulated plant balance analysis is based on plant ledger summaries provided by the Company for the period 1968 through 1998. Generally, a reasonable simulated plant estimate requires 40 or more years of data, but may be reduced provided that the data is "clean" and "behaves" reasonably. Because we do not have plant ledger data prior to 1968 and therefore have no breakdown of the initial plant balance in 1968, we performed two analyses: starting with a zero beginning balance in 1968 and starting with the 1968 beginning balance. Tables 3-1 and 3-2 summarize the results of these analyses. Based on review of these tables, and a thorough assessment of the additions, retirements, transfers, and year end plant balances, it is evident that the simulated plant balance approach does not produce reasonable estimates for many of the individual accounts.

For example, in the Company's two largest accounts, mains and services (Accounts 376 and 380, respectively), the average service lives were determined to be 43 years and 27 years, respectively, when the analysis was run starting with a zero beginning balance in 1968 (Table 3-1). Although these results may not be unreasonable, underlying problems exist with these accounts that would reduce confidence in these results alone. When the analysis was run starting with the 1968 beginning balance (Table 3-2), the program could not converge on Account 376 and on Account 380, the average service life was determined to be 21 years. This second analysis did not provide further confidence in the results.

Review of the simulated plant balance statistics for the mains account (376), shows that the retirements index is low, around 36 percent. The retirement index is the percent of the property retired from the oldest vintage. A low retirements index is an indication that the data does not contain enough history to confidently predict the life characteristics of the property. For this account (376), confidence in the result would be improved by use of more historical data.

In the services account (380), three problems exist with the data. First, nearly 85 percent of the account balance has been added within the last ten years. Thus, the indicated average service life of 27 years does not reflect the life characteristics of the majority of the account since it has only recently been placed in service through the Company's service replacement program. Second, use of the simulated plant balance method in this instance does not permit assessment of life characteristics of the differing types of services (plastics, bare steel, protected steel, etc). The average service life of services typically varies depending on the

Table 3-1
Missouri Gas Energy
Summary of Simulated Plant Balance Analysis
Starting with a Zero Beginning Balance in 1968

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	
		Number 1 Rank		Number 2 Rank		Number 3 Rank		
Acct. No.	Account Description	Curve Type	Avg. Service Life Years	Curve Type	Avg. Service Life Years	Curve Type	Avg. Service Life Years	
Distribution Plant								
037400	Land Rights (1)	S 6.0	15	S 5.0	15	L 5.0	15	(3)
037500	Structures (2)	S 6.0	11	S 5.0	12	L 5.0	12	(3)
037600	Mains	SC 0.0	43	R 0.5	36	S -0.5	35	
037800	Measuring and Regulating Station	SC 0.0	29	R 0.5	26	L 0.0	27	
037900	City Gate Station	S 6.0	10	R 5.0	10	S 5.0	10	(3)
038000	Services	SC 0.0	27	R 0.5	24	L 0.0	25	
038100	Meters	L 0.0	9	SC 0.0	10	L 0.5	9	(4)
038200	Meter/Regulator Installations	Program could not converge - large positive transfers.						
038300	Regulators	L 0.0	16	L 0.5	15	L 1.0	14	(4)
038700	Other Equipment	L 0.0	15	SC 0.0	17	L 0.5	15	(4)
General Plant								
039000	Structures (2)	L 3.0	8	L 2.0	9	L 1.5	9	(4)
039100	Office Furniture & Equipment	R 0.5	12	SC 0.0	12	R 1.0	11	
039200	Transportation Equipment	L 3.0	8	S 2.0	8	S 1.5	8	
039300	Stores Equipment	R 2.5	20	R 3.0	19	S 1.5	21	
039400	Tool, Shop & Garage Equipment	L 0.0	16	SC 0.0	18	L 0.5	15	
039500	Lab Equipment	Not enough data.						
039600	Power Operated Equipment	L 0.0	8	L 0.5	8	SC 0.0	9	
039700	Communication Equipment	S 5.0	9	L 5.0	9	R 5.0	9	
039800	Miscellaneous Equipment	L 1.0	12	L 0.5	14	L 0.0	15	

(1) Includes land because before 1984 there was no separation between land and land rights
(2) Includes leasehold improvements because before 1984 there was no separation between structures and leasehold improvements.
(3) High modal curves - unreasonably low life.
(4) Unreasonably low value.

Table 3-2
Missouri Gas Energy
Summary of Simulated Plant Balance Analysis
Starting with 1968 Beginning Balance

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
		Number 1 Rank		Number 2 Rank		Number 3 Rank	
Acct. No.	Account Description	Curve Type	Avg. Service Life Years	Curve Type	Avg. Service Life Years	Curve Type	Avg. Service Life Years
Distribution Plant							
037400	Land Rights (1)	S 6.0	23	S 5.0	23	R 5.0	23
037500	Structures (2)	S 5.0	20	R 5.0	8	L 5.0	20
037600	Mains	Could not Converge					
037800	Measuring and Regulating Station	S 6.0	26	S 5.0	27	L 5.0	28
037900	City Gate Station	Could not Converge					
038000	Services	S 6.0	21	S 5.0	22	R 5.0	22
038100	Meters	S 6.0	19	S 5.0	19	R 5.0	19
038200	Meter/Regulator Installations	Balances same as above. Not run again.					
038300	Regulators	Could not Converge					
038700	Other Equipment	R 1.5	19	S 0.5	19	S 0.0	19
General Plant							
039000	Structures (2)	S 2.0	12	S 1.5	13	S 3.0	12
039100	Office Furniture & Equipment	S 6.0	13	S 5.0	13	R 5.0	13
039200	Transportation Equipment	Balances same as above. Not run again.					
039300	Stores Equipment	S 6.0	21	S 5.0	21	R 5.0	22
039400	Tool, Shop & Garage Equipment	S 6.0	18	S 5.0	18	R 5.0	18
039500	Lab Equipment	Balances same as above. Not run again.					
039600	Power Operated Equipment	L 0.5	10	L 1.0	10	L 1.5	10
039700	Communication Equipment	L 2.0	15	L 1.0	17	L 1.5	16
039800	Miscellaneous Equipment	S 5.0	29	R 5.0	29	S 4.0	30

(1) Includes land because before 1984 there was no separation between land and land rights
(2) Includes leasehold improvements because before 1984 there was no separation between structures and leasehold improvements.

type of service in place. The use of a simulated plant balance analysis results in an aggregate service life that may not be indicative of the account, especially of the property which currently exists. Third, a higher retirements index is calculated for the services account. This result is in line with expectations since older vintages have been recently retired with the services replacement program. Generally, a relatively higher retirements index is desired. However, in this instance, a high index merely substantiates that the majority of the account consists of relatively new property.

Simulated plant balance analysis of accounts 378, 387, 391, and 393 returned average service lives which are not far from the estimated average service lives underlying the existing rates and which are within the range of industry norms.

The following identifies some of the difficulties we encountered with the remaining accounts in connection with the simulated plant balance analysis:

- Account 374 had a large negative transfer in 1988 that skewed the results of simulated plant balance therefore returning a low average service life of 16 years.
- Accounts 375, 379, 381, and 383 to various degrees, yielded unreasonably low average service lives as compared with industry averages and prior experience with utility property.
- Account 382 incurred large positive transfers from 1984-1991 making the procedure unable to converge on an average service life.
- Account 383 has had approximately 60 percent of its account added in the last five years therefore returning a low average service life.
- Account 390 has had approximately 80 percent of its account retired in 1993.
- Account 395 has only existed since 1992 and therefore does not contain enough data to use simulated plant balance method.

3.3 *Regional Industry Norms*

We include regional industry norms as another consideration to calculate average service lives. Table 3-3 summarizes effective depreciation information we surveyed from 12 Midwestern gas utilities. These utilities include Northern Indiana Public Service Company, K N Energy, ONEOK (Western Resources), Atmos Energy Corporation (United Cities Gas Company), Missouri Public Service, AmerenUE, Alliant Energy (Interstate Power Company), Peoples Natural Gas, MidAmerican Energy (Iowa - Illinois Gas and Electric Company), MidAmerican Energy (Midwest Gas), Alliant Energy (IES), and LaClede Gas Company.

Table 3-3

Missouri Gas Energy

Summary of Comparable Midwestern Gas Companies

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]	[Q]	[R]	[S]	[T]
	Applied Depreciation Rate													AmerenUE					
	No. Indiana Public Service Co.	K N Energy	ONEOK (Western Resources)						Atmos Energy Corp. (United Cities Gas Company)		Missouri Public Service			Estimated					
Account Description	Indiana	Kansas	Rate	Type of Analysis	Life Basis	Rate	Type of Analysis	Rate	Iowa	Missouri	Rate	Type of Analysis	Life Basis	Average Service Life	Net Salvage	Applied Depreciation Rate	Mortality Curve Type	Type of Analysis	Life Basis
			Kansas			Oklahoma					Missouri			Missouri					
	%	%	%			%			%	%	%			Years	%	%			
Distribution																			
374	2.27	3.00	2.77	Actuarial	Whole Life														
375	2.27	3.00	2.86	Actuarial	Whole Life	3.04	Actuarial	Whole Life	0.00		2.78	Actuarial	Whole Life	49.0	0.00	2.04	R-3	Actuarial	Whole Life
376	3.75	3.00	2.48	Actuarial	Whole Life	1.93	Actuarial	Whole Life	2.47		2.40	Actuarial	Whole Life	44.0	(10.00)	2.50	R-3	Actuarial	Whole Life
378	3.43	3.00	3.65	Actuarial	Whole Life	3.16	Actuarial	Whole Life	4.72		2.40	Actuarial	Whole Life	38.0	0.00	2.61	R-3	Actuarial	Whole Life
379		3.00	3.48	Actuarial	Whole Life	2.40	Actuarial	Whole Life	7.75		2.40	Actuarial	Whole Life	38.0	0.00	2.61	R-3	Actuarial	Whole Life
380	7.00	3.00	4.65	Actuarial	Whole Life	6.67	Actuarial	Whole Life	10.45		4.68	Actuarial	Whole Life	44.0	(79.00)	4.06	R-3	Actuarial	Whole Life
381	3.46	3.00	2.37	Actuarial	Whole Life	2.20	Actuarial	Whole Life	3.09		1.67	Actuarial	Whole Life	45.4	0.00	2.20	R-2	Actuarial	Whole Life
382	16.55	3.00	2.40	Actuarial	Whole Life	1.90	Actuarial	Whole Life	5.01		2.00	Actuarial	Whole Life						
383	9.94	3.00	2.47	Actuarial	Whole Life	1.74	Actuarial	Whole Life	4.33		2.50	Actuarial	Whole Life	65.8	0.00	1.52	L-2	Actuarial	Whole Life
384	7.83	3.00									2.70	Actuarial	Whole Life						
385	3.51	3.00							4.62		2.22	Actuarial	Whole Life	33.0	0.00	3.05	R-3	Actuarial	Whole Life
386	17.90	3.00																	
387		3.00	5.26	Actuarial	Whole Life	2.46	Actuarial	Whole Life	5.78										
Total	5.62	3.00	3.26	Actuarial	Whole Life				5.27										
General																			
390	2.78	2.50	2.37	Actuarial	Whole Life	3.05	Actuarial	Whole Life	2.52		2.00	Actuarial	Whole Life			2.13			Whole Life
391	7.37	7.50	12.31	Actuarial	Whole Life	2.38	Actuarial	Whole Life	7.58		[3]	Actuarial	Whole Life	[7]	[7]	[7]		Actuarial	Whole Life
392	6.27	[6]	8.13	Actuarial	Whole Life	7.69	Actuarial	Whole Life			[4]	Actuarial	Whole Life	12.5	12.00	7.04		Actuarial	Whole Life
393	2.35	7.50	3.66	Actuarial	Whole Life	4.21	Actuarial	Whole Life	2.91		7.14	Actuarial	Whole Life	50.4	0.00	1.97		Actuarial	Whole Life
394	3.22	7.50	4.98	Actuarial	Whole Life	5.36	Actuarial	Whole Life	1.22		8.33	Actuarial	Whole Life	19.5	0.00	5.13		Actuarial	Whole Life
395	4.69	7.50	3.80	Actuarial	Whole Life	4.56	Actuarial	Whole Life	4.01		6.67	Actuarial	Whole Life	45.0	0.00	2.22		Actuarial	Whole Life
396		10.00	7.43	Actuarial	Whole Life	5.55	Actuarial	Whole Life	3.29		[5]	Actuarial	Whole Life	14.5	11.00	6.14		Actuarial	Whole Life
397	4.55	7.50	5.74	Actuarial	Whole Life	3.57	Actuarial	Whole Life	6.21		3.40	Actuarial	Whole Life	18.8	0.00	5.26		Actuarial	Whole Life
398	3.37	7.50	5.86	Actuarial	Whole Life	5.59	Actuarial	Whole Life			6.00	Actuarial	Whole Life						
Total	3.95		5.44	Actuarial	Whole Life				4.53										
Total	4.98		3.40			3.66			5.19										

[1] Office furniture is depreciated at 3.44% and computer equipment is depreciated at 12.3%.

[2] Transportation and power operated equipment is depreciated over anticipated useful lives of 5 - 10 years.

[3] Office furniture is depreciated at 7.0% and computer equipment is depreciated at 22.5%.

[4] Cars depreciated at 10.44%, light trucks at 9.8%, heavy trucks at 8% and trailers at 5.26%.

[5] Power operated equipment with short life depreciated at 13% and with long life at 5.56%.

[6] Transportation equipment is depreciated over anticipated useful lives of 5 - 10 years until anticipated salvage equals 20%.

[7] Office Furniture: ASL 23.9 years, 4.00% net salvage, depreciated at 4.01%; and computer equipment: ASL 9.0 years, 7.00% net salvage, depreciated at 10.33%.

Table 3-3

Missouri Gas Energy

Summary of Comparable Midwestern Gas Companies

[A]	[U]	[V]	[W]	[X]	[Y]	[Z]	[AA]	[AB]	[AC]	[AD]	[AE]	[AF]	[AG]	[AH]	[AI]	[AJ]	[AK]	[AL]
	Alliant Energy (Interstate Power Company)				Peoples Natural Gas							MidAmerican Energy (Iowa - Illinois Gas and Electric Company)						
Account Description	Estimated Average Service Life	Net Salvage	Applied Depreciation Rate	Average Remaining Life	Estimated Average Service Life	Net Salvage	Applied Depreciation Rate	Mortality Curve Type	Average Remaining Life	Type of Analysis	Life Basis	Estimated Average Service Life	Net Salvage	Applied Depreciation Rate	Mortality Curve Type	Average Remaining Life	Type of Analysis	Life Basis
	Iowa				Iowa							Iowa						
		%	%	Years	Years	%	%		Years			Years	%	%		Years		
Distribution																		
374																		
375	29.00		9.59	10.90	45.00	(10.00)	3.48	S4	30.89	Actuarial	Whole Life	75.00		1.34	S6	52.80	SPB	Remain. Life
376	42.00	(10.00)	2.35	29.00	40.00	(45.00)	3.48	R4	30.89	Actuarial	Whole Life	55.00		1.89	R2	37.40	SPB	Remain. Life
378	28.00		3.72	21.10	27.00	(5.00)	3.48	R2	30.89	Actuarial	Whole Life	50.00	(15.00)	2.22	R3	33.30	SPB	Remain. Life
379	26.00		3.88	14.40								35.00	(10.00)	3.57	R1	24.20	SPB	Remain. Life
380	26.00	(25.00)	4.85	17.20	38.00	(125.00)	3.48	S2	30.89	Actuarial	Whole Life	35.00	(10.00)	2.88	R1	26.00	SPB	Remain. Life
381	31.00	(40.00)	5.05	20.60	35.00	0.00	3.48	S4	30.89	Actuarial	Whole Life	43.00	(90.00)	4.69	R4	27.00	SPB	Remain. Life
382					38.00	(30.00)	3.48	R2	30.89	Actuarial	Whole Life	35.00	10.00	2.94	S2	23.00	SPB	Remain. Life
383	32.00		3.34	23.20	29.00	0.00	3.48	S3	30.89	Actuarial	Whole Life							
384					29.00	15.00	3.48	S4	30.89	Actuarial	Whole Life	35.00		2.72	S2	22.20	SPB	Remain. Life
385	15.00		6.50	7.20	30.00	30.00	3.48	R2	30.89	Actuarial	Whole Life							
386	35.00		0.00	10.90								25.00	5.00	4.24	S0	19.00	SPB	Remain. Life
387	25.00		0.00	1.60	12.00	(20.00)	3.48	R1	30.89	Actuarial	Whole Life							
Total			3.61				3.48							3.06				
General																		
390												40.00	5.00	2.25	S1	27.90	SPB	Remain. Life
391	10.00		3.97	3.00		5.00	[1]	R4		Actuarial	Whole Life	11.44	5.00	17.19	SQ	7.29	SPB	Remain. Life
392	11.74	10.26	7.49	6.75			[2]	R4		Actuarial	Whole Life							
393	35.00		1.98	2.90								20.00	13.00	5.53	SQ	14.40	SPB	Remain. Life
394	24.00		4.67	16.80		5.00		R4		Actuarial	Whole Life	25.00	5.00	4.00	SQ	18.00	SPB	Remain. Life
395	22.00		4.56	16.50								25.00		5.05	SQ	17.00	SPB	Remain. Life
396	13.00	30.00	4.53	6.60		40.00	[2]	R4		Actuarial	Whole Life							
397	30.00		2.62	15.60								20.00		5.50	SQ	10.70	SPB	Remain. Life
398	13.00		16.25	7.30								20.00		4.53	SQ	12.00	SPB	Remain. Life
Total			5.49											3.06				
Total			3.72											3.06				

[1] Office furniture is depreciated at 3.44% and computer equipment is depreciated at 12.3%.

[2] Transportation and power operated equipment is depreciated over anticipated useful lives of 5 - 10 years.

[3] Office furniture is depreciated at 7.0% and computer equipment is depreciated at 22.5%.

[4] Cars depreciated at 10.44%, light trucks at 9.8%, heavy trucks at 8% and trailers at 5.28%.

[5] Power operated equipment with short life depreciated at 13% and with long life at 5.56%.

[6] Transportation equipment is depreciated over anticipated useful lives of 5 - 10 years until anticipated salvage equals 20%.

[7] Office Furniture: ASL 23.9 years; 4.00% net salvage, depreciated at 4.01%; and computer equipment: ASL 9.0 years, 7.00% net salvage, depreciated at 10.33%.

Table 3-3

Missouri Gas Energy

Summary of Comparable Midwestern Gas Companies

[A]	[AM]	[AN]	[AO]	[AP]	[AQ]	[AR]	[AS]	[AT]	[AU]	[AV]	[AW]	[AX]	[AY]	[AZ]	[BA]	[BB]	[BC]
	MidAmerican Energy (Midwest Gas)							Alliant Energy (IES)				LaClede			Average		
Account Description	Estimated Average Service Life	Net Salvage	Applied Depreciation Rate	Mortality Curve Type	Average Remaining Life	Type of Analysis	Life Basis	Estimated Average Service Life	Net Salvage	Applied Depreciation Rate	Average Remaining Life	Estimated Average Service Life	Net Salvage	Applied Depreciation Rate	Estimated Average Service Life	Net Salvage	Applied Depreciation Rate
	Iowa							Iowa				Missouri					
	Years	%	%		Years			Years	%	%	Years	Years	%	%	Years	%	%
Distribution																	
374															75		2.35
375	44.00	(54.21)	3.51	R2	34.14	SPB	Remain. Life					78.42	(13.69)	1.27	50	(19)	2.97
376	64.00	(54.21)	2.41	R1.5	52.29	SPB	Remain. Life					71.35	(21.68)	1.98	52	(26)	2.58
378	56.00	(54.21)	2.75	R1.5	45.40	SPB	Remain. Life					35.00	(29.00)	2.02	37	(20)	3.21
379	56.00	(54.21)	2.75	R1.5	45.40	SPB	Remain. Life					47.00	(6.00)	2.35	40	(18)	3.35
380	37.00	(54.21)	4.18	R3	26.03	SPB	Remain. Life					44.15	(21.58)	4.67	39	(66)	5.20
381	42.00	(54.21)	3.68	R2	29.17	SPB	Remain. Life					35.00	1.00	2.86	37	(14)	3.00
382	42.00	(54.21)	3.68	R2	29.17	SPB	Remain. Life								40	(42)	4.88
383	50.00	(54.21)	3.08	R0.5	41.57	SPB	Remain. Life					41.00	0.00	2.44	42	(14)	3.38
384	50.00	(54.21)	3.10	R0.5	41.57	SPB	Remain. Life								40	(20)	4.02
385	56.00	(54.21)	2.75	R1.5	45.40	SPB	Remain. Life					25.00	(8.00)	3.13	31	(5)	3.65
386															35		6.97
387												26.00	(206.00)	16.67	22	(113)	5.24
Total			3.13					43.00	(29.95)	4.01	24.00						
General																	
390	30.00	16.80	2.36	R3	27.35	SPB	Remain. Life					50.00	0.00	2.00	40	7	2.40
391	15.00	16.80	3.54	S3	15.63	SPB	Remain. Life					15.10	0.13	9.65	14	7	7.94
392	7.00	16.80	10.51	S0	4.04	SPB	Remain. Life					9.80	5.96	10.45	10	11	8.25
393	32.00	16.80	(5.55)	S2	10.67	SPB	Remain. Life					37.00	6.00	3.46	35	9	3.20
394	33.00	16.80	1.65	S0	28.13	SPB	Remain. Life					42.00	1.00	3.38	29	6	4.51
395	25.00	16.80	0.73	S2	16.56	SPB	Remain. Life					22.00	0.00	3.45	28	6	4.29
396	13.00	16.80	1.18	L1	6.50	SPB	Remain. Life					12.00	5.05	8.95	13	21	5.88
397	15.00	16.80	4.28	S0	14.35	SPB	Remain. Life					16.00	0.00	3.73	20	6	4.76
398	30.00	16.80	2.49	L1	26.06	SPB	Remain. Life					26.00	3.00	3.45	22	10	6.12
Total			3.72					19.00	6.08	1.70	7.00						
Total			3.23														

[1] Office furniture is depreciated at 3.44% and computer equipment is depreciated at 12.3%.

[2] Transportation and power operated equipment is depreciated over anticipated useful lives of 5 - 10 years.

[3] Office furniture is depreciated at 7.0% and computer equipment is depreciated at 22.5%.

[4] Cars depreciated at 10.44%, light trucks at 9.8%, heavy trucks at 8% and trailers at 5.28%.

[5] Power operated equipment with short life depreciated at 13% and with long life at 5.56%.

[6] Transportation equipment is depreciated over anticipated useful lives of 5 - 10 years until anticipated salvage equals 20%.

[7] Office Furniture: ASL 23.9 years, 4.00% net salvage, depreciated at 4.01%; and computer equipment: ASL 9.0 years, 7.00% net salvage, depreciated at 10.33%.

Properties from these utilities include facilities located in Missouri, Kansas, Iowa, Indiana, and Oklahoma.

At the Staff's request, we attempted to expand our analysis from that contained in our 1995 report with additional information regarding the basis for the rates for each of the utilities. In Columns BA through BC of Table 3-3, we calculate a regional industry average of the average service life, net salvage percentage, and annual depreciation rate to compare against MGE's existing rates. There will be some differences between the depreciation rates and the rates that would result from a whole life calculation using the average service lives and net salvage values shown because some of the utilities did not provide net salvage figures and some utilities use a remaining life calculation.

We considered these averages in determining our recommended rates. In general, our recommended accrual rates for distribution plant accounts are conservative (low) when compared with the industry averages. For general plant accounts, our recommended rates are slightly higher than industry averages.

3.4 Net Salvage Allowances

Based on our December 1998 meeting with the Staff, the Staff testimony filed in the 1998 LaClede case, and our recent experience with other depreciation rate studies, we have incorporated consideration of net salvage for distribution facilities in our recommended depreciation rates in a manner that differs somewhat from the traditional approach.

The traditional approach for incorporating allowance for net salvage is to compare annual net salvage (salvage minus cost of removal) to the original cost of the plant retired during that year over a representative historical period, preferably at least 10 years. The traditional approach assumes that the ratio of net salvage dollars to the original cost dollars of the retirements is representative of the allowance that will ultimately apply to all plant in service over that life of that asset. In a whole life depreciation calculation, this allowance is then added to (for a net cost of removal) or deducted from (for a net salvage) one in the numerator and then divided by the average service life.

This approach provides reasonable results where there are modest amounts of salvage or cost of removal or where the amounts are fairly consistent (such as for unit property or general plant). However, cost of removal for some natural gas distribution plant can be as much as or more than the original cost of the plant retired especially if natural gas lines that are under streets need to be relocated. In these instances, it may not be reasonable to assume that this experience applies to all plant.

Problems may result (especially with mains and services) if the net salvage allowance is large and a relatively small amount of plant is being retired. A large depreciation reserve may be accumulated in anticipation of cost of removal expenses that may or may not occur. In the

LaClede case, the Staff believed that this was at the root of large differences between actual and theoretical reserve. The Staff proposed to remove salvage from the depreciation calculation and treat cost of removal as a separate cost (or revenue requirement).

However, we believe that the goal of matching actual cost of removal expenses and cost of removal allowances can be accomplished within the calculation of depreciation rates. For example, we analyzed MGE's salvage costs and cost of removal over the 1988 through 1998 period and found that the annual net salvage amounts are fairly consistent. In Table 3-4, Column H, we show estimates of a "normal" annual allowance for distribution accounts. The depreciation rates recommended in Column J are based on producing an annual dollar amount equal to these allowances. Rather than developing a net salvage allowance based on the ratio of net salvage to the original cost of the plant retired, the ratio is based on the ratio of an annual allowance to total plant in service.

It could be argued that this annual allowance approach is an "impure" application of the "whole" life perspective because it is based on a rather short term analysis of activity. As plant ages and retirement activity increases, it would be expected that the annual allowance should be increased over time. Insufficient depreciation reserve might be accumulated if the annual allowance is not reviewed on a regular basis. However, in Missouri, depreciation rates are reviewed every five years as required by Commission rule. This frequency will allow for adjustment of the annual allowance to reflect changes in activity, if necessary.

In Table 3-4, Column H, we did not extend this annual allowance approach to general plant accounts. Typically, general plant has either no net salvage or a positive net salvage. Also, the salvage amounts of general plant is generally modest and fairly consistent and is frequently associated with shorter lived assets (such as vehicles and computers) where there is a better defined "used" market.

3.4.1 Account 376

As shown in Table 3-4, Column H, we have allowed a positive salvage amount of $450,000 per year for Account 376, Mains. The Company's historical practice with regard to reimbursements for line relocations has been to credit (increase) reserve for the amount of reimbursement. An alternative method would be to credit (decrease) depreciable plant for the amount of the reimbursement. Although both of these methods have the same effect of reducing net plant, there is a significant difference in depreciable plant and the appropriate depreciation rate between the two methods.

All other things being equal, crediting reserve for the amount of the reimbursement should result in a lower depreciation rate being applied to a larger plant in service, whereas crediting plant for the amount of the reimbursement should result in a higher depreciation

Table 3-4
Missouri Gas Energy
Existing and Proposed Accrual Rates

[A] Acct. No.	[B] Account	[C] Existing Annual Accrual Rate	[D] Depreciable Plant 12/31/1998	[E] Existing Annual Depreciation Expense	[F] Accumulated Depreciation Reserve	[G] Reserve Ratio	[H] Net Salvage Allowance	[I] Proposed Average Service Life	[J] Proposed Accrual Rate	[G] Proposed Depreciation Expense
		%	$	$	$	%	(1)	Years	%	$
	Distribution Plant									
3742	Land Rights	2.17%	893,182	19,382	212,119	23.75%	0	50	2.00%	17,864
3751	Structures	2.28%	5,738,444	130,837	1,161,780	20.25%	15,000	50	1.74%	99,769
3760	Mains	1.88%	242,567,793	4,560,275	72,474,929	29.88%	450,000	40	2.31%	5,614,195
3780	Measuring & Regulating Stations	3.00%	10,163,614	304,908	2,348,188	23.10%	(5,000)	30	3.38%	343,787
3790	City Gate Stations	2.66%	2,686,494	71,461	523,090	19.47%	1,000	40	2.46%	66,162
3800	Services	5.50%	223,017,129	12,265,942	81,509,178	36.55%	(720,000)	30	3.66%	8,153,904
3810	Meters	2.05%	25,113,112	514,819	1,814,317	7.22%	(2,500)	35	2.87%	720,017
3820	Meter/Regulator Installations	2.05%	42,168,249	864,449	5,362,806	12.72%	(15,000)	35	2.89%	1,219,807
3830	Regulators	2.05%	9,219,139	188,992	1,467,656	15.92%	1,000	40	2.49%	229,478
3850	EGM-Meas/Reg Equip	5.00%	255,152	12,758	9,955	3.90%	0	20	5.00%	12,758
3870	Other Equipment	6.33%	0	0	0	0.00%	0	35	2.86%	0
	Total Distribution Plant	3.37%	561,822,308	18,933,822	166,884,016	29.70%	(275,500)		2.93%	16,477,742
	General Plant									
3901	Structures & Improvements	3.33%	439,273	14,628	125,746	28.63%	40%	35	1.71%	7,530
3910	Furniture & Equipment	3.06%	3,196,378	97,809	(575,380)	-18.00%	0%	10	10.27%	328,268
3920	Transportation Equipment	10.13%	2,689,553	272,452	579,306	21.54%	10%	8	11.26%	302,575
3930	Stores Equipment	3.33%	527,647	17,571	186,766	35.40%	0%	20	5.00%	26,382
3940	Tools	4.00%	4,310,432	172,417	1,123,483	26.06%	0%	10	10.00%	431,043
3960	Power Operated Equipment	6.25%	1,134,135	70,883	92,974	8.20%	20%	10	8.00%	90,731
3970	Communication Equipment	4.50%	2,036,629	91,648	(406,340)	-19.95%	0%	15	6.67%	135,775
3971	Electronic Reading-ERT	5.00%	30,865,129	1,543,256	1,369,709	4.44%	0%	20	5.00%	1,543,256
3980	Miscellaneous Equipment	6.25%	161,119	10,070	55,943	34.72%	0%	20	5.00%	8,056
	Total General Plant	5.05%	45,360,295	2,290,735	2,552,209	5.63%			6.34%	2,873,617
	Total Depreciable Plant	3.50%	607,182,602	21,224,557	169,436,225	27.91%			3.19%	19,351,359

(1) $/year salvage allowance or percent of plant.

(2) Proposed accrual rate of 10.27% for Account 391 is based on accrual rate determined for corporate Acct. 391.

Table 3-5
Missouri Gas Energy
Alternative Treatments of Reimbursements

[A]	[B]	[C]	[D]	[E]	[F]	[G]
	Utility 1			Utility 2 (MGE)		
Year	Gross Plant	Accumulated Depreciation	Net Plant	Gross Plant	Accumulated Depreciation	Net Plant
	(1)	(3)		(2)	(4)	
		3.33%			3.00%	
1970	900	0	900	1,000	100	900
1971	900	30	870	1,000	130	870
1972	900	60	840	1,000	160	840
1973	900	90	810	1,000	190	810
1974	900	120	780	1,000	220	780
1975	900	150	750	1,000	250	750
1976	900	180	720	1,000	280	720
1977	900	210	690	1,000	310	690
1978	900	240	660	1,000	340	660
1979	900	270	630	1,000	370	630
1980	900	300	600	1,000	400	600
1981	900	330	570	1,000	430	570
1982	900	360	540	1,000	460	540
1983	900	390	510	1,000	490	510
1984	900	420	480	1,000	520	480
1985	900	450	450	1,000	550	450
1986	900	480	420	1,000	580	420
1987	900	510	390	1,000	610	390
1988	900	540	360	1,000	640	360
1989	900	570	330	1,000	670	330
1990	900	600	300	1,000	700	300
1991	900	630	270	1,000	730	270
1992	900	660	240	1,000	760	240
1993	900	690	210	1,000	790	210
1994	900	720	180	1,000	820	180
1995	900	750	150	1,000	850	150
1996	900	780	120	1,000	880	120
1997	900	810	90	1,000	910	90
1998	900	840	60	1,000	940	60
1999	900	870	30	1,000	970	30
2000	900	900	0	1,000	1,000	0
Retirement	(900)	(900)		(1,000)	(1,000)	

(1) Initial gross plant is $1,000 minus $100 reimbursement.
(2) Initial accumulated depreciation equals $100 reimbursement.
(3) Depreciation rate equals (1-0)/30 = 3.33 percent.
(4) Depreciation rate equals (1-.1)/30 = 3.00 percent.

rate being applied to a lower plant in service. Table 3-5 is an example of how both approaches result in the same net plant and depreciation expense over the life of the asset.

In MGE's case, the net effect of the reimbursements is to increase net salvage (salvage minus cost of removal, only) approximately $450,000 per year. In other words, if MGE had been crediting plant in service for reimbursements, the net salvage allowance would be zero rather than a positive $450,000 per year. This produces a higher depreciation rate that is applied to a smaller depreciable plant. This distinction is important to note when comparing MGE's depreciation rate for Account 376 to other companies. It would not be appropriate to compare another company's depreciation rate with that of MGE if that company is crediting reimbursements to plant or using some other approach.

3.5 *Recommended Accrual Rates*

Table 3-4 summarizes the Company's existing and recommended accrual rates and the annual depreciation expense incurred when each of these rates is applied to the depreciable plant balance.

We show in Table 3-4 that when our recommended accrual rates in Column J are applied to depreciable plant balances as of December 31, 1998, annual depreciation expense would decrease by $1.87 million under levels produced by existing rates. This $1.87 million decrease is primarily due to six of the Company's accounts whose annual accrual rates appear to be unreasonable on a relative basis. Based on consideration of the simulated plant analysis, industry averages, and our experience with gas (and other) utility property, the following discussion explains in further detail our basis for recommending change to these six particular accounts:

- For Account 376-Mains, we recommend an average service life of 40 years and an annual net salvage allowance of $450,000. This increases the annual accrual rate from 1.88 percent to 2.31 percent. The 40 year average service life is consistent with the simulated plant balance analysis and results in a rate closer to industry averages (2.58 percent).
- For Account 380-Services, the existing rate is too high. We recommend an accrual rate of 3.66 percent as opposed to the existing 5.50 percent. The Company has been in the process of a significant services replacement program. Our experience is that a 30 year average service life for services is not unreasonable. While the calculated industry average for services is 5.20 percent, this figure is inflated by abnormally high values for three utilities (Northern Indiana PSC – 7.00 percent, ONEOK (Oklahoma) – 6.67 percent, and Atmos Energy Corp. (Iowa) – 10.45 percent). Excluding

these three utilities results in an industry average of 4.25 percent, which is more in line with our recommendation.

- For Account 381-Meters and Account 382-Regulators, the existing rates are too low (2.05 percent). We recommend a 35 year average service life for both accounts, and a net salvage allowance of negative $2,500 for Account 381 and negative $15,000 for Account 382. This results in recommended accrual rates of 2.87 percent for Account 381 and 2.89 percent for Account 382.
- The existing rate for the Account 391-Furniture and Equipment is too low and fails to recognize the shorter life of computer and other office equipment. We recommend changing the existing rate of 3.06 percent to 10.27 percent, which is based on the accrual rate determined for Southern Union corporate plant.
- The existing rate (4 percent) for the Account 394-Tools is too low and implies an average service life of 25 years. We recommend an average service life of 10 years, or a 10 percent accrual rate.

As mentioned above, the accrual rate for Account 391 is based on our analysis of Southern Union corporate plant. Table 3-6 summarizes existing and proposed rates under whole life and remaining life methodologies for Southern Union corporate general plant. While this table appears to show rates developed using both the whole and remaining life methodologies, all of the recommended rates for Southern Union's corporate plant are based on a whole life method.

The only corporate account with any significant investment is Account 391 - Office Furniture and Equipment. The development of the 10.27 percent rate for Account 391 is based on the detailed plant components of that account on a total Company basis, as shown in Table 3-7. The rate is a dollar weighted average rate intended to be used for all assets booked to Account 391.

Table 3-6
Southern Union Company
Corporate (Co. 20) Existing and Recommended Depreciation Rates
Using Whole and Remaining Life Methodology

[A]	[B]	[C]	[D]	[E]	[F]	[G]		[H]	[I]		[J]
						Whole Life Method			Remaining Life Method		
Account No.	Depreciable Plant 12/31/98	Existing Annual Depreciation Expense	Existing Annual Accrual Rate	Accumulated Depreciation Reserve	Reserve Ratio	Whole Life Rate		Depreciation Expense	Remaining Life Rate		Depreciation Expense
	$	$	%	$	%	%		$			$
390	742,817	21,044	2.83%	472,006	64%	2.75%		20,427	2.75%	(3)	20,427
391	20,594,145	2,059,415	10.00%	6,648,495	32%	10.27%	(2)	2,115,007	10.27%	(3)	2,115,007
392	113,054	14,132	12.50%	102,030	90%	10.60%		11,982	10.60%	(3)	11,982
393	2,201	220	10.00%	(4,275)	-194%	0.00%		0	0.00%	(3)	0
394	21,652	613	2.83%	358	2%	3.33%		722	3.33%	(3)	722
397	289,428	8,199	2.83%	61,332	21%	6.67%		19,295	6.67%	(3)	19,295
398	160,627	4,551	2.83%	75,050	47%	5.00%		8,031	5.00%	(3)	8,031
Total	21,923,925	2,108,174	9.62%	7,354,995	34%	9.92%		2,175,464	9.92%		2,175,464

(1) Existing rate
(2) Weighted whole life rate for Account 391.
(3) Use whole life rates.

Table 3-7
Missouri Gas Energy
Calculation of Whole Life Rate for Account 391
Southern Union Corporate

[A]	[B]	[C]	[D]	[E]	[F]
Description	Total	Percent of Total	Net Salvage	Average Service Life	Whole Life Rate
	$			Years	
Account 391.1 - Furniture	4,299,354	11.30%	10.00%	25	3.60%
Account 391.2 - Office Equipment	1,450,560	3.81%	0.00%	10	10.00%
Account 391.3 - Mainframe	22,062,586	57.98%	20.00%	10	8.00%
Account 391.4 - Personal Computer	10,239,092	26.91%	10.00%	5	18.00%
Total	38,051,592	100.00%			
Weighted Rate for Account 391					10.27%

4.0 Depreciation Reserve

After recommending accrual rates, depreciation reserve is recalculated to determine the theoretical level that should have been accumulated had these rates been in effect. Without adjustment, to the extent that calculated reserve is greater than or less than the book reserve, the Company will under- or over-recover, respectively, its depreciable plant investment. The purpose of an amortization adjustment to a depreciation rate is to preclude the Company from recovering through depreciation accruals, amounts in excess or below its plant investment basis. This amortization also limits recovery from customers to the capital investment used to serve them during the period of service of each investment. Differences between the calculated theoretical reserve and the book reserve can be attributed primarily to changes in life characteristics or historical rates which have not properly reflected life characteristics or changes in life characteristics. These changing life characteristics and the degree to which these changes are recognized and reflected in the depreciation rates directly affect the book reserves.

The calculated theoretical level of depreciation of reserves for the Company was not studied in our analysis. A detailed analysis of reserve relies generally upon the same data used by the survivor curve analysis. However, even without performing this detailed analysis, certain observations can be made regarding MGE's accumulated depreciation and its relationship to the expected service life of each account.

First, there are two accounts with negative reserve balances, Accounts 391 and 397. This might be caused by several factors, including depreciation rates that are too low. As we discussed in Chapter 3, this is true for Account 391. Second, the reserve ratio for Account 380-Services is relatively high compared to the other accounts. Based on these two observations, we recommend a redistribution of reserve balance from Account 380 to other accounts.

Table 4-1 presents our analysis of accumulated depreciation reserve. Column H shows the estimated weighted average dollar age of surviving plant for each account. This average age is divided by the recommended average service life to provide an estimate of the relative theoretical reserve ratios for each account (Column I). Calculated reserve minus actual reserve provides an estimate of how reserve may be redistributed. The actual amount redistributed from Account 380 to the other accounts is shown in Column L. The net effect of the redistribution is zero. The resultant accumulated depreciation reserve and reserve ratios are shown in Columns M and N, respectively.

Table 4-1
Missouri Gas Energy
Analysis of Accumulated Depreciation Reserve

[A] Acct. No.	[B] Account	[C] Existing Annual Accrual Rate	[D] Depreciable Plant 12/31/1998	[E] Existing Annual Depreciation Expense	[F] Accumulated Depreciation Reserve	[G] Proposed Depreciation Expense	[H] Weighted Age	[I] Calculated Reserve Ratio Based On Weighted Age	[J] Calculated Depreciation Reserve	[K] Actual Less Calculated Reserve	[L] Redistribute Services to Deficient Accounts	[M] Restated Accumulated Depreciation Reserve	[N] Restated Reserve Ratio
		%	$	$	$	$	Years	%	$	$	$	$	%
	Distribution Plant												
3742	Land Rights	2.17%	893,182	19,382	212,119	17,864	15	30.00%	267,955	(55,836)	0	212,119	23.75%
3751	Structures	2.28%	5,738,444	130,837	1,161,780	99,769	13	26.00%	1,491,995	(330,216)	200,000	1,361,780	23.73%
3760	Mains	1.88%	242,567,793	4,560,275	72,474,929	5,614,195	15	37.50%	90,962,922	(18,487,993)	10,000,000	82,474,929	34.00%
3780	Measuring & Regulating Stations	3.00%	10,163,614	304,908	2,348,188	343,787	10	33.33%	3,387,871	(1,039,684)	700,000	3,048,188	29.99%
3790	City Gate Stations	2.66%	2,686,494	71,461	523,090	66,162	8	20.00%	537,299	(14,209)	0	523,090	19.47%
3800	Services	5.50%	223,017,129	12,265,942	81,509,178	8,153,904	8	26.67%	59,471,234	22,037,944	(22,000,000)	59,509,178	26.68%
3810	Meters	2.05%	25,113,112	514,819	1,814,317	720,017	14	40.00%	10,045,245	(8,230,928)	4,100,000	5,914,317	23.55%
3820	Meter/Regulator Installations	2.05%	42,168,249	864,449	5,362,806	1,219,807	7	20.00%	8,433,650	(3,070,844)	1,500,000	6,862,806	16.27%
3830	Regulators	2.05%	9,219,139	188,992	1,467,656	229,478	9	22.50%	2,074,306	(606,650)	400,000	1,867,656	20.26%
3850	EGM-Meas/Reg Equip	5.00%	255,152	12,758	9,955	12,758					0	9,955	3.90%
3870	Other Equipment	6.33%	0	0	0	0	0	0.00%	0	0	0	0	0.00%
	Total Distribution Plant	3.37%	561,822,308	18,933,822	166,884,016	16,477,742			176,672,478	(9,798,416)	(5,100,000)	161,784,016	28.80%
	General Plant												
3901	Structures & Improvements	3.33%	439,273	14,628	125,746	7,530	21	60.00%	263,564	(137,818)	100,000	225,746	51.39%
3910	Furniture & Equipment	3.06%	3,196,378	97,809	(575,380)	328,268	9	92.43%	2,954,412	(3,529,792)	2,000,000	1,424,620	44.57%
3920	Transportation Equipment	10.13%	2,689,553	272,452	579,306	302,575	2	25.00%	672,388	(93,082)	50,000	629,306	23.40%
3930	Stores Equipment	3.33%	527,647	17,571	186,766	26,382	12	60.00%	316,588	(129,822)	100,000	286,766	54.35%
3940	Tools	4.00%	4,310,432	172,417	1,123,483	431,043	9	90.00%	3,879,389	(2,755,905)	1,500,000	2,623,483	60.86%
3960	Power Operated Equipment	6.25%	1,134,135	70,883	92,974	90,731	9	90.00%	1,020,721	(927,747)	500,000	592,974	52.28%
3970	Communication Equipment	4.50%	2,036,629	91,648	(406,340)	135,775	5	33.33%	678,876	(1,085,216)	750,000	343,660	16.87%
3971	Electronic Reading-ERT	5.00%	30,865,129	1,543,256	1,369,709	1,543,256	1	5.00%	1,543,256	(173,547)	100,000	1,469,709	4.76%
3980	Miscellaneous Equipment	6.25%	161,119	10,070	55,943	8,056	6	30.00%	48,336	7,607	0	55,943	34.72%
	Total General Plant	5.05%	45,360,295	2,290,735	2,552,209	2,873,617			11,377,531	(8,825,322)	5,100,000	7,652,209	16.87%
	Total Depreciable Plant	3.50%	607,182,602	21,224,557	169,436,225	19,351,359			188,050,009	(18,623,739)	0	169,436,225	27.91%

Missouri Gas Energy
Proposed Accrual Rates

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]
				Black & Veatch Thomas J. Sullivan			Staff		Accrual	Company	
Line No.	Account No.	Description	Plant Balance @ 12/31/2003	Proposed Average Service Life	Proposed Accrual Rate	Annual Accrual	Proposed Accrual Rate	Annual Accrual	Difference Between TJS and Staff	Proposed Accrual Rate	Annual Accrual
			$ (1)	Years	%	$	%	$	$	%	$
		Distribution Plant									
1	3742	Land Rights	1,374,600	50	2.00%	27,492	2.09%	28,729	(1,237)	2.09%	28,729
2	3751	Structures	6,065,473	50	2.00%	121,309	1.65%	100,080	21,229	2.01%	121,916
3	3760	Mains	310,143,777	40	2.50%	7,753,594	2.27%	7,040,264	713,331	2.10%	6,513,019
4	3780	Measuring & Regulating Stations	11,162,207	30	3.33%	372,074	2.86%	319,239	52,834	3.19%	356,074
5	3790	City Gate Stations	3,211,758	40	2.50%	80,294	2.13%	68,410	11,884	2.56%	82,221
6	3800	Services	270,090,903	30	3.33%	9,003,030	2.27%	6,131,063	2,871,967	4.58%	12,370,163
7	3810	Meters	29,207,668	35	2.86%	834,505	2.86%	835,339	(835)	2.46%	718,509
8	3820	Meter/Regulator Installations	59,476,816	35	2.86%	1,699,338	2.86%	1,701,037	(1,699)	2.47%	1,469,077
9	3830	Regulators	10,508,164	40	2.50%	262,704	2.44%	256,399	6,305	2.27%	238,535
10	3850	EGM-Meas/Reg Equip	345,857	20	5.00%	17,293	3.33%	11,517	5,776	5.00%	17,293
11	3870	Other Equipment	-	35	2.86%	-	4.60%	-	-	4.60%	-
12		Total Distribution Plant	701,587,223		2.88%	20,171,633	2.35%	16,492,079	3,679,554	3.12%	21,915,537
		General Plant									
13	3901	Structures & Improvements	599,202	35	2.86%	17,120	2.00%	11,984	5,136	2.52%	15,100
14	3910	Furniture & Equipment	4,794,856	10	10.27%	492,432	8.06%	386,465	105,966	6.67%	319,817
15	3920	Transportation Equipment	4,589,780	8	12.50%	573,723	8.70%	399,311	174,412	10.69%	490,647
16	3930	Stores Equipment	541,448	20	5.00%	27,072	2.70%	14,619	12,453	4.17%	22,578
17	3940	Tools	4,811,920	10	10.00%	481,192	2.38%	114,524	366,668	7.00%	336,834
18	3960	Power Operated Equipment	330,903	10	10.00%	33,090	8.33%	27,564	5,526	6.46%	21,376
19	3970	Communication Equipment	2,831,250	15	6.67%	188,750	6.25%	176,953	11,797	5.00%	141,563
20	3971	Electronic Reading-ERT	34,715,280	20	5.00%	1,735,764	5.00%	1,735,764	-	5.59%	1,940,584
21	3980	Miscellaneous Equipment	196,359	20	5.00%	9,818	3.85%	7,560	2,258	5.63%	11,055
22		Total General Plant	53,410,998		6.66%	3,558,961	5.38%	2,874,744	684,217	6.18%	3,299,555
23		Total Plant	754,998,221		3.14%	23,730,594	2.57%	19,366,823	4,363,771	3.34%	25,215,092

(1) Source: Ms. Jolie Mathis, Schedule 2.

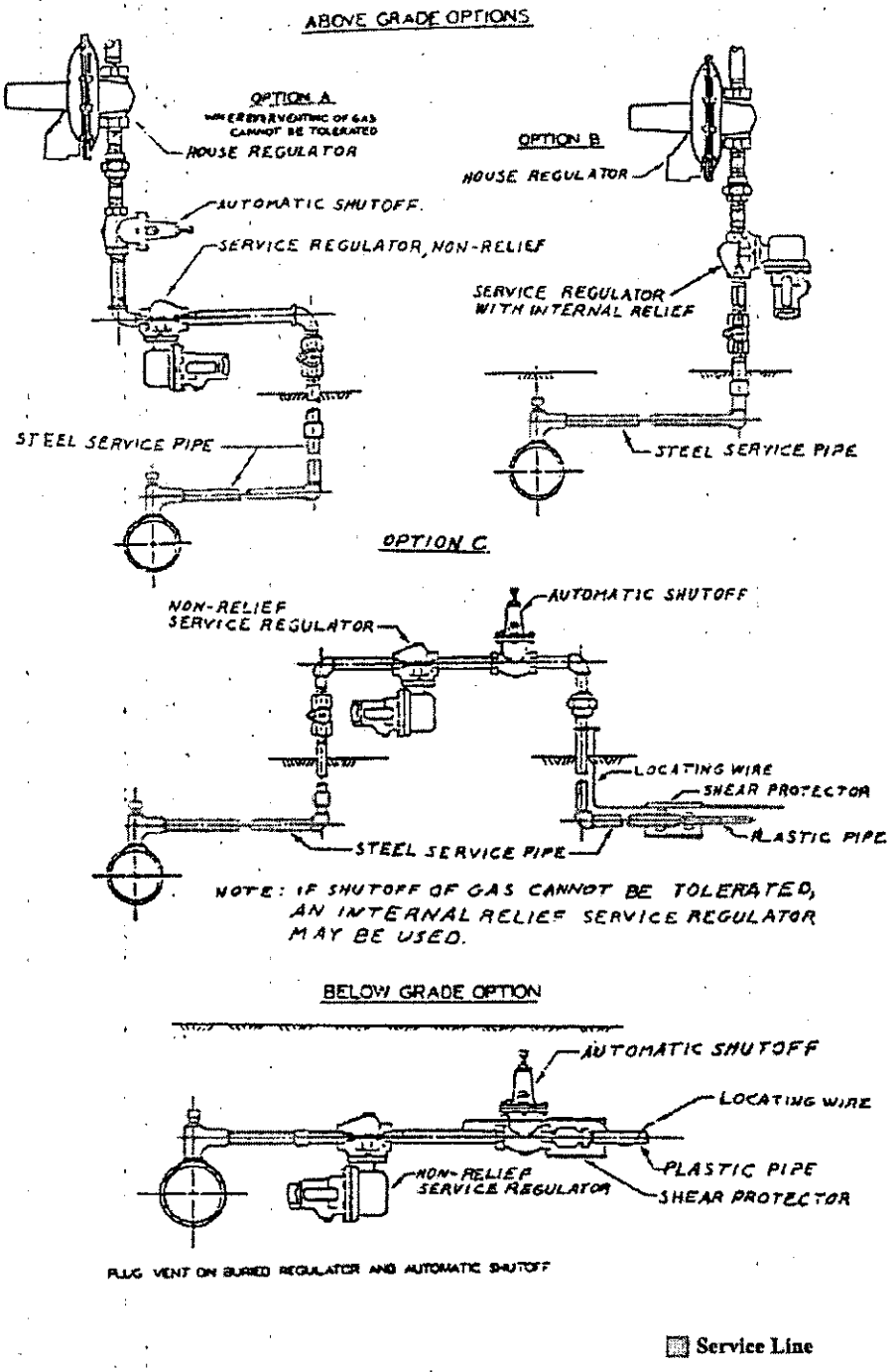


Figure 37. **Typical small-volume high-pressure service installations**

Schedule TJS-6

Missouri Gas Energy
Analysis of MGE's Account 380 Investment
Compared to Laclede

[A] Line No.	[B] Year	[C] Beginning Balance	[D] Additions	[E] Retirements	[F] Transfers/Adj	[G] Ending Balance	[H] Laclede
1	1987	66,535,405	5,247,891	547,248	(2,252)	71,233,796	
2	1988	71,233,796	5,232,196	1,082,965	(2,412)	75,380,615	
3	1989	75,380,615	5,974,783	224,688	(18,639)	81,112,071	161,871,193
4	1990	81,112,071	19,552,514	3,109,855	(34,589)	97,520,141	
5	1991	97,520,141	16,471,586	1,918,419	(541,804)	111,531,504	
6	1992	111,531,504	17,312,702	2,247,798	(758,768)	125,837,640	
7	1993	125,837,640	15,531,128	1,799,170	(27,963)	139,541,635	
8	1994	139,541,635	17,318,472	1,141,206	(238,083)	155,480,818	
9	1995	155,480,818	18,214,631	2,064,532	(1,509,986)	170,120,931	
10	1996	170,120,931	16,487,207	3,098,103	501	183,510,536	
11	1997	183,510,536	16,767,115	5,666,727	(56,492)	194,554,432	
12	1998	194,554,432	19,921,220	3,696,469	(18,926)	210,760,257	
13	1999	210,760,257	16,123,650	3,867,327	551	223,017,131	
14	2000	223,017,131	15,257,656	4,494,777	(24,901)	233,755,109	301,084,219
15	Total Since 1989		188,957,881	33,104,383	(3,210,460)		
16	Percent of 1989 Ending Balance		233%	41%	-4%		
17	Percent Change in Plant Balance					188%	86%

Schedule TJS - 7

Data Request No.

MGE-DR NO. 0043

Data Information Request
from Missouri Gas Energy
to MPSC Staff
Case No. GR-2004-0209

Requested From: Jolie Mathis

Date of Request: 4/22/04

Requested By: Mike Noack

Information Requested:

Has witness Mathis undertaken any analysis, subsequent to and independent of Mr. Adam's analysis discussed on pages 3 and 4 of witness Mathis' direct testimony, to ascertain whether Mr. Adam's analysis should be used in developing depreciation rates for MGE on a going forward basis? If so, please provide the results of this analysis and any information and material on which the analysis is based.

Response: No

The attached information provided to Missouri Gas Energy in response to the above data information request is accurate and complete and contains no material misrepresentations or omissions, based upon present facts of which the undersigned has knowledge, information or belief. The undersigned agrees to immediately inform Missouri Gas Energy if, during the pendency of Case No. GR-2004-0209 before the Missouri Public Service Commission, any matters are discovered which would materially affect the accuracy or completeness of the attached information.

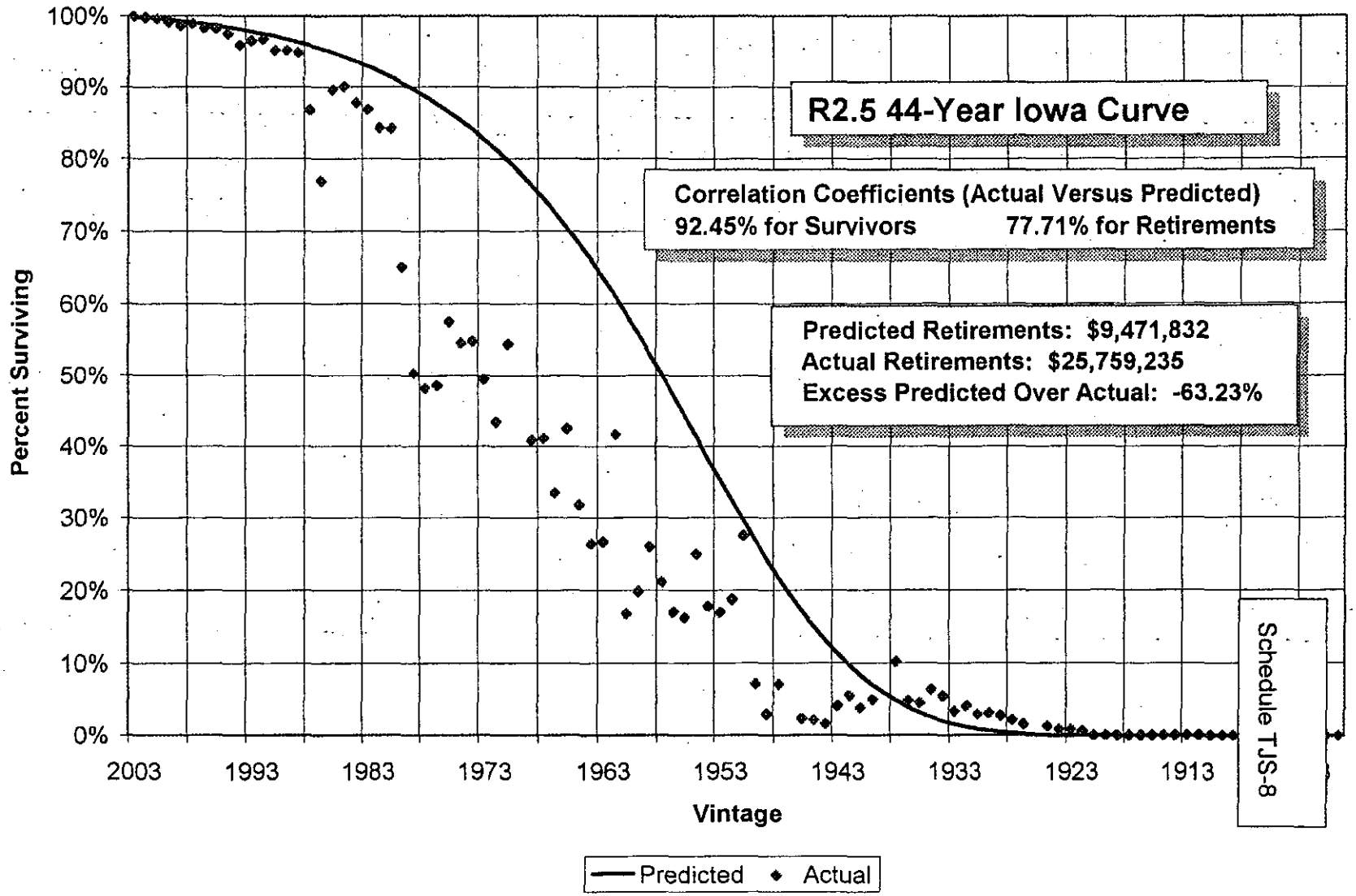
If these data are voluminous, please (1) identify the relevant documents and their location (2) make arrangements with requestor to have documents available for inspection at a location mutually agreeable. Where identification of a document is requested, briefly describe the document (e.g. book, letter, memorandum, report) and state the following information as applicable for the particular document: name, title, number, author, date of publication and publisher, addresses, date written, and the name and address of the person(s) having possession of the document. As used in this data request the term "document(s)" includes publication of any format, workpapers, letters, memoranda, notes, reports, analyses, computer analyses, test results, studies of data, recordings, transcriptions and printed, typed or written materials of every kind in your possession, custody or control within your knowledge. The pronoun "you" or "your" refers to the person identified in the "Requested From" block above and all other employees, contractors, agents or others employed by or acting on behalf of the organization, group or governmental unit associated with that person.

Provided By: Jolie Mathis
(Please Print)

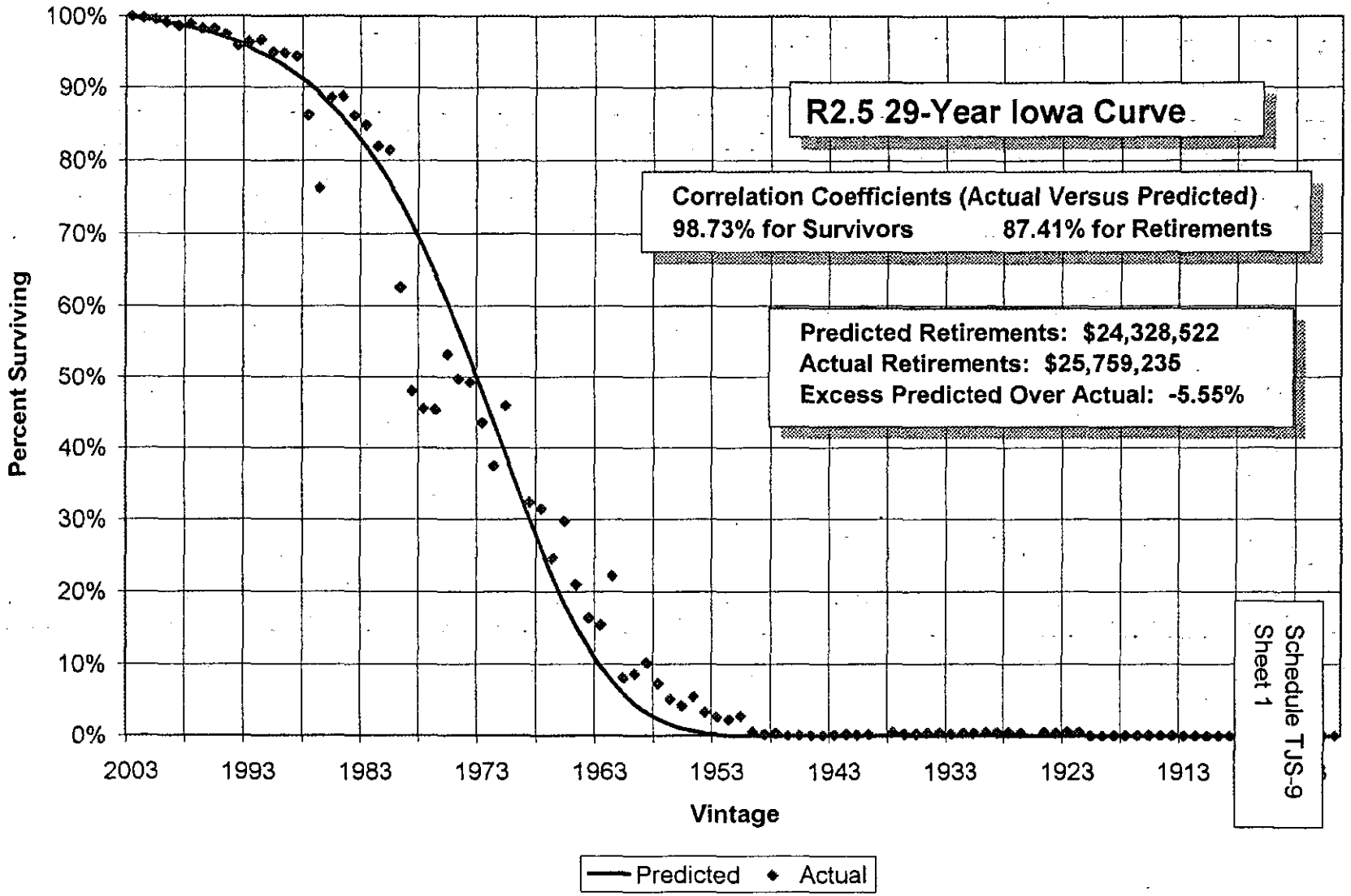
Date Signed: 5/5/04

Signed: Jolie Mathis

Misssouri Gas Energy
Comparison of Predicted and Actual Survivor Curves
Account 380 - Services



Misssouri Gas Energy
Comparison of Predicted and Actual Survivor Curves
Account 380 - Services



Misssouri Gas Energy
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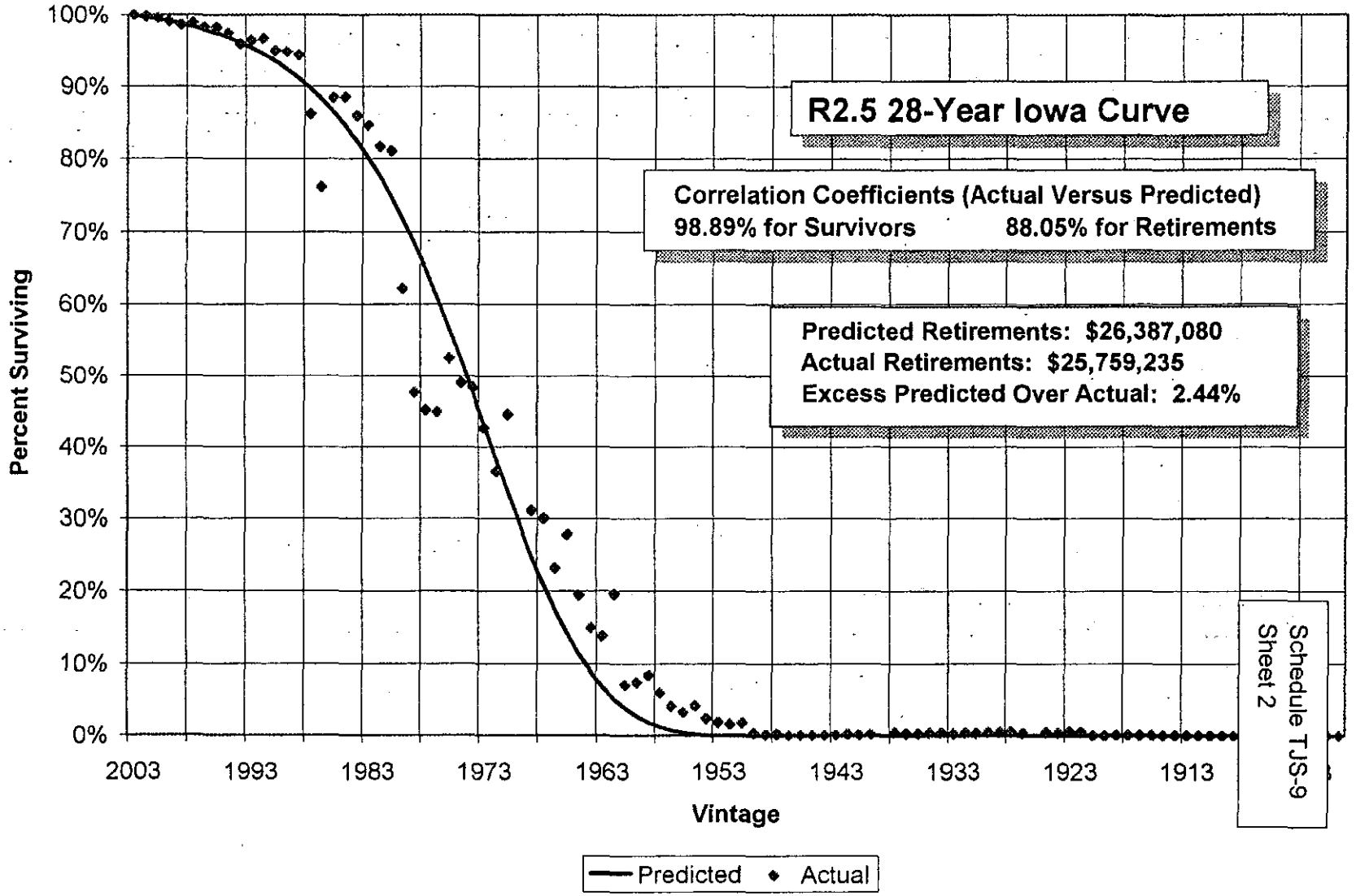
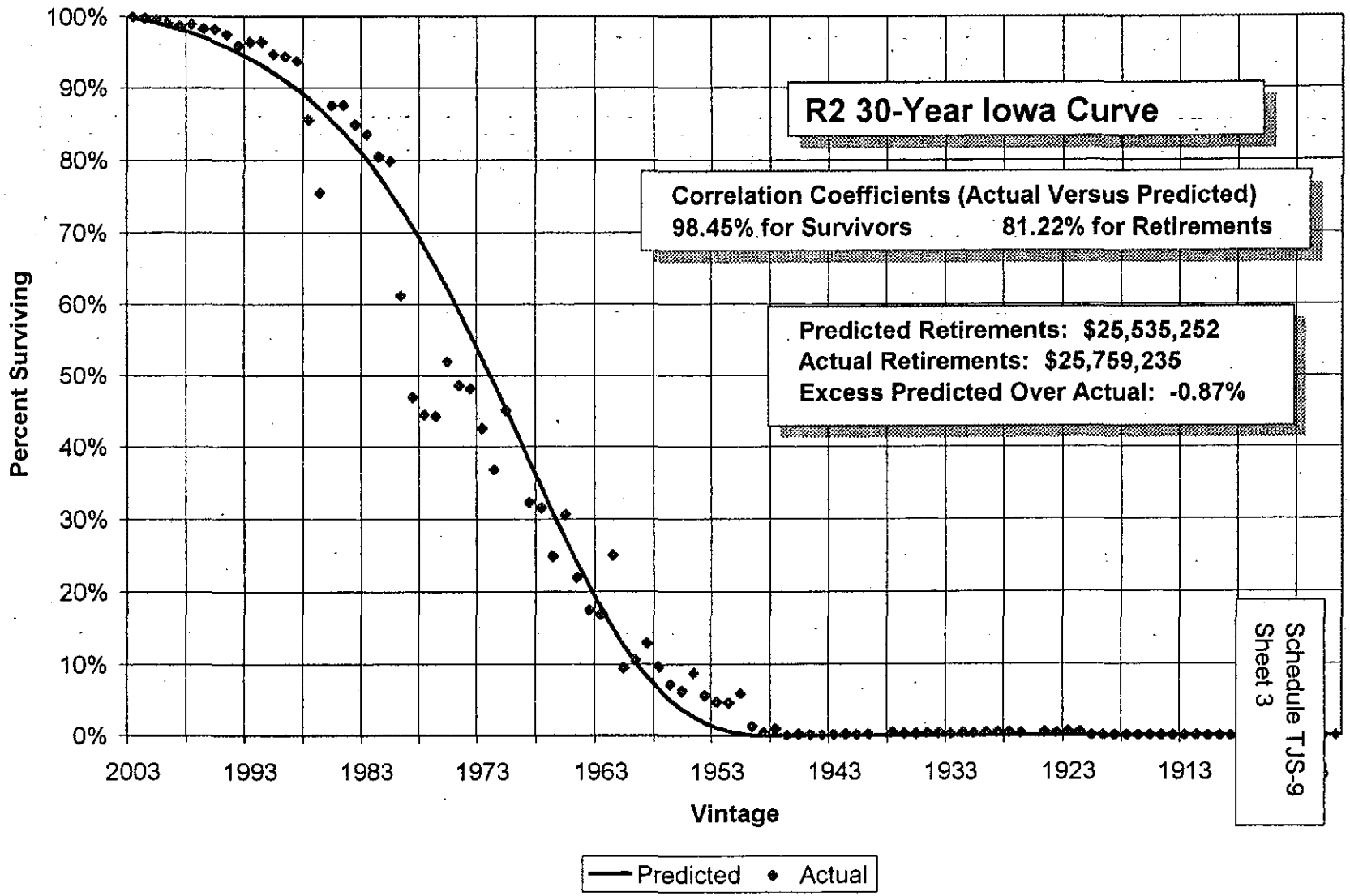
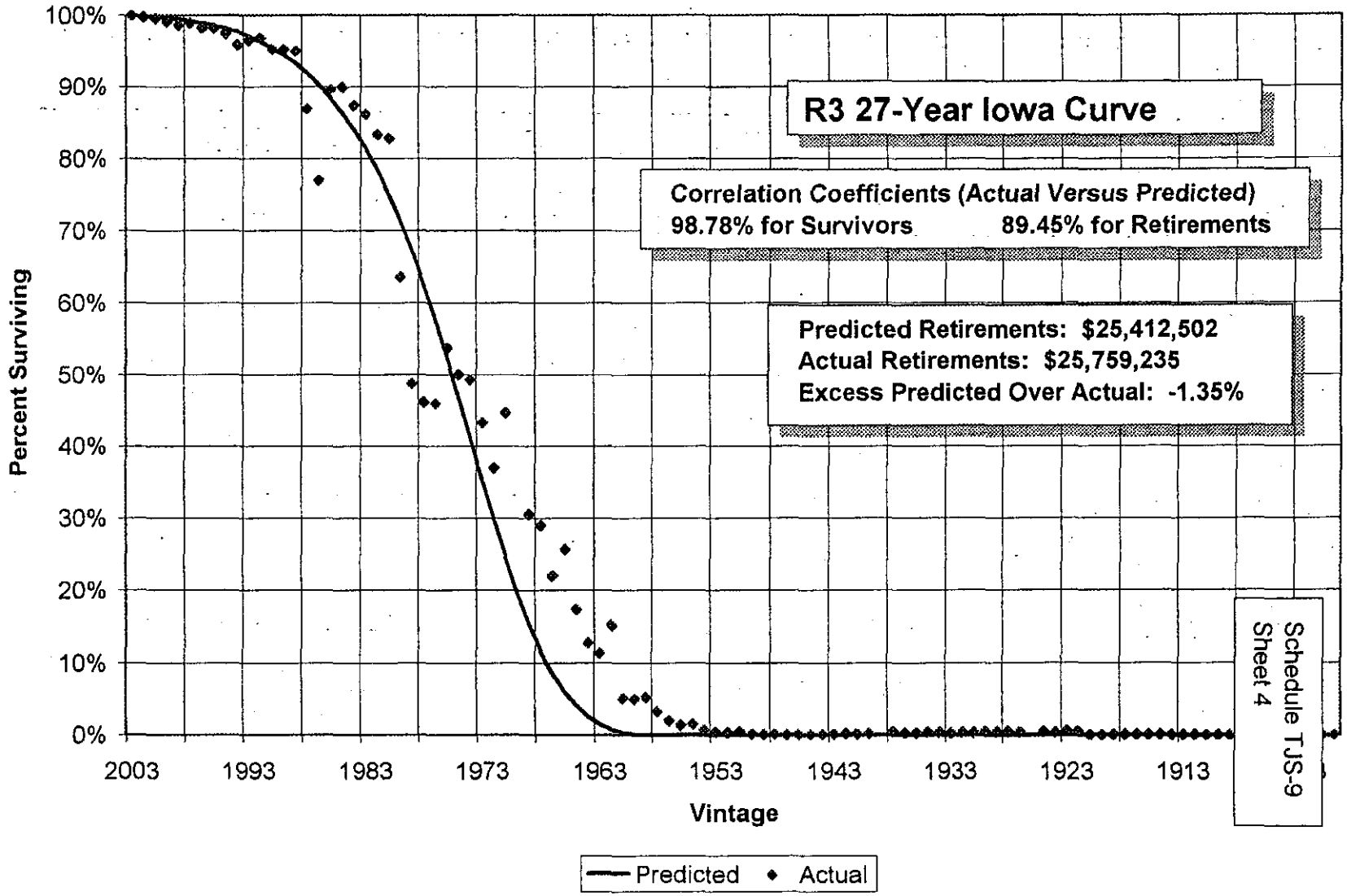
Account 380 - Services



Missouri Gas Energy
Comparison of Predicted and Actual Survivor Curves
Account 380 - Services



Misssouri Gas Energy
Comparison of Predicted and Actual Survivor Curves
Account 380 - Services



Schedule TJS-9
Sheet 4

Schedule TJS - 10

Missouri Gas Energy
Comparison of Depreciation Rates
from Case No. GR-2001-292

Reference	Company Name	Location	12 Months Ended	Property/Plant/ Equipment and Intangibles	Depreciation/ Amortization Expense	Indicated Depreciation Rate
				$ million	$ million	
(1)	AGL Resources	Tennessee, Georgia, Virginia	9/30/2000	2,459.70	83.20	3.38%
(1)	Cascade Natural Gas	Washington, Oregon	9/30/2000	473.90	13.30	2.81%
(1)	EnergySouth, Inc.	Southwest Alabama	9/30/2000	189.20	6.70	3.54%
(1)	New Jersey Resources Corp.	Gulf Coast to New England	9/30/2000	1,009.60	31.00	3.07%
(1)	Peoples Energy Corporation	Chicago, Northeastern Illinois	9/30/2000	2,517.10	100.90	4.01%
(1)	Piedmont Natural Gas Co.	North and South Carolina, Tennessee	10/31/2000	1,466.60	48.90	3.33%
(1)	South Jersey Industries	New Jersey	12/31/2000	769.90	20.20	2.62%
(1)	WGL Holdings	Washington, D.C., Virginia, Maryland	9/30/2000	2,225.30	65.50	2.94%
	Average					3.21%
(2)	Missouri Gas Energy					
	Existing Rates	Missouri	6/30/2000	683.18	24.16	3.54%
	Company Filing	Missouri	6/30/2000	683.18	23.16	3.39%
	Staff Recommendation	Missouri	6/30/2000	683.18	16.43	2.40%
	B&V Recommendation	Missouri	6/30/2000	683.18	22.13	3.24%

(1) Source: yahoo.marketguide.com
(2) Schedule TJS - 8 from Case No. GR-2001-292

Missouri Gas Energy
Comparison of Depreciation Rates for 13 Gas Distributors

Schedule TJS-11

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]
				Washington Gas Light		New Jersey			NUI			Northwest Natural Gas		Atmos
Line No.	Account	Description	DC	Maryland	Virginia	Natural Gas	LaClede	Nicor	Elizabethtown	Elkton	City Gas of Florida	Washington	Oregon	Energy
1	376	**Mains**										3.22	3.22	
2		Steel	3.09	2.36	2.43	2.10	1.27		2.14	3.67	2.8			
3		Cast Iron	2.93	2.36	3.54		1.25							
4		Plastic & Copper					1.43							
5		Copper		2.36	2.43									
6		Plastic	2.96	2.36	2.32	3.16			2.14	2.8	3.1			
7		Average Mains												
8	380	**Services**							2.91			3.97	3.97	
9		Steel	4.79	3.22	3.73	2.51	2.27		2.91	5.75	7.4			
10		Plastic & Copper					2.22							
11		Plastic	4.49	3.22	3.70	3.45			2.91	5.08	4.1			
12		Copper	4.94	3.22	4.68									
13		Average Services												
14		**Composite Distribution Rate**		2.93 (2)		2.95	1.81	3.79				3.17	3.42	2.76

(1) Southern Nevada divison of Southwest Natural Gas Corp.
(2) Composite distribution rate for DC, Maryland, and Virginia.

Missouri Gas Energy
Comparison of Depreciation Rates for 13 Gas Distributors

[A]	[B]	[C]	[P]	[Q]	[R]	[S]	[T]	[U]	[V]	[W]	[X]	[Y]	[Z]	[AA]	[AB]
			Cascade Natural Gas		South		Piedmont Natural Gas							Proposed	
Line No.	Account	Description	Washington	Oregon	Jersey Industries	SEMCO	North Carolina	South Carolina	Tennessee	Peoples Energy	Southwest Gas (1)	Average Rate	Company	Staff	Thomas J. Sullivan
1	376	**Mains**			2.09		3.15	3.15	2.42		2.53	2.83			
2		Steel				2.75				1.54		2.42			
3		Cast Iron										2.52			
4		Plastic & Copper										1.43			
5		Copper										2.40			
6		Plastic				1.73				2.22		2.53			
7		Average Mains										2.35	2.10	2.27	2.50
8	380	**Services**			3.32		3.35	3.35	5.25		3.15	3.66			
9		Steel				5.34				3.45		4.14			
10		Plastic & Copper										2.22			
11		Plastic				2.45				3.33		3.64			
12		Copper										4.28			
13		Average Services										3.59	4.58	2.27	3.33
14		**Composite Distribution Rate**	2.75	2.70	2.61	2.64					2.85	2.86	3.12	2.35	2.88

(1) Southern Nevada divison of Southwest N
(2) Composite distribution rate for DC, Maryl

Schedule TJS-12

Account 380 - Services
Comparison of MGE with Other
MPSC Regulated Companies(1)

[A] Line No.	[B] Company	[C] Account 380 Depreciation Rate
1	AmerenUE	2.79%
2	Atmos Energy Corporation	5.13%
3	Laclede Gas Company	2.25%
4	Missouri Public Service	4.68%
5	Southern Missouri Gas Company	2.00%
6	SJLP	3.54%
7	Average Depreciation Rate	3.40%
8	Account 380 Proposed Accrual Rate:	
9	Staff	2.27%
10	Thomas J. Sullivan	3.33%
11	Company	4.58%

(1) Source: MGE Data Request No. MGE-DRNO.0044