Exhibit No.:
Issues: Depreciation and Net Salvage
Witness: Thomas J. Sullivan
Sponsoring Party: Missouri Gas Energy
Case No.: GR-2001-292

PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

MISSOURI GAS ENERGY

CASE NO. GR-2001-292

REBUTTAL TESTIMONY OF

THOMAS J. SULLIVAN

Jefferson City, Missouri

May 18, 2001

Exhibit No. 217
Date 6-25-01 Case No. GR-2001-292
Reporter Stewart

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Q. Please state your name and business address.

A. Thomas J. Sullivan, 8400 Ward Parkway, Kansas City, Missouri 64114.

Q. What is your occupation?

A. I am a Senior Management Consultant in the Management Consulting Division of Black & Veatch Corporation.

Q. How long have your been with Black & Veatch?

A. I have been employed with the firm 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 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. As a Senior Management Consultant, Project Manager, and Project Engineer in the Management Consulting Division of Black & Veatch, I have been responsible for the preparation of numerous studies for gas, electric, water, and wastewater utilities. Clients served include investor owned and publicly owned utilities and their customers. My responsibilities have included the preparation of studies involving valuation and depreciation, cost of service, cost allocation, rate design, cost of capital, supply analysis, load forecasting, economic and financial feasibility, cost of gas and electricity recovery mechanisms, and other engineering and economic matters.

Prior to joining the Management Consulting Division in 1982, I worked as a staff engineer in the firm's Power and Civil-Environmental (now called Infrastructure) Divisions.

Q. Have you previously appeared as an expert witness?

A. Yes, I have previously presented expert witness testimony before the Kansas Corporation Commission in Docket No. 00-UTCG-336-RTS. I appeared in that proceeding on behalf of UtiliCorp United, Inc. My testimony in that matter addressed class cost of service, rate design, and weather normalization. I have presented expert witness testimony before the Railroad Commission of Texas in Gas Utilities Docket No. 8878. I appeared in that proceeding on behalf of Southern Union Gas Company. My testimony addressed the depreciation rates proposed in that matter. I have presented expert witness testimony before the

South Carolina Public Service Commission in Docket No. 88-52-G. I appeared in that proceeding on behalf of Peoples Natural Gas Company of South Carolina (now part of South Carolina Electric and Gas Company). My responsibilities in that proceeding included the preparation of exhibits developing revenue requirements, cost of capital, pro forma sales, customers, and revenues, and rate design.

I currently have testimony filed on behalf of the Philadelphia Gas Works in Docket No. R-00006042 before the Pennsylvania Public Utility Commission. My testimony in that matter sponsors Black & Veatch's Engineering Report and specifically addresses the level of rate relief needed by the Philadelphia Gas Works.

I have also filed expert witness testimony on behalf of Peoples Natural Gas, Division of UtiliCorp United, Inc. in Docket No. RPU-92-6 before the Iowa Utilities Board. I did not appear as an expert witness because the case was settled. My responsibilities in that matter included sponsoring the class cost of service study. I have also filed expert witness testimony on behalf of Peoples (UtiliCorp) in Docket No. 193,787-U before the Kansas Corporation Commission. I did not appear as an expert witness because this case was settled. My responsibilities in that matter included sponsoring the class cost of service study and rate design. I have also filed expert witness testimony on behalf of Southern Union Gas Company in connection with their most recent El Paso, Texas (West Texas) rate

proceeding. My responsibilities included sponsoring the depreciation rates proposed in that matter.

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 Mr. Paul Adam with regard to MGE's depreciation rates and Mr. Charles R. Hyneman's proposed treatment of net salvage. Specifically, I will:

1. Provide some background with regard to MGE's depreciation rates,
2. Address Staff's proposed average service lives (ASLs) for MGE, and
3. Address Staff's proposed net salvage allowance for MGE.

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

A. Yes, I sponsor the following nine schedules:

1. Schedule TJS-1 - Report on Depreciation Accrual Rates Prepared for Missouri Gas Energy by Black & Veatch Corporation dated June 2000.
2. Schedule TJS-2 - Mr. Paul Adam's workpapers submitted to MGE on April 23, 2001.
3. Schedule TJS-3 – Comparison of depreciation rates for comparable companies used by Staff for return on equity.

4. Schedule TJS-4 - Comparison of various depreciation rates proposed for MGE.

5. Schedule TJS-5 - Analysis of MGE Account 380 – Services.

6. Schedule TJS-6 – Omitted intentionally.

7. Schedule TJS-7 - Staff workpapers regarding net salvage.

8. Schedule TJS-8 – Black & Veatch workpapers regarding net salvage.

9. Schedule TJS-9 – Tables 3-4 and 3-7 from Black & Veatch June 2000 report excluding net salvage.

Background

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

A. This background represents important foundation upon which my rebuttal of Staff's proposals with regard to depreciation rates and net salvage 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 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 this 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), but the Company and Staff proposed no 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 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-1 attached to my rebuttal testimony in this matter.

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

A. Yes. As directed by the Commission in its order in Case No. GR-98-140, 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. There were two significant considerations included in the June 2000 report as a direct result of these meetings that differ from the report we issued in 1995.

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. As stated on Page 11 of the June 2000 report, "At 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." 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 report to the extent that it could be determined.

The second significant change was with regard to the treatment of net salvage as discussed on Pages 11 through 15 of the June 2000 report. The whole life depreciation rate formula is as follows:

Depreciation Rate = (1 - Net Salvage Allowance) / Average Service Life

Net salvage generally equals salvage minus cost of removal. However, for MGE net salvage equals salvage, minus cost of removal, plus reimbursements. When MGE is required to move or relocate mains, primarily in connection with road construction, MGE may be reimbursed for their costs under certain circumstances. MGE credits accumulated depreciation (similar to what would be done for any salvage value received) for the amount of reimbursements received. Reimbursements are discussed on Pages 12 through 15 of the June 2000 report (Schedule TJS-1). The net salvage allowance in the whole life formula is equal to net salvage as a percentage of original cost plant. In our June 2000 report, we

recommend a change in how this percentage is calculated for the gas distribution plant of MGE.

Q. How did you change your calculation of net salvage?

A. Traditionally, the principal measure of net salvage is calculated by comparing the ratio of the dollar amount of annual net salvage to the dollar amount of annual retirements over a recent historical period. The rationale for this approach is that the net salvage experienced on recent retirements would eventually apply to all of the retirements of plant in service. However, based on our experience with other natural gas utilities and discussions with Company personnel, we determined that the current forecast is for most underground gas facilities to be retired or abandoned in place at the end of their useful life. Significant salvage, cost of removal, and reimbursements will likely only apply to the limited interim activities primarily associated with moving or relocating mains and services as required by governmental entities in connection with public improvements projects. Therefore, to recognize the limited nature of current net salvage for MGE relative to total plant investment for its gas distribution facilities, we recommend (in our June 2000 report) calculating the net salvage allowance for gas distribution facilities based on comparing the dollar amount of annual net salvage to the dollar amount of plant in service. This change results in a much smaller net salvage allowance than the historical relationship between net salvage and retirements. However, this change applicable to the Company's gas distribution plant will allow the Company to more accurately match its annual

depreciation accrual for net salvage with the Company's current actual annual experience. More importantly, it matches what we currently expect in the near future.

It should be noted that our recommendation only applied to MGE's gas distribution plant. As stated on Page 12 of our report:

> "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 amount 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."

Q. Did Staff appear to be receptive to your recommended treatment of net salvage?

A. Yes. In workpapers Mr. Adam shared with us during meetings after the issuance of our June 2000 report, he used the same methodology for calculating the net salvage allowance for distribution plant in his calculation of preliminary rates for MGE. In fact, the workpapers provided by Mr. Adam in this case include a net salvage allowance in the calculation of depreciation rates similar to what I am recommending for MGE's gas distribution plant.

Q. Have you attached these workpapers to your rebuttal?

A. Yes. They are included in Schedule TJS-2. These are workpapers Mr. Adam provided to the Company on April 23, 2001. These workpapers are virtually the same as workpapers provided to the Company by Mr. Adam in October 1999.

Q. Are the Staff's recommendations in this case consistent with the meetings between the Company and Staff?

A. No. They differ with regard to both net salvage and average service life. Further, Staff's net salvage recommendation is not even consistent with the workpapers provided by Mr. Adam in this case.

Average Service Lives

Staff has not conducted a study of MGE.

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

A. No, they are not. His recommended ASLs are based on a study of Laclede Gas Company ("Laclede"). His recommendations for MGE are based on superimposing the ASLs he has determined for Laclede onto MGE. Staff's "study" of MGE in this rate case is no more comprehensive than the "study" the Staff provided in MGE's last rate case (Case No. GR-98-140) that was rejected by the Commission.

Q. Has Mr. Adam performed any analyses of MGE that form a basis for concluding that MGE's existing depreciation rates should be radically changed?

A. No. His only real basis for recommending a massive change to MGE's depreciation rates is that the use of Laclede's ASLs produce a different result than MGE's current rates.

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

A. Based on Mr. Adam's workpapers (see Schedule TJS-2), all of his recommended average service lives with the exception of two accounts are set equal to the average service lives he has recommended for Laclede Gas. The two exceptions are with regard to MGE's automated meter reading (AMR) equipment. For Account 397.1 – Electronic ERT Equipment he recommends the same depreciation rate approved by the Commission in Case No. GR-98-140. For Account 385 – EGM (electronic gas measuring) Equipment, he recommends an average service life that is the average of Laclede and Union Electric (AmerenUE).

Q. What is 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 testimony, Mr. Adam states:

> "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 judgement, to determine the account-by-account ASLs and depreciation rates for this Company."

Further, on Page 4, Lines 1 through 10 of his testimony, Mr. Adam states:

"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 sets for himself on Page 3 of his testimony by limiting his consideration almost exclusively to one Missouri PSC regulated utility, Laclede Gas Company. Even a cursory reading of Mr. Adam's testimony leads one to conclude that he uses Laclede because that is the only gas utility with which he is intimately familiar. So, Mr. Adam is really saying that depreciation rates for MGE should only be based on companies with which he is intimately

familiar. His choice of Laclede is not based on any analysis of comparability; it is the only Company he could have used because that is the only Company with which he feels sufficiently familiar.

A closer reading of Mr. Adam's testimony roots out his real standard - data. Mr. Adam is searching for data that, in his opinion, "is current and valid". Laclede is the only gas utility which has data with which Mr. Adam is intimately familiar. Even though there is some data available for MGE (and Southern Union) upon which some analyses could be based, Mr. Adam ignores this data, apparently because he feels more comfortable with Laclede's data. Strictly focusing on Laclede because Laclede has data with which Mr. Adam is 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 (survivor curve analysis) is but one statistical tool that provides only an estimate of the ASL of 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 feels comfortable), Mr.

Adam is essentially giving up on other data, tools and analyses that are available and are more specific to MGE.

Mr. Adam's standard of comparability is too narrow.

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 is comparable to setting return on equity based on one comparable company because that is the only company the analyst knows anything about. It hardly seems reasonable to conclude that Mr. Adam's analysis is based on an analysis of comparable companies when he first limits his universe to Missouri gas utilities and then further limits it to gas utilities with which he is familiar, namely Laclede Gas.

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 is inconsistent with the comparability standard used by Staff in other circumstances. It is my understanding 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 MGE's prior gas rate case, Staff witness Woody Smith did not limit his depreciation analysis to Laclede Gas. I don't 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. How do the depreciation rates recommended by Staff compare to the depreciation rates of the comparable companies Staff uses to determine rate of return?

A. As shown in Schedule TJS-3, the average depreciation rate of the eight companies used by Staff to determine rate of return is 3.21 percent compared to my recommended average depreciation rate of 3.24 percent and the Staff recommended rate of 2.40 percent (adjusted to include net salvage). The Staff's recommended depreciation rates for MGE are significantly less than the depreciation rates for these eight "comparable" companies. The Staff clearly has no qualms about using companies with which they are not intimately familiar and which are located outside the state of Missouri to perform analysis for return on equity.

The Staff apparently believes that the eight companies used to determine rate of return are comparable in risk to MGE and are reasonable to use as a basis to determine MGE's return on investment. However, Staff is recommending a return of investment (i.e. depreciation expense) that is clearly not comparable to this group of utilities.

Q. How does Mr. Adam's recommendation in this case differ from Staff's recommendation in MGE's prior rate case?

A. In MGE's prior rate case, Mr. Woody Smith was the Staff's depreciation witness. In Case No. GR-98-140, Mr. Smith limited his analysis to Account 376 – Mains, Account 380 – Services, Account 381 – Meters, and Account 382 – Meter Installations. Mr. Smith based his recommended rates on the existing rates for Union Electric, Laclede, and Missouri Public Service. Further, Mr. Smith had this to say on Page 12, Lines 8 through 16 of his prepared testimony with regard to which utility was most comparable to MGE:

> "Q. How would Staff compare Missouri Public Service to MGE?
> A. Its operation and safety program history is considered the most compatible with MGE's by the Staff. Extensive main and service replacement safety programs have positioned both MGE and Missouri Public Service with relatively new distribution systems.
> 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."

It appears as though Staff's position as to which utility is most comparable to MGE differs from one rate case to the next and from one witness to another, depending on the witnesses' personal experience or familiarity. As will be discussed later in my testimony, there is a significant difference in the level of depreciation expense that results from Mr. Smith's and Mr. Adam's recommendations.

Q. Is it necessary to find one utility that is in some way the most comparable to MGE?

A. No. Staff's lack of consistency clearly demonstrates the absurdity in trying to find one company that is in some way a "clone" of MGE. Such an exercise is flawed and unnecessary. Recommended rates for MGE should be based on first: MGE specific data where such data is available; second, on analysis of a sufficiently large sample of reasonably comparable natural gas utilities; and third, sound engineering judgement.

Q. How many utilities did you include in your study of comparable gas utilities?

A. As shown in Table 3-3 of our June 2000 report (Schedule TJS-1), we surveyed 12 Midwestern gas utilities including the other three major gas utilities in the state of Missouri: Missouri Public Service, AmerenUE, and Laclede.

Mr. Adam's limited focus on Laclede ignores the changes we made to our June 2000 report at Staff's request. As discussed earlier, we specifically added information to our analysis of regional utilities in order to increase the Staff's

comfort level with using comparable companies outside the State of Missouri. This additional effort was all but ignored by Mr. Adam.

Comparison of various depreciation rate recommendations.

Q. Have you performed any analyses comparing the depreciation rates that have been recommended for MGE?

A. Yes. My analysis is contained in Schedule TJS-4.

Q. Please explain the contents of Schedule TJS-4.

A. Schedule TJS-4 contains a comparison of depreciation expense for MGE based on the existing depreciation rates, the rates recommended by the Company in this case, the rates developed in Black & Veatch's June 2000 Report, the rates that would result solely based on the 12 Midwestern gas utilities sampled in the June 2000 Report, the rates recommended by Mr. Adam in this case, the rates recommended by Mr. Smith in Case No. GR-98-140, and the rates developed in Black & Veatch's 1995 Report. All of the rates are applied to the plant in service in column (C) that is taken from Schedule H-12 sponsored by MGE witness Mr. Mike Noack. In column (F), the rate for Account 396 - Power Operated Equipment has been corrected based on our discussions with Mr. Adam prior to the issuance of Mr. Adam's testimony in this matter. In column (L), the rate for Account 374.2 - Distribution Land Rights has been set equal to the existing rate because Mr. Adam did not recommend a rate for this account, and the rate for Account 391 - Furniture and Fixtures is the weighted average of the two rates

recommended by Mr. Adam for the subaccounts he shows in his schedule. Further, I have added the Staff's recommended net salvage allowance in the case in order to put the Staff's recommendation on a more comparable basis because all of the other rates are based on including the net salvage allowance in the depreciation rates.

Q. What observations would you make regarding the analysis contained in Schedule TJS-4?

A. I would primarily like to focus on the total result of each set of rates as summarized below:

	Annual Expense $	Difference from Existing $
Existing Rates	24,161,498	0
MGE Proposed Rates	23,161,677	(999,821)
B&V 2000 Report	22,133,605	(2,027,894)
12 Comparable Cos.	26,892,156	2,730,658
Mr. Adam	16,427,064	(7,734,434)
Mr. Smith	22,896,839	(1,264,659)
B&V 1995 Report	24,245,122	83,624

As shown in this table, Mr. Adam's and Staff's recommendations in this case result in a very large reduction in depreciation expense of approximately $7.7 million, or 32 percent, compared to the existing depreciation rates. All of the other rates that have been recommended for MGE are in the range of no change to a reduction of approximately 8 percent. Further, there is a significant difference, approximately $5.5 million, or more than 25 percent, between the results of

Staff's recommendations in this case and Staff's recommendation in MGE's prior case.

If we had strictly based our recommended rates in our June 2000 report on analysis of comparable companies, we would have recommended a $2.7 million increase in depreciation expense rather than a $2.0 million decrease. The difference between the depreciation expense recommended by Mr. Adam based on consideration of one company is almost $10.5 million less than a consideration of 12 companies. Based on the 12 companies we surveyed, the rates recommended by Mr. Adam based strictly on Laclede's average service lives (primarily for distribution plant) would be by far the lowest. This highlights the potential flaw in considering only one company, especially if that company is a statistical outlier.

There is a huge difference between Mr. Adam's recommendation in this case and any of the other analyses. Further, there are significant differences between the Staff's recommendations in MGE's last two rate cases before this Commission. The unreasonableness of Mr. Adams' result is reinforced by the unreasonableness of the approach he took to get his result. Clearly, a change of the magnitude that Mr. Adam is recommending should be based on a much more solid analysis than he has provided in this case. He has offered no explanation as to why such a huge change in the existing depreciation expense for MGE is warranted other than that is the result produced when he uses Laclede's average

service lives. In his zeal to hold up Laclede as some kind of perfect model, he has clearly produced an unreasonable result.

Finally, it should be pointed out that the level of depreciation expense recommended by the Company in this case is fairly close to the level of depreciation expense that would result from the rates recommended by Mr. Smith in the Company's prior case, and the level of depreciation expense recommended in the 2000 Black & Veatch report is even less than the level of depreciation expense that would result from Mr. Smith's recommended rates. Such results are consistent with the Commission's desire for "the Company to cooperate with Staff and OPC in evaluating the need for changes to the existing property depreciation rates." The same cannot be said with regard to Staff's recommendations in this case.

Laclede's and MGE's Account 380 - Services are significantly different primarily due to MGE's Service Line Replacement Program ("SLRP").

Q. What account accounts for largest difference between Mr. Adam's recommended annual depreciation expense and the rates developed in the Black & Veatch report?

A. Account 380 – Services accounts for almost 60 percent of the difference.

Q. How did Mr. Adam determine his recommended depreciation rate for Account 380?

A. Mr. Adam's "study" of Account 380 - Services is typical of the methodology he applies to MGE. Mr. Adam recommends that an average service life of 44 years should be used for services because that is the average service life he determined for Laclede. His recommended depreciation rate is then 1 divided by 44 or 2.27 percent. That is the extent of his "study". He essentially does the same thing for every account.

The basic premise of this "study" is that Laclede and MGE are so similar that their depreciation rates are virtually interchangeable. Further, this "study" assumes that any information specific to MGE is not relevant because MGE does not have adequate retirement data for Mr. Adam to run through the Staff's computer programs.

Q. Have you prepared an exhibit comparing Laclede's and MGE's gross plant investment in services.

A. Yes, I have prepared Schedule TJS-5. There are a couple observations that can be made from this information. First, MGE's experience with regard to Account 380 is significantly different from Laclede's experience. While both utilities implemented service line replacement programs, MGE's gross plant investment in services has increased by 188 percent since 1989 (the beginning of SLRP for MGE) whereas Laclede's investment has increased only 86 percent since 1989. MGE's service line retirements have accelerated significantly due to the SLRP such that over 40 percent of the investment that existed in 1989 has been retired.

Over 80 percent of MGE's current services plant is plant that has been added since MGE's SLRP began in 1989.

Q. Approximately how many service lines has MGE replaced as part of its SRLP?

A. MGE's replacement of service lines has averaged in excess of 20,000 per year since 1989 and will ultimately result in the replacement of approximately 250,000 service lines. This represents approximately 50 percent of MGE's current customer base.

Q. Approximately how many service lines has Laclede replaced as part of its SLRP?

A. Based on Staff response to Company Data Request PA-16 , Laclede has replaced 13,728 unprotected steel service lines between fiscal years 1991 and 2000, or 1,373 per year. This equates to approximately 2 percent of Laclede's customer base.

Q. What impact does MGE's SLRP have on ASL?

A. The economic life of many of MGE's replacement lines will be limited by the expected life of the older houses (many of which are in poorer neighborhoods) to which they are connected. Further, MGE's SLRP has resulted in an accelerated retirement of bare steel service lines. These service lines constitute virtually all services installed before the early 1970's. Both factors will tend to reduce ASL relative to a company without a SLRP of the magnitude of MGE's.

Q. Please explain how the age of the houses has a bearing on the expected ASL of services for MGE.

A. The SLRP is intended to replace bare steel service lines that were installed prior to the early 1970's. Therefore the newest houses in the program are at least 30 years old. Based on 1990 census tract data, there are approximately 215,000 houses in Jackson County that 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. It would be unreasonable to assume that service lines to these houses will be providing service for 44 years, as Mr. Adam would suggest. Having lived in Kansas City 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 five or ten years.

Differences between Laclede and MGE are not limited to services.

Q. Are there other examples where Mr. Adam has ignored MGE specific data and used Laclede average service lives instead?

A. Yes. Our study determined that sufficient data exists to perform simulated plant balance analysis on MGE's mains (Account 376) and services (Account 380). Further, very detailed data is available for MGE and Southern Union with regard to general plant that Mr. Adam chooses to ignore. A very detailed analysis of

Account 391 (primarily computer equipment) is contained in our June 2000 report (Schedule TJS-1). Mr. Adam's own workpapers contain information provided by MGE to Mr. Adam with regard to Account 392 - Transportation Equipment that show MGE's practice with regard to the retirement of vehicles. Mr. Adam ignored this information. The results of Mr. Adam's "study" of ASLs are not significantly impacted by any information specific to MGE.

Summary of ASLs

Q. What is your recommendation with regard to Staff's recommended ASL?

A. The Commission should reject them because:

- Mr. Adam has performed no study of MGE.
- Mr. Adam's recommendations are based on a methodology that isn't as comprehensive as the analysis performed by Staff in MGE's last rate case that was rejected by the Commission.
- Mr. Adam's focus is too narrow and depreciation rates should not be set based on Staff convenience and comfort.
- Staff has failed to recommend a consistent approach.
- 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.

- The depreciation rates proposed by Staff in this matter appear to violate the spirit of cooperation that was developed between MGE's two rate cases and is reflected in our June 2000 report. The Staff's proposals in this case represent an about face from the spirit of cooperation that the Company attempted to nurture and felt it had achieved since the last rate case and is reflected in our June 2000 report. It is a case of the Company moving two steps forward in an attempt to find common ground and the Staff taking three steps backward.

Net Salvage Allowance

Staff is recommending a change in the net salvage methodology.

Q. What is the Staff's recommendation with regard to net salvage for MGE?

A. In his direct testimony, Mr. Adam recommends the following on Page 5, Lines 10 through 15:

> "Knowing the ASL of each account, the original cost of plant is spread equally over all years. Using this methodology, depreciation is used to recover the capital cost of the plant in service from utility customers through service rates. Net salvage cost, that includes the cost of removal of plant when retired, is considered an annual expense rather than an annual accrual and is determined by Staff auditors and included with other annual expenses."

Q. In layman's terms, what does this mean?

A. In simple terms, Mr. Adam is recommending the following depreciation rate formula:

Depreciation Rate = 1 / Average Service Life.

For example, if a plant account is determined to have an average service life of 25 years, then the depreciation rate equals 1 divided by 25, or 4 percent. He is then recommending that a net salvage allowance be included with other annual expenses that would be separate from the depreciation accrual.

Q. Is Mr. Adam recommending a change in how depreciation rates are calculated?

A. Yes, he is recommending a very significant change. As previously discussed in this rebuttal testimony, the commonly accepted whole-life formula for calculating depreciation rates is the following:

Depreciation Rate = (1 - Net Salvage Allowance) / Average Service Life

Net salvage is calculated as follows:

Net Salvage = Salvage - Cost of Removal + Reimbursements

Reimbursements are only included in the net salvage calculation if reimbursements are credited to accumulated depreciation (which is the method used by MGE). When MGE is required to move or relocate mains, primarily in connection with road construction, MGE may be reimbursed for their costs. MGE credits accumulated depreciation (similar to what would be done for any salvage value received) for the amount of reimbursements received. This treatment is

discussed in detail in our June 2000 report (Schedule TJS-1) on Pages 12 through 15.

The Staff is recommending that the net salvage component be removed from the calculation of the depreciation rate and that net salvage be treated as a separate annual expense.

Q Does Mr. Adam view his recommendation as a significant change?

A. Apparently not. Mr. Adam goes so far as to state on Page 8, Lines 10 and 11 of his direct testimony that: "The level of collection for net salvage cost is essentially equal using either method of determining value."

Q. Does Mr. Adam comment on your recommended treatment of net salvage?

A. Yes, he does. He states on Page 8, Lines 4 and 5 that he agrees with my determination of net salvage cost, but then turns around and states how the Staff's recommendation differs.

Q. Is Staff's net salvage recommendation simply a change in a mathematical calculation that is "essentially equal" to the current methodology?

A. No, it is not. Staff's recommendation will necessitate a significant change in accounting practice that is inconsistent with the FERC Uniform System of Accounts and Commission rules. Further, Staff's recommendation is only "essentially equal" if you can predict actual net salvage with absolute precision.

To the extent that net salvage differs from Staff's estimate, the Company will recover either more or less than actual cost.

Q. Is the Staff's net salvage recommendation the same as your recommendation?

A. No, it is not. As clearly stated on Page 12 of our June 2000 report (Schedule TJS-1), "...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." More broadly stated, it is my opinion that the goal of matching actual net salvage expenses and net salvage allowance can be accomplished within the calculation of depreciation rates without treating the net salvage allowance as a separate expense item. Staff's recommendation is to remove net salvage from the calculation of depreciation rates and treat it as a separate expense item.

Staff's Recommended Change in Methodology is Inconsistent with the FERC Uniform System of Accounts, Missouri PSC Rules, and generally accepted utility accounting practice.

Q. Is Staff's recommended change in depreciation methodology consistent with the normal utility accounting practice?

A. No. As stated earlier, it runs contrary to the FERC Uniform System of Accounts. In Paragraph 10.B(2) of Gas Plant Instructions of Part 201 - Uniform System of

Accounts Prescribed for Natural Gas Companies Subject to the Provisions of the Natural Gas Act (Page 527 of the 4-1-99 Edition), it states:

> "When a retirement unit is retired from gas plant, with or without replacement, the book cost thereof shall be credited to the gas plant account in which it is included, determined in a manner set forth in Paragraph D, below. If the retirement unit is of a depreciable class, the book cost of the unit retired and credited to gas plant shall be charged to the accumulated provision for depreciation applicable to such property. The cost of removal and salvage shall be charged or credited, as appropriate, to such depreciation account."

Further, in Paragraph B of Account 403 (Page 587 of the 4-1-99 Edition) - Depreciation Expense - it states:

> "The utility shall keep ... such records of property and property retirements as will reflect the percentage of salvage and cost of removal for property retired from each account, or subdivision thereof, for depreciable gas plant."

Q. How is the Staff's recommendation inconsistent with Commission rules?

A. By being contrary to the FERC Uniform System of Accounts, the Staff's recommendation is then contrary to Missouri Public Service Commission Rule 4 CSR 240-40.040(1) which states:

> "....every gas company subject to the commission's jurisdiction shall keep all accounts in conformity with the Uniform System of Accounts Prescribed from natural Gas Companies Subject to the Provisions of the Natural Gas Act, as prescribed by the Federal Energy Regulatory Commission (FERC) and published at 18 CFR part 201..."

Q. Is the Company's current methodology consistent with normal utility accounting practice and the FERC Uniform System of Accounts?

A. Yes, it is.

Q. Has the Staff provided any testimony or evidence supporting its recommended deviation from the FERC Uniform System of Accounts or the benefits of their recommended treatment of net salvage compared to continuing the existing methodology that is consistent with Commission rules, the FERC Uniform System of Accounts, and standard industry practice?

A. No, it has not.

Q. Can you think of any potential benefits to the Staff's recommendation?

A. No, I can think of no benefits to the Staff's recommendation. Perhaps it is more administratively convenient for Staff, but that is hardly a reason to burden the Company and its customers with a treatment that violates basic regulated gas utility accounting practice and basic engineering principles.

Q. If the Commission adopts the Staff's recommended treatment, what would be the repercussions for MGE and its customers?

A. First, the Company would likely have to initiate and keep a separate set of books to comply with FERC (and Missouri PSC) rules and such an order in this case. To comply with the FERC Uniform System of Accounts, the Company will have to keep one set of books that utilize depreciation rates that include the net salvage allowance and charge net salvage to accumulated depreciation as they currently

do. A separate set of books will have to be kept for Missouri rate proceedings that utilize depreciation rates that exclude the net salvage allowance and expense net salvage to some account that has not yet been defined by the Missouri PSC Staff. This becomes even more cumbersome for corporate general plant accounts that are allocated to multiple jurisdictions. The maintaining of two sets of books will result in additional cost that would ultimately be borne by customers.

Secondly, the Staff's recommendation assumes that MGE will incur net salvage costs equal to the prior five year average over the future years that the Commission approved rates in this matter will be in effect. The Staff's recommendation assumes that the future level of net salvage will exactly equal that experienced in the preceding five years. To the extent that MGE's actual net salvage experience differs from Staff's allowance, the Company will either absorb additional expenses (if net salvage is less than the Staff's allowance or cost of removal is greater), or receive a windfall (if net salvage is greater than the Staff's allowance or cost of removal is less). The Company's recent experience shows that net salvage can vary significantly from year to year. Under the current methodology specifically developed for rate regulated utility systems and employed nation-wide, absolute precision is not necessary. Net salvage is accumulated in the accumulated depreciation account. If the Company collects "too much" cost of removal as the Staff appears to fear, future depreciation rates will be lowered if the depreciation reserve is over-funded. If the Company collects too little cost of removal (or "too much" salvage or reimbursements), future depreciation rates will be increased if depreciation reserve is under-funded.

Over the long term, the current methodology ensures that the Company will only collect its actual net salvage experience, nothing more and nothing less. My recommended refinement of the net salvage adjustment to depreciation rates is an attempt to better balance the Company's current and future experience.

Finally, the Staff's proposal appears to contradict the matching principle of rate making. On Lines 15 through 20 of Page 5 of his direct testimony, Mr. Adam states:

> "If a large life span type property has a retirement and an associated net salvage cost as a result of demolition and location rehabilitation project, Staff depreciation engineers will study this project and its associated cost. An appropriate net cost or net salvage cost of this type of project will be proposed for recovery by the Company through an amortization after the work is done or at least when the work is committed to by the regulated company."

This further demonstrates that the Staff intends for net salvage to be collected after the fact. In other words, the net salvage (cost or benefit) will accrue to future rate payers, not the rate payers who benefited from the asset. Further, Staff has not defined the term "large life span type property" nor have they indicated how any large, atypical cost of removal or net salvage would be treated. The existing methodology and my recommendation both seek to recover net salvage costs over the life of the asset, thereby matching the cost or benefit to the ratepayers who benefited from the asset.

Staff has erred in the application of its change in methodology.

Q. Does the Staff's proposal in this case demonstrate the potential pitfalls of the Staff's recommendation?

A. Yes, it does. The Staff has miscalculated the net salvage allowance they have included in this case utilizing their recommended methodology by failure to include reimbursements in their net salvage allowance. This error demonstrates that clearly there is some confusion and lack of communication amongst the Staff with regard to how to implement their own recommendation.

Q. What is the level of annual net salvage that the Staff is recommending in this case?

A. Staff witness Charles R. Hyneman is sponsoring Staff adjustment S-56.2 in the amount of $713,624. In his testimony beginning on Line 22 of Page 12, Mr. Hyneman states:

> "This adjustment includes a five-year average of net salvage costs for gas plant retired from service, consistent with the Staff's method used to calculate depreciation rates in this case."

Staff's workpaper developing their recommended net salvage expenses of $713,624 is in Schedule TJS-7. The Company's data request that forms the basis for Staff's calculation is also provided in Schedule TJS-7 and clearly shows that Staff's allowance includes only salvage and cost of removal.

Q. Should Staff have known that reimbursements should be included in the calculation of net salvage?

A. Yes, the calculation is shown and explained in detail in our report. Further, the Company's response to Staff Data Request 179 which forms the basis for Staff's workpaper supporting its recommended net salvage allowance shows salvage, cost of removal, and reimbursements for the last five years. Comparison of Staff DR 179 to the Staff's workpaper indicates that the Staff's workpaper does not include reimbursements.

In addition, my workpapers were provided to the Staff in response to Staff Data Request 4601 and are included in Schedule TJS-8. Staff Data Request 4601 contains a copy of a letter and its attachments from MGE to Mr. Adam dated August 12, 1999. The attachments to this letter include my workpapers showing salvage, cost of removal, and reimbursements. This data was the source for the net salvage allowance used in Mr. Adam's workpapers included in Schedule TJS-2.

Further, during and after the preparation of our June 2000 report, I discussed the issue of reimbursements with Mr. Adam on several occasions, and I believed that Mr. Adam and I had reached a consensus that reimbursements should be included in the determination of the net salvage allowance as discussed in our June 2000 report. It would appear that Mr. Adam understands how net salvage should be calculated for MGE and likely agrees with the approach I have

recommended (based on his testimony and workpapers). However, it also appears that the responsibility for the net salvage allowance in the Staff's case is being handled by a different witness. There appears to be some lapse in communication between the Staff's depreciation and accounting departments on this point.

Q. What level of reimbursements did the Company realize over the last five years?

A. Based on the information included in Company response to Staff DR 179, the five-year average for reimbursements is $853,371.

Q. What is the impact in the case of the Staff's failure to include reimbursements?

A. Based on the figures provided to Staff in Staff DR 179 and Staff's proposed methodology for net salvage, the error results in an understatement of net salvage of $853,371. In other words, the Staff's $713,624 expense is overstated by $853,371.

Summary – Net Salvage

Q. Please summarize your testimony and recommendations with regard to net salvage.

A. Staff's recommended net salvage methodology should be rejected. Staff has identified no deficiencies in the current methodology and no specific benefits from their recommended change in methodology. In fact, Staff's recommendation

directly contradicts the methodology we discussed with Staff in the development of our report and which is clearly shown in Mr. Adam's workpapers. Most importantly, Staff's recommendation violates the FERC Uniform System of Accounts and Missouri PSC rules. Clearly, the FERC and Missouri PSC intend that net salvage be a component of the depreciation rate.

Further, the Staff's rigid use of a five-year average to determine net salvage should be rejected. The net salvage allowance should be an element of depreciation expense rates determined in the course of a depreciation rate study as required by the Commission in 4 CSR 240-40.040(6) that not only considers analysis of historical experience, but also considers expected future conditions, engineering studies, and engineering judgement.

Q. If the Commission adopts the Staff's recommended treatment for net salvage, is it possible to adjust the depreciation rates you are recommending to remove the net salvage allowance?

A. Yes. In Schedule TJS-9, I have modified Tables 3-4 and 3-7 from our June 2000 Report (Schedule TJS-1) to remove the effect of the net salvage allowance. If the Commission adopts the Staff's net salvage recommendation and agrees with my recommended average service lives for MGE, these are the appropriate depreciation rates for MGE. The difference in annual depreciation expense between the table in Schedule TJS-9 and TJS-1 is only $160,000, the total annual amount of my net salvage allowance.

Summary of Rebuttal Testimony

Q. Please summarize your rebuttal testimony with regard to depreciation rates for MGE.

A. My rebuttal testimony may be summarized as follows:

1. Staff's recommended average service lives in this case for MGE are based on superimposing one company's experience and are based on no real study of MGE. Staff's recommendations are unreasonably narrow in focus, are not based on any real analysis of comparable companies, are based on an approach that is clearly inconsistent with the Staff's recommendations in MGE's prior case and the current case, and can hardly be considered consistent with a spirit of cooperation with the Company.

2. The average service lives recommended in the 2000 Black & Veatch report are based on a study of actual MGE and Southern Union Gas experience, consideration of the experience of 12 Midwest utilities, engineering judgement, and consideration of circumstances specific to MGE. Further, this analysis reflects input from Mr. Adam and the PSC Staff consistent with the Commission's order in MGE's prior case.

3. Staff's recommended treatment of net salvage as an expense rather than as a component of the depreciation rate violates Missouri PSC Rules, the FERC Uniform System of Accounts, and standard utility industry practice.

4. Staff's recommended treatment of net salvage as an expense has no recognizable benefits (other than potential Staff administrative convenience), increases costs, and creates mismatches between cost and cost recovery.

5. Staff erred in its calculation of net salvage for MGE.

6. The net salvage approach recommended in the 2000 Black & Veatch report was developed in the spirit of cooperation with the Missouri PSC Staff, was clearly acceptable to Mr. Adam when he prepared his workpapers prior to the filing of his testimony in this manner, and reasonably reflects the expected net salvage for MGE.

Q. Does this conclude your prepared rebuttal testimony?

A. Yes, it does.

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-2001-292

AFFIDAVIT OF THOMAS J. SULLIVAN

STATE OF MISSOURI)
) ss.
COUNTY OF JACKSON)

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 18th day of May 2001.

LINDA K. MITCHELL NOTARY SEAL NOTARY PUBLIC STATE OF MISSOURI

Linda K. Mitchell
Notary Public

My Commission Expires: June 26, 2002

SCHEDULE TJS-1

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

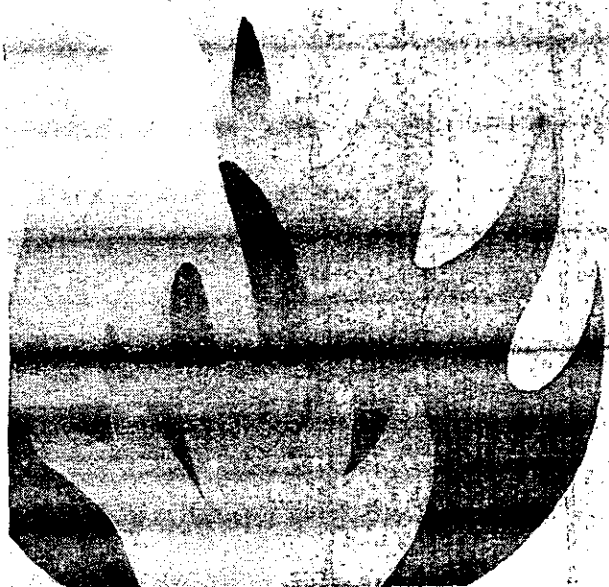
Enclosures

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 Rob:

We are enclosing 12 copies of our final report that summarizes the results of our analysis of the depreciation accrual rates for the gas utility properties of Missouri Gas Energy. If you have any questions or comments, you may call me at (913) 458-3276.

Very truly yours,

BLACK & VEATCH CORPORATION

Kimberly A. Hoffmeister

KAH
Enclosure

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	K N	ONEOK (Western Resources)						Atmos Energy Corp. (United Cities Gas Company)		Missouri Public Service			Estimated		Applied	Mortality		
Account	Service Co.	Energy	Rate	Type of Analysis	Life Basis	Rate	Type of Analysis	Rate			Rate	Type of Analysis	Life Basis	Average Service Life	Net Salvage	Depreciation Rate	Curve Type	Type of Analysis	Life Basis
Description	Indiana	Kansas	Kansas			Oklahoma			Iowa	Missouri	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		2.76	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	3.46	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	6.01		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	5.76										
Total	5.62	3.00	3.26	Actuarial	Whole Life				5.27										
General																			
390	2.76	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]	6.13	Actuarial	Whole Life	7.89	Actuarial	Whole Life			[4]	Actuarial	Whole Life	12.5	12.00	7.04		Actuarial	Whole Life
393	2.35	7.50	3.68	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	5.88	Actuarial	Whole Life	5.59	Actuarial	Whole Life			6.00	Actuarial	Whole Life						
Total	3.95		5.44	Actuarial	Whole Life				4.83										
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												75.00		1.34	S6	52.60	SPB	Remain. Life
375	29.00		9.59	10.90	45.00	(10.00)	3.46	S4	30.89	Actuarial	Whole Life	55.00		1.83	R2	37.40	SPB	Remain. Life
376	42.00	(10.00)	2.35	29.00	40.00	(45.00)	3.46	R4	30.89	Actuarial	Whole Life	50.00	(15.00)	2.22	R3	33.30	SPB	Remain. Life
378	28.00		3.72	21.10	27.00	(5.00)	3.46	R2	30.89	Actuarial	Whole Life	35.00	(10.00)	3.57	R1	24.20	SPB	Remain. Life
379	26.00		3.88	14.40								35.00	(10.00)	2.86	R1	26.00	SPB	Remain. Life
380	26.00	(25.00)	4.85	17.20	38.00	(125.00)	3.46	S2	30.89	Actuarial	Whole Life	43.00	(90.00)	4.69	R4	27.00	SPB	Remain. Life
381	31.00	(40.00)	5.05	20.60	35.00	0.00	3.46	S4	30.89	Actuarial	Whole Life	35.00	10.00	2.94	S2	23.00	SPB	Remain. Life
382					38.00	(30.00)	3.46	R2	30.89	Actuarial	Whole Life							
383	32.00		3.34	23.20	29.00	0.00	3.46	S3	30.89	Actuarial	Whole Life	35.00		2.72	S2	22.20	SPB	Remain. Life
384					29.00	15.00	3.46	S4	30.89	Actuarial	Whole Life							
385	16.00		6.50	7.20	30.00	30.00	3.46	R2	30.89	Actuarial	Whole Life	25.00	5.00	4.24	S0	19.00	SPB	Remain. Life
386	35.00		0.00	10.90														
387	25.00		0.00	1.60	12.00	(20.00)	3.46	R1	30.89	Actuarial	Whole Life							
Total			3.61				3.46							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 9.6%, 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]	[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	(21.66)	1.96	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)	4.16	R3	26.03	SPB	Remain. Life					44.15	(21.56)	4.67	39	(66)	5.20
381	42.00	(54.21)	3.66	R2	29.17	SPB	Remain. Life					35.00	1.00	2.86	37	(14)	3.00
382	42.00	(54.21)	3.66	R2	29.17	SPB	Remain. Life								40	(42)	4.86
383	50.00	(54.21)	3.08	R0.5	41.57	SPB	Remain. Life					41.00	0.00	2.44	42	(14)	3.36
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					28.00	(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	18.00	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	3.36	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	8.50	SPB	Remain. Life					12.00	5.05	8.95	13	21	5.88
397	16.00	16.80	4.26	S0	14.35	SPB	Remain. Life					16.00	0.00	3.73	20	6	4.76
398	30.00	16.80	2.49	L1	28.08	SPB	Remain. Life					26.00	3.00	3.45	22	10	6.12
Total			3.72					19.00	8.08	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 5.26%.

[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%.

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	11.25%	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) 3.33%		(2)	(4) 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%

SCHEDULE TJS-2

Missouri Public Service Commission

POST OFFICE BOX 360
JEFFERSON CITY, MISSOURI 65102
573-751-3234
573-751-1847 (Fax Number)
http://www.psc.state.mo.us

April 23, 2001

Mr. Gary Duffy
Brydon, Swearengen and England
312 East Capitol Avenue
Jefferson City, MO 65101

RE: Missouri Gas Energy, Case No. GR-2001-292

Dear Mr. Duffy:

Enclosed are work papers for Paul Adam of the Commission's Engineering and Management Services Department. This attachment should conclude all outstanding copies of work papers that were initially provided at the time of Staff's Direct Filing.

If you have any questions, please contact Tim Schwarz at (573) 751-5239 or Steve Traxler at (816) 325-0100. Thank you.

Kindest regards,

Toni Charlton

Attachment

C: Tim Schwarz
Steve Traxler

9-8-99
MGE QUESTIONS

DID SERVICES REPLACEMENT PROGRAM START ABOUT 1990 ?	YES
LAST COLUMN OF SALVAGE SHEETS FROM TOM "5 YEAR AVERAGE" INCLUDES ONLY 4½ YEARS; YET IS DIVIDED BY 5.	TOLD CHARLIE
REFRESH MY MEMORY - METERS & REGULATOR INSTALLATIONS - DID WE DISCUSS MERGING THESE ACCOUNT INTO 3810 METERS & 3830 REGULATORS?	NOT MGE They have kept installations separate forever

Staff proposes that a historical record be established, starting immediately, of Reserve Ratios. These Reserve Ratios should be used to follow the adequacy of the depreciation accrual to recover 1) the cost of plant over a used and useful life and 2) the net salvage. Trends of the Reserve Ratios, for each account, can be used to determine if depreciation rates are too high or too low. This would be done until historical life data are adequate to calculate (compute) a theoretical reserve.

MISSOURI GAS ENERGY
3420 Broadway • Kansas City, MO • 64111-2404 • (816) 360-5605

CHARLES B. HERNANDEZ
DIRECTOR, PRICING AND REGULATORY AFFAIRS

August 3, 1999

Mr. Paul Adam, P.E.
Missouri Public Service Commission
301 West High Street
P. O. Box 360
Jefferson City, Missouri 65102-0360

Dear Paul:

As a follow up to your on-site review of MGE's preliminary depreciation study on July 26 & 27, 1999, provided is the following:

- Detailed summary of the service lines categorized by steel (protected and unprotected) and plastic, by location. MGE engineering has summarized the attached sheet from a 200 page premise data system report, which is available for your review. The reports provided to you on-site, did not contain all the field inquiries and should be discarded.
- A/C 395 – Lab equipment $58,441. Upon the sale of the MGE property by Western Resources, certain Lab equipment was retained by Western via a 'buy-back" arrangement and removed from MGE's books. As MGE does not have a lab, the amounts in this account will be retired.
- The personnel whom you met with were:

Jim Oglesby	VP, Field Operations	816-360-5510
Jim Gorman	Superintendent, Central Operations	816-472-3431
Richard Bosley	Supervr. Pressure & Measurement Central	
Ralph Janes	Superintendent, Lees Summit Operations	816-969-2253
Tom Sullivan	Black & Veatch	913-458-3645

If I can be of further assistance, please call me.

Sincerely,

Charley

Enclosure

C: Doug Micheel
Tom Sullivan
Rob Hack

MGE - STRUCTURES (3751)

TOM SULLIVAN'S ASL - 50 YRS.
LACLEDE'S ASL - 60.5 YRS

LAST 15 YEARS - AVERAGE NET SALVAGE - # 1,~~207~~

12-31-98 PLANT BALANCE - # 5,738,444

$$DR_{WL}\ (\text{SULLIVAN}) = \frac{1}{50} - \frac{1,\cancel{207}}{5,738,444}$$

$$= .02 - .0002$$

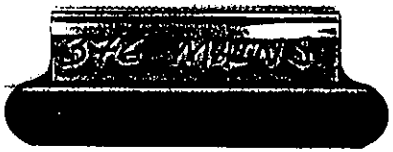
$$= .02 \text{ or } 2\%$$

$$DR_{WL}\ (\text{LACLEDE ASL}) = \frac{1}{60.5} - \frac{1,\cancel{207}}{5,738,444}$$

$$= .0165 - .0002$$

$$= .016 \text{ or } 1.6\%$$

The Staff proposes the depreciation rate of 1.6%. The ASL of 60.5 years is established in the state of Missouri from historical data on a pipeline owned by a gas service company.



MGE - MAINS (376)

TOM SULLIVAN'S ASL - 40 YRS
LACLEDE'S ASL (RATTORED) - 71 YRS

LAST 5 YEARS - AVERAGE NET SALVAGE - $606,924
LAST 10 YEARS - AVERAGE NET SALVAGE - $379,020

12-31-98 PLANT BALANCE - $242,567,793

DR_{WC} (SULLIVAN) $= \frac{1}{40} - \frac{606,924}{242,567,793}$

$= .0225$

$= 2.3\%$

DR_{WC} (LACLEDE ASL) $= \frac{1}{71} - \frac{606,924}{242,567,793}$

$= .014 - .0025$

$= .012$ OR 1.2%

The Staff proposes the depreciation rate of .012 (1.2%) for this account. The ASL of 71 years is established in the state of Missouri from historical data submitted to Staff by Laclede. MGE's historical data is not adequate to make a life determination.

MGE

FERC Acct 3760 as of Dec 31, 1998:

			Gate Valves		Total
Bare Steel	$	10,784,950.40		$	10,784,950.40
Coated Steel	$	112,918,052.49	51,930.98	$	112,969,983.47
Cast Iron	$	4,630,708.69		$	4,630,708.69
Copper	$	12,442.35		$	12,442.35
[redacted]	$	91,341,584.24	5,184.33	$	[redacted]
sub-total	$	219,687,738.17	57,115.31	$	219,744,853.48
Rectifier	$	869,810.24		$	869,810.24
Cathodic Protection	$	13,990,891.92		$	13,990,891.92
Encapsulation	$	3,268,501.47		$	3,268,501.47
Bell Joint Clamps	$	4,635,932.26		$	4,635,932.26
Vaults/Pits/Barricades	$	57,803.50		$	57,803.50
grand total	$	242,452,874.06	$ 57,115.31	$	242,567,792.87

FOR RATIO CALCULATIONS

LACLEDE ASL / YR

BARE STEEL = 24,775,842.32

COATED STEEL = 112,969,983.47

TOTAL STEEL → #137,745,825.70 — 59% — 83

CAST IRON → 4,630,708.69 — 2% — 80

PLASTIC → 91,346,768.57 — 39% — 53

TOTAL #233,723,302.90

Calculation of ASL using Lacledes ASLs

59% * 83 YRS + 2% * 80 YRS + 39% * 53 YRS =

48.97 YRS + 1.6 YRS + 20.67 YRS = 71.24 YRS

MGE - MAINS (376)

Tom Sullivan's ASL – 40 YRS

Lacledes ASL - Steel - 83 YRS
C.I. - 80 YRS
Plastic - 53 YRS

Lacledes 9-30-98 Plant Balances

Steel - 182,120,496
C.I - 15,156,174
Plastic - 118,605,091

weighted average 71.6

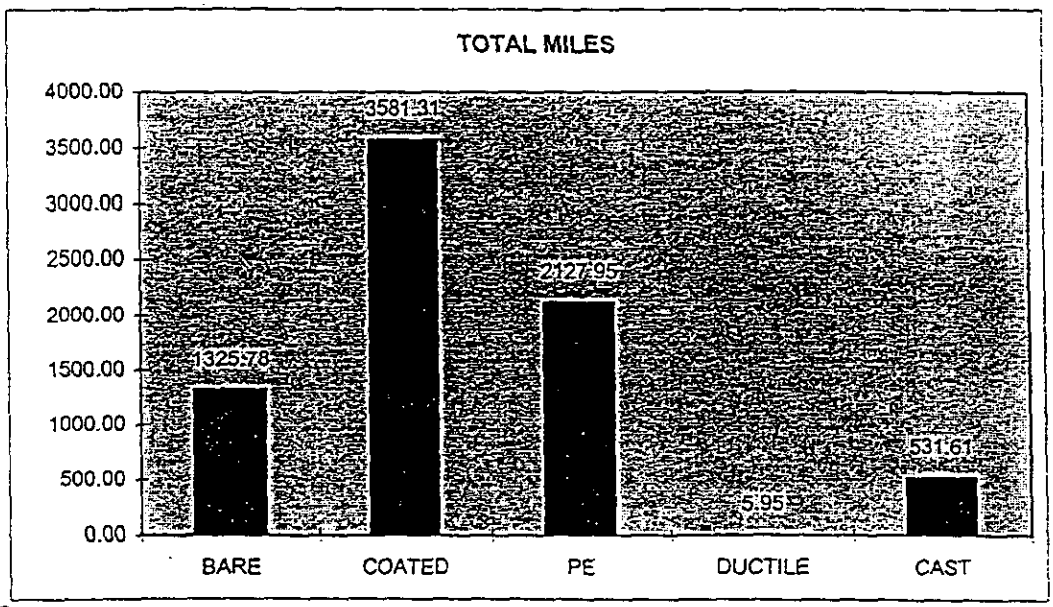
MGE's 12-31-98 Plant Balances

Operating Activities Report

MAINS

OAR ROLLUP FOR - APRIL, 1999

	INVENTORY OF MAIN (IN MILES) ACCORDING TO LOCAL RECORDS					
	STEEL		Plastic	IRON		TOTAL
	BARE	COATED	PE	DUCTILE	CAST	MILES
K.C. EAST	518.29	1142.85	780.18	0.00	4.40	2445.72
ST. JOSEPH	99.73	190.70	129.67	0.00	17.11	437.22
K.C. CENTRAL	408.76	1352.99	688.23	0.00	510.09	2960.07
JOPLIN	173.36	321.15	260.23	5.95	0.00	760.69
MONETT	125.63	573.62	269.64	0.00	0.00	968.89
Totals	1325.78	3581.31	2127.95	5.95	531.61	7572.59



9-20-99

Need breakout of mains by type by dollars of plant

PWA

MGE (MAINS)

Concerning the replacement programs, — the plant removed may or may not have had lives that are shorter than similar plant, that we have historical life data on, at Laclede. The plant remaining in service (i.e. bare & coated steel) can be expected to have an average service life (ASL) similar to the Laclede plant. This is the plant that we need a depreciation rate for, not the plant that has been removed. This plant remaining in service can be expected to have an ASL nearly the same as the equal type of plant in Laclede's accounts

MAINS -376

The positive net salvage allowance for Account 376 – Mains deserves some additional explanation. MGE's historical practice with regard to reimbursements for line relocations has been to credit (increase) reserve for the amount of reimbursements. Another method would be to credit (decrease) depreciable plant for the amount of the reimbursement. Both methods have the effect of reducing net plant; however, there is a significant difference in depreciable plant and the appropriate depreciation rate between the two approaches. 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 rate being applied to a lower plant in service. Table 4 contains an example showing 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 $500,000 per year. In other words, if MGE had been crediting plant in service for reimbursements, the net salvage allowance would be a negative $250,000 per year rather than a positive $250,000 per year. This would produce a higher depreciation rate applied to a smaller depreciable plant. This distinction is especially important when comparing MGE's depreciation rate for Account 376 with other companies. If another company is crediting reimbursements to plant or is using some other approach, their depreciation rate may not be an appropriate comparison to MGE.

Discuss with Charlie & Tom. do the datafile that is being developed to compute ASL from having the 'reimbursed' plant removed so a this short lived plant will not effect (ASL) life?

MGE – Measuring & Regulating Stations (3780)

Tom Sullivan's ASL – 30 Yrs

Laclede's ASL – 35 Yrs

Last 5 Years – Average Net Salvage – <$7,481.00>

12-31-98 Plant Balance – $10,163,614.00

$$DR_{W\&L}\ (\text{Sullivan}) = \frac{1}{30} - \frac{<7,481>}{10,163,614}$$

$$= .0333 - .0007$$

$$= .034 \text{ or } 3.4\%$$

$$DR_{W\&L}\ (\text{Laclede}) = \frac{1}{35} - \frac{<7,481>}{10,163,614}$$

$$= .0286 - .0007$$

$$= .029 \text{ or } 2.9\%$$

Staff proposes the rate of .029 for this accou
The ASL of 35 years is established
in the state of Missouri from historical
data submitted to Staff by Laclede.
MGE's historical data is not
adequate to make a life determinati

MGE – City Gate Stations (3790)

Tom Sullivan's ASL – 40 YRS
Laclede's ASL – 47 YRS

Last 15 Years - Average Net Salvage - #1,185

12-31-98 Plant Balance – #2,686,494

DR_{WL} (Sullivan) = $\frac{1}{40} - \frac{1,185}{2,686,494}$

= .025 – .00044

= .025 or 2.5%

DR_{WL} (Laclede) = $\frac{1}{47} - \frac{1,185}{2,686,494}$

= .02127 – .00044

= .021 or 2.1%

The Staff proposes the rate of .021 for this account. The ASL of 47 years is established in the state of Missouri from historical data submitted to Staff by Laclede. MGE's historical data is not adequate to make a life determination.

MGE - Services (3800)

Tom Sullivan's ASL - 30 Yrs.
Lachede's ASL - 44 Yrs.

Last 5 Years - Average Net Salvage - <$765,047>

12-31-98 Plant Balance - $223,017,129

DR_{WC} (Sullivan) = $\frac{1}{30} - \frac{<765,047>}{223,017,129}$

= .0333 - <.0034>

= .037 or 3.7%

DR_{WL} (Lacledе ASL) = $\frac{1}{44} - \frac{<765,047>}{223,017,129}$

= .023 - <.0034>

= .026 or 2.6%

Staff proposes the rate of .026 for this account. The ASL of 44 years is established in the state of Missouri from historical data submitted to Staff by Lachede MGE's historical data is not adequate to make a life determination.

MGE

SERVICE LINES							
DIV NO.#	DIVISION NAME	STEEL NOT PROTECTED	STEEL PROTECTED	PLASTIC	PV	COPPER	TOTAL
02	Independence	3,534	1,287	42,315	0	0	47,136
03	Warrensburg	3,419	82	16,590	0	0	20,091
09	Lees Summit	6,035	1,930	77,088			85,053
	EAST REGION	12,988	3,299	135,993	0	0	152,280
04	Kansas City	27,327	7,451	74,698	202	659	110,337
12	North Kansas City	14,323	6,460	59,596	44	16	80,439
	CENTRAL REGION	41,650	13,911	134,294	246	675	190,776
05	Joplin	2,064	82	26,056	0	0	28,202
06	Carthage	2,511	158	10,485			13,154
08	Monett	5,743	648	28,603			34,994
	SOUTHERN REGION	10,318	888	65,144	0	0	76,350
10	ST JOSEPH	1,582	420	27,118	0	0	29,120
	MGE	66,538	18,518	362,549	246	675	448,526
Source: PDO1SVR							

↓

Premise Data System

66538
18,518
#85,056 Steel 19% + # 362,549 Plastic 81% = # 447,605 TOTAL

.19 * .85 + .81 * .36 = .45

Steel: .19 * .85 — Lacledes Reserve Ratio

Plastic: .81 * .36 — Lacledes Reserve Ratio

where MGE's reserve ratio should be when ratioed to Lacledes

7/27/99

F:/E

MISSOURI GAS ENERGY
3420 Broadway • Kansas City, MO • 64111-2404 • (816) 360-5605

CHARLES B. HERNANDEZ
DIRECTOR, PRICING AND REGULATORY AFFAIRS

August 3, 1999

Account 395 – LAB. Eq
Will be zeroed out
There actually is none.

Mr. Paul Adam, P.E.
Missouri Public Service Commission
301 West High Street
P. O. Box 360
Jefferson City, Missouri 65102-0360

Dear Paul:

As a follow up to your on-site review of MGE's preliminary depreciation study on July 26 & 27, 1999, provided is the following:

- Detailed summary of the service lines categorized by steel (protected and unprotected) and plastic, by location. MGE engineering has summarized the attached sheet from a 200 page premise data system report, which is available for your review. The reports provided to you on-site, did not contain all the field inquiries and should be discarded.
- A/C 395 – Lab equipment $58,441. Upon the sale of the MGE property by Western Resources, certain Lab equipment was retained by Western via a 'buy-back" arrangement and removed from MGE's books. As MGE does not have a lab, the amounts in this account will be retired.
- The personnel whom you met with were:

Jim Oglesby	VP, Field Operations	816-360-5510
Jim Gorman	Superintendent, Central Operations	816-472-3431
Richard Bosley	Supervr. Pressure & Measurement Central	
Ralph Janes	Superintendent, Lees Summit Operations	816-969-2253
Tom Sullivan	Black & Veatch	913-458-3645

If I can be of further assistance, please call me.

Sincerely,

Charley

Enclosure

C: Doug Micheel
Tom Sullivan
Rob Hack

Post-it™ Fax Note 7671	Date 8/4	# of pages ▶ 2
To Paul Adam	From Charley Hernandez	
Co./Dept. MoPSC-Engineering	Co. MGE	
Phone # 573-751-1847	Phone # 816-360-5605	
Fax #	Fax #	

SERVICE LINES							
DIV NO.#	DIVISION NAME	STEEL NOT PROTECTED	STEEL PROTECTED	PLASTIC	PV	COPPER	TOTAL
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09	Lees Summit	6,035	1,930	77,088			85,053
	EAST REGION	**12,988**	**3,299**	**135,993**	**0**	**0**	**152,280**
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	SOUTHERN REGION	**10,318**	**888**	**65,144**	**0**	**0**	**76,350**
10	**ST JOSEPH**	**1,582**	**420**	**27,118**	**0**	**0**	**29,120**
	MGE	**66,538**	**18,518**	**362,549**	**246**	**675**	**448,526**
Source: PDO1SVR							

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Premise Data System

SERVICES

8-6-99

SAC - MGE

ASh = 30 YRS

DR = 3.56

$.0356 = \frac{1.00 - X}{30}$

$1.068 = 1 - X$

$.068 = -X$

$-.068 = X$

$<6.8> = X$

LACHEDE

STEEL ASh = 45 R0.5

NETSAC = <60>

DR = 3.55%

PL & CU ASh = 44 R2.5

NETSAC = <15>

DR = 2.61%

TOTAL SERVICES = 448,526

PL = 362,549 81.

STL = 85,056 19.

OTHER = 920

ASh ≅ 44 YRS

RESERVE RATIOS

	LACLEDE	MGE
MAINS	STEEL = .63 / CI = .42 / PL = .19	.30
SERVICES	% PLT. BALANCE 28% / STEEL = .85 / PL & CU = .36 (72%)	.37
R. PLANT	.21	.07
		INSTALLATIONS = .13

381 METERS--
382 INSTALLATION

MGE - METERS (381)
METER INSTALLATIONS (382)

NOTE: LACLEDE AND MGE BOOK METER & REGULATOR accounts differently. Laclede has no account 382, installations, rather they book labor to install in the METER account. MGE uses account 382 and it has a larger plant balance than Meters, 381, as Regulators, 383.

The ratio of plant balance between Meters and Regulators for Laclede is Meters 88%, and Regulators 12%.

When MGE's accounts 381 and 382, Meters and Meter & Regulator Installations are merged and ratioed to account 383, Regulators, MGE has the same 88% METERS, 12, Regulators ratio as Laclede.

Tom Sullivan's proposed ASLs for 381 and 382 are 35 years. This is identical to the ASL computed for Meters from Laclede's data.

MGE - METERS (381)
METERS & REG. INSTALLATIONS (382)

TOM SULLIVAN'S ASL – 35 YRS (BOTH ACCOUNTS)
LACLEDE'S ASL – 35 YRS (381)

LAST 5 YEARS – AVERAGE NET SALVAGE –
ACCOUNT 381 – $1282
ACCOUNT 382 – $<16,906>

12-31-98 PLANT BALANCE –
ACCOUNT 381 – $25,113,112
ACCOUNT 382 – $42,168,249

DR_{WL} (SULLIVAN & LACLEDE) = $\frac{1}{35} - \frac{1,282}{25,113,112}$
ACCOUNT 381

$= .029 - .00005$

$= .029$ or 2.9%

DR_{WL} (SULLIVAN & LACLEDE) = $\frac{1}{35} - \frac{<16,906>}{42,168,249}$
ACCOUNT 382

$= .029 - <.0004>$

$= .029$ OR 2.9%

Staff proposes a depreciation rate of 2.9% for both accounts 381 (METERS) and 382 (INSTALLATIONS)

MGE - Regulators (383)

Tom Sullivan's ASL - 40 yrs
Laclede's ASL - 41 yrs

Last 5 Years - Average Net Salvage - #62

12-31-98 Plant Balance - #9,219,139

DR_{WL} (Laclede) $= \frac{1}{41} - \frac{\#62}{9,219,139}$

$= .024 - 6.7^{-6}$

$= .024$ or 2.4%

Staff proposes a depreciation rate of 2.4% for account 383, (Regulators).