*Exhibit No.:*
*Issue:* *Depreciation*
*Witness:* *PAUL W. ADAM*
*Sponsoring Party:* *MoPSC Staff*
*Type of Exhibit:* *Direct Testimony*
*Case No.:* *GR-99-315*

# MISSOURI PUBLIC SERVICE COMMISSION

## UTILITY SERVICES DIVISION

## DIRECT TESTIMONY

## OF

## PAUL W. ADAM



## LACLEDE GAS COMPANY

## CASE NO. GR-99-315

*Jefferson City, Missouri*
*June, 1999*

**DIRECT TESTIMONY**

**OF**

**PAUL W. ADAM**

**LACLEDE GAS COMPANY**

**CASE NO. GR-99-315**

Q. Please state your name and business address.

A. Paul W. Adam, P.O. Box 360, Jefferson City, MO 65102.

Q. By whom are you employed and in what capacity?

A. I am employed by the Missouri Public Service Commission (MoPSC or Commission) as an Engineer IV in the Depreciation Department.

Q. What are your duties as an engineer in the Depreciation Department?

A. I am responsible for depreciation calculations and studies of companies regulated by the Commission.

Q. Would you please state briefly your qualifications, educational background and experience?

A. I am a Registered Professional Engineer in Missouri and Colorado. In 1967, I received a Bachelor of Science degree in Chemical Engineering from the University of Missouri-Columbia. I served in the U.S. Army after graduating and subsequently was employed in the oil industry from 1969 until 1991 as an engineer in various capacities. With the exception of a brief period from 1971 to 1974 when I completed a Masters Degree in Business Administration at the University of Missouri and also built single family homes.

From 1991 to 1993 I managed a concrete products plant in northwest Missouri. In 1994 I accepted my current position.

Q. Have you ever testified before the Commission?

A. Yes.

Q. Please state the purpose of your testimony in this case.

A. The purpose of my testimony in this case is to present the Public Service Commission Staff's (Staff's) position on Laclede Gas Company's (Company's) depreciation rates.

Q. What did you determine from the data submitted by the Company and your visits to plant sites?

A. I have calculated, from the data submitted and my visits to plant sites, that the annual accrual should be $21,054,647.00. This is calculated using the depreciation rates ordered in Case No. GR-98-374 and the September 30, 1998 plant balance values for each account.

Q. Is this a change of rates from those agreed to and ordered in case GR-98-374?

A. Yes. The rates are the rates stipulated to by the Company and Staff in case GR-98-374 with one exception, Gas Holders. Otherwise, these are the currently ordered rates. The change in accrual dollars is due to changes in plant accounts' balances and the change to a zero depreciation rate for final demolation and remediation of the Gas Holders.

Q. Why are you proposing these rates for this case?

A. It is only one year since GR-98-374 was stipulated and no plant based changes have occurred. Therefore, except for Gas Holders, the rates proposed and

ordered last year in Case No. GR-98-374 should be continued. Since Case No. GR-98-374 was a stipulated case and because the stipulation did not explain the justification for the changes that were made in that case, the balance of my testimony will address the reasons for the changes that were made to the depreciation rates in Case GR-98-374. These depreciation rates should be continued for the current case, No. GR-99-315, with one exception, Gas Holders, because there are no changes to the accounts that would justify new depreciation rates.

Q. Did you calculate a theoretical reserve balance and compare it to the accrual balance?

A. Yes, last year I computed a theoretical reserve balance of $216,642,435.00 this is nearly $100,000,000.00 lower than the accrual balance of $315,858,986.00. This year I computed a theoretical reserve balance on another basis. This new basis calculated an over recovery of about $26.5 Million. I will discuss the change later under the heading Theoretical Reserve.

Q. Were new data files submitted for depreciation analysis in this case?

A. No. The data submitted for case GR-98-374 is used for this case. My future answers relate to the files submitted for GR-98-374.

## TIMING OF DATA

Q. Are your calculations all based on current data?

A. No. In this case the data submitted by the Company is a mix of time periods. For example, the Company submitted accrued reserve balances as of 9-30-97. The actuarial data files for mains, services, meters and house regulator accounts, known as the First Component in Case GO-97-79, were submitted as of 9-30-96. All other accounts, known as the Second Component in Case GO-97-79, the majority of the

accounts, were submitted as of 9-30-94. Also, the salvage data was presented as a separate 15 year historical file of experience only data as of 9-30-96.

Q. Does using data ending in different time periods present possible problems in depreciation calculations?

A. Yes. The computation of life and net salvage values should include the most current data, recent years, which frequently are the largest vintage balances of all vintage balances in the large mass property accounts. The calculations of life and salvage requires historical data to search for trends and anomalies but should have the most current data included to determine if recent events have an affect upon the determination of a reasonable depreciation rate.

Q. Why was the data submitted with a mixture of ending dates?

A. Case GO-97-79 allows for this situation to occur during what may be called a transition period. We are in that period and, although the Company could have chosen to put the data they used to calculate the accrued reserve balance as of 9-30-98 into the actuarial data files and the net salvage data, the Company is not required to have all files for all accounts current until after December 1, 1999.

Q. Why was there a transition period agreed to in GO-97-79?

A. The transition period allows the Company to internally develop new system capabilities that will allow the Company to maintain and submit First Component files from 1964 to current and Second Component files from 1982 to current for future cases that include depreciation as an issue.

Q. To recap, it is your understanding that in any case after 12-1-1999 the actuarial data files, accrual balances and net salvage data will all be submitted using a single current date?

A. Yes.

## QUALITY OF DATA

Q. Was the data submitted in good order?

A. The First Component data files could be computed without problems, but the Second Component files had positive retirements in many of the accounts. These positive retirements on occasion calculated a net positive retirement for a specific vintage in a specific experience year. The result was a negative retirement ratio that stopped the program from computing average service life (ASL).

Q. What caused these positive retirements?

A. The Company explained that their accountants did not have a code to correct a retirement that had been booked incorrectly in any previous year. Therefore, the accountants used a positive retirement in a subsequent year to "unretire" the plant that was incorrectly retired, in a previous year.

Q. How was this handled?

A. With the help of the Company and their agreement, I netted excess positive retirements against one or more previous transaction year's normal retirement entries.

Q. Are you satisfied that the data is now correct?

A. No. Although most of these corrections were small relative to the account's total value, I would prefer that the Company's accountants determine the corrections to be made. Once these historical files are correct they will not need to be revisited.

Q. Do you believe the Company will do this?

A. It is my understanding that the Company is to obtain a sophisticated depreciation evaluation system to replace the one they are currently using. I believe the Company will have the same negative retirement ratio problems that I had and will have to correct the "unretirements" to execute their new software. This should occur before 12-1-1999 and would be a part of the conclusion of GO-97-79.

Q. To recap, you believe the First Component and in particular Second Component historical data files will have the "unretirements" and any other coding problems corrected prior to 12-1-1999, is that correct?

A. Yes.

## COMPUTED RESULTS

Q. Are there specific situations that became apparent during your study of the data that form a basis for some of your changes to the annual accrual?

A. Yes. There are some. First, with the Second Component accounts, we are working with a 10 year experience band, 1985 to 1994. We do not have a long history of events to compute a broad range average service life and to then compute a series of bands rolling forward in time to check for average service life trends. In most cases each of these bands would need to be 10 experience years. With the expansion of the data files on or before 12-1-1999, it will still be years into the future before this type of study can be done.

Second, in many accounts, the net salvage data is at a retirement rate far different than the average service life computed from the historical data files. This leads to a miscalculation of the net salvage component of the depreciation rate relative to the currently observed net salvage amounts.

Q. What happens when you calculate depreciation rates using the average service life from one file and net salvage from another?

A. We must observe the conditions and events first. The majority of depreciation rates are calculated using a very simple two-part formula.

$$\textbf{Depreciation Rate} = \frac{\textbf{100\% - Net Salvage}}{\textbf{ASL}}$$

The above formula, recovers the original plant cost and salvage due the company. The first part of the equation, (100% ÷ ASL), recovers the original plant cost. The second part of the equation, ( - Net Salvage % ÷ ASL), recovers the net salvage. Final salvage is considered to be unmeasurable and unknown except in specific cases. The formula is developed on the assumptions that all of the plant will be retired and that the calculated rate will apply to the plant over its full life. This, in fact, does not occur. What does occur is: The Company and Staff present proposals for adjustment of depreciation rates, as rate cases are submitted by the Company. Rate cases are submitted as frequently as Companies desire. Because of this frequency, the net salvage component of the Depreciation Rate equation should recover the current actual net salvage amounts, not an average over the total life of the current plant. (An example calculation is shown in Schedule 3.)

Q. Did you find this to be the case with some of the data presented?

A. No. In some accounts the interim retirements based on the net salvage data had retirement rates, during the most recent years, that were multiples of the average service life.

Q. How would this affect the net salvage portion of the depreciation rate and net salvage accrual?

A. For many accounts, the cost of removal far exceeds the gross salvage. Therefore, net salvage is negative and represents dollars that the company should collect from the customer in addition to the recovery of the original plant's cost. However, in these situations the accrual calculated by the Depreciation Rate formula is larger, frequently much larger, than the actual dollars being spent by the Company. Therefore, prior to the GR-98-324 case, the Company was collecting more from their customers than the actual cost of the current negative net salvage. Rates were changed in case GR-98-324 to give the Company the current dollars being spent for net salvage, not more.

The customer should be paying only the current negative net salvage of interim retirements because, as salvage events change, adjustments will be ordered by the Commission in future rate cases.

Q. Can you draw any conclusions from this situation?

A. It appears to me, that the net salvage part of the depreciation rate formula has not historically been adjusted to charge the customer the current net salvage cost. Since most accounts have a negative net salvage this condition has led to an annual over recovery which has been building in the accrual balance.

Q. Can other conclusions be reached by observing the net salvage data?

A. Another conclusion could be that the computed average service life is wrong. In those cases where the retirement rate in the net salvage data is much slower than the average service life implies, it is possible that the survivor curve has been misanalyzed and the average service life understated.

Q. What problems could arise if the average service life has been understated in the past?

A. An understated average service life would cause the customer to be paying an accrual for recovery of the original plant's cost at a rate higher than necessary for the 100% recovery of the plant on the date the plant is retired. This situation, left unchecked, would result in more than 100% recovery of plant cost because the computed depreciation rate for this part of the formula would be too large. Each year the customer would pay an accrual expecting the plant to retire on some specific date and that amount would be removed from the plant balance. Since the plant would not be retired on the expected date the customer would continue to pay the accrual until the plant was retired and removed from the plant balance, thus leading to over recovery. This too is a potential source of the large excess of accrued reserves over the theoretical reserve calculation.

Q. Is the over accrual due to an overstatement of a negative net salvage or an understatement of ASL or both?

A. We do not know and do not have the ability to compute that answer. We simply must do our best to correct the observed situation over a reasonable time frame in the future.

## THEORETICAL RESERVE

Q. You stated earlier that, last year you calculated a depreciation accrual over recovery of nearly $100,000,000.00. Is this your position now?

A. Yes, but I have analyzed the five largest accounts, that represent 85% of the Company's plant (Steel Mains, Plastic Mains, Plastic & Copper Services, Meters and Steel Services), from a different point of view. This point of view ignores the adjustment needed to the classical whole life depreciation rate formula. The adjustment assures that the Company will recover the currently needed negative net salvage dollars from their customers.

Q. What was the result of this new analysis?

A. The new analysis calculated that the Company's depreciation accrual balance is over recovered by $26,575,903.00. This is about 1.2 years of annual accrual equivalent (Annual Accrual = $20,847,193). This is shown, by account, in my Schedule 2.

Q. What do you propose should be done concerning the depreciation accrual over recovery under either calculation?

A. I propose no change until the current rates have been in effect for several years. This 4 to 6 year period will allow us to observe if the accrual balances continue to over recover, reverse trend or stay constant. Also, in future cases the data submitted by the Company must be current data and this, too, will allow Staff engineers to make calculations that will better reflect the Company's activities.

**GAS HOLDERS**

Q. You previously stated that the depreciation rate for Gas Holders should be set to zero. What is your concern about this account?

A. I am concerned that we are setting aside final retirement dollars for the four Gas Holders without a commitment by the Company to remove the Gas Holders within 10 years from 1996.

Q. Why is, "...10 years from 1996." important?

A. In 1996 the Company engineers told the Staff engineers that the Company needed to accrue more dollars thru depreciation because of the high cost of removal and remediation of the four Gas Holders. The Company engineers stated that within 10 years the four Gas Holders would be removed. Staff engineers accepted this timing as the period, within which, the four Gas Holders would be remove from service.

Q. Do you currently have a concern that the Company may not meet the previously stated timing for removal of the Gas Holders?

A. Yes. Last year, in Case No. GR-98-374, the Company submitted a proposal to increase the depreciation rate on Gas Holders by about 2 ½ times the current rate. Included in the Company's calculations was the number of years to recover the final salvage. The Company used 10 years, indicating 10 years from 1998. Now, in Case No. GR-99-315 another proposal to increase the depreciation rate on Gas Holders, again by about 2 ½ times, has been made. The Company used 10 years in their calculations again, indicating 10 years from 1999.

It is my concern that the Company is building an accrual balance for final retirement without a commitment to retire the four Gas Holders by 2006 (i.e. 10 years from 1996).

Q. Why do you address this final retirement as separate and different from interim retirement?

A. Final retirements have been determined to be unmeasurable by the Commission. The timing is also unpredictable. For example, when various Missouri regulated, coal fired power plants were built; these plants were expected to retire after 40 years. Currently, Missouri has coal fired power plants over 40 years old. There is no plan to retire any coal fired power plants at 40 years of age. These plants are remaining in rate base well beyond 40 years and the regulated power companies are earning a return on the cost of these plants. If a large final retirement fund had been collected by the power companies there would be no assurance that the companies would have the money available when the plants do finally retire.

This same type of concern exists with the four Gas Holders. The Company has an accrual balance of approximately $2,000,000.00 for final retirement. The Company wants to collect another $2,800,000.00 over the next 10 years to have a total final retirement accrual balance of nearly $4.8 million.

I, now, do not believe the Company is committed to removing the four Gas Holders from service by 2006 and that depreciation for final retirement should be stopped until a verifyable commitment is made for a removal date.

Q. Is this the only area of concern that you have related to the four Gas Holders?

A. No. The Company's last Gas Holder to be removed was several years ago. At that time the cost of removal was $1.00 per Gas Holder because the Gas Holders were demolished for the scrap value of their steel and because environmental concerns were negligible. Today, the cost has grown to about $1,000,000.00 per Gas Holder. The Company has been observing the cost of removal grow each year due to environmental remediation. During this period, none of the four Gas Holders have been removed from service.

It is my belief that the removal cost of the four Gas Holders will continue to grow because, as time goes by, more and more items are added to the list of things that must be environmentally addressed when major projects, such as Gas Holders demolition, are undertaken.

Q. With this in mind, do you believe the customers or the stockholders should bear the cost of final removal of the four Gas Holders?

A. I believe the Company's management didn't recognize the cost that environmentalism would bring to the Gas Holders' demolition. From this perspective I

believe the customers should pay for at least a portion of the removal. On-the-other hand, during the five years that I have been exposed to the Gas Holder removal issue, the Company's engineers have repeatedly stated that the four Gas Holders are not needed in their system. In the past, per the Company's engineers, a high level employee was influential in keeping the last four Gas Holders in service but this employee is no longer employed by the Company.

I am unaware of a commitment, by the Company, to remove the four Gas Holders from service by 2006. The delays in removal have already seen air monitoring added to the environmental cost of removal. These additional costs can be expected to increase, not decrease. Because it has been, and is, the Company management's decision to keep the four Gas Holders in their system, even though they are not needed, the cost of removal should be borne by the stockholders, at least in part.

Q. What is your conclusion to this dilemma?

A. I believe that a portion of the cost should be borne by the customers and a portion should be borne by the stockholders.

Q. How would you divide the cost between the customers and the stockholders?

A. The estimated cost of removal before the air monitoring was added was $3,732,100.00 I propose the customers pay this amount. Also, I propose no inflation to this figure because the stockholders' management is apparently delaying the removal of the four Gas Holders. The air monitoring and any future additional cost plus inflation on all cost should be borne by the stockholders.

Q. The customers' share of the cost, $3,732,100.00, is about $1,800,000.00 greater than the current accrual balance for final removal of the four Gas Holders. How and when do you propose this be collected from the customers?

A. At a future date, when the Company can verify removal of the four Gas Holders is imminent, an amortization will be activated to allow the Company to collect a total of $3,732,100.00 from customers to be used toward the removal if the four Gas Holders. Until such verification is available to the Staff engineers, the annual depreciation accrual for Gas Holders should be zero dollars.

**PROPOSAL**

Q. Now that you have discussed situations that relate to the timing of the data, the quality of the data, the terms of GO-97-79, and possible past errors in evaluating average service life and net salvage rate, what do you propose as a solution?

A. First, I believe that the data files, even though not current to 9-30-97, are computing average service lives that are reasonably accurate for application now and can be adjusted in a rate case after 12-1-1999 with then current data. Also, I believe the salvage data presented to be accurate and that the current depreciation rates should be adjusted to include a net salvage portion of the depreciation rate that, when multiplied by plant balance, gives an annual accrual consistent with the current interim net salvage amounts experienced by the Company. Therefore, I propose no change to the currently ordered depreciation rates for each account given in my attached Schedule 1, because they were computed using this technique, with the exception of account 362, Gas Holders. Second, I recognize that the theoretical reserve calculations are sensitive to the curve type and average service life that the analyst chooses. The additional years of data that will be available on 12-1-1999 will refine the calculated values and bring them to the

then current booked data. Also, the time frame for a thorough analysis and double checking of each account for accuracy would not be constrained by a testimony due date allowing potential errors to be found and eliminated. I propose that Staff and the Company set a schedule starting in January 2000 to compute, to the best of their respective abilities, a theoretical reserve value. This value would then be updated at Laclede's following rate case and an adjustment plan put in place to bring the actual accrual balance in line with the computed theoretical reserve. Finally I propose the depreciation rate for Gas Holders should be set to zero until a verifiable plan for removal of the four Gas Holders is presented to Staff's engineers. At that time an amortization for the difference between the current accrual balance and $3,732,100.00 can be processed by Staff and ordered by the Commission.

Q. Does this conclude your testimony?

A. Yes.

**BEFORE THE PUBLIC SERVICE COMMISSION**

**OF THE STATE OF MISSOURI**

| | | |
|---|---|---|
| In the Matter of | ) | |
| Laclede Gas Company's Tariff | ) | Case No. GR-99-315 |
| to Revise Natural Gas Rate Schedules. | ) | |

AFFIDAVIT OF PAUL W. ADAM

| | | |
|---|---|---|
| STATE OF MISSOURI | ) | |
| | ) | ss. |
| COUNTY OF COLE | ) | |

Paul W. Adam, of lawful age, on his oath states: that he has participated in the preparation of the foregoing Direct Testimony in question and answer form, consisting of 15 pages to be presented in the above case; that the answers in the foregoing Direct 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.

Paul W. Adam

Subscribed and sworn to before me this 25th day of June 1999.

Toni M. Willmeno
Notary Public, State of Missouri
County of Callaway
My Commission Expires June 24, 2000

TONI M. WILLMENO NOTARY SEAL NOTARY PUBLIC STATE OF MISSOURI

LACLEDE GAS COMPANY
CASE GR-99-315

| ACCT # | TITLE | ACCRUED RESERVE 9/30/97 | THEORETICAL RESERVE | ASL YR | | NET SALVAGE % | NEW DEP. RATE % | PRE GR-98-374 DEPR. RATE % | 9/30/97 PLANT BALANCE | 9/30/98 PLANT BALANCE | (CASE GR-98-374) ANNUAL DEPR. EXP | 9/30/97 ANNUAL ACCRUAL | 9/30/98 ANNUAL ACCRUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 305.00 | STRUCTURES & IMPROVEMENTS | 644,115 | 266,557 | 60.5 | R0.5 | 0 | 0 | 2.63 | 863,686 | 0 | <22,715> | 0 | 0 |
| 307.00 | OTHER POWER EQUIPMENT | 114,094 | | 38 | | 0 | 2.63 | 2.63 | 119,049 | 119,049 | 0 | 3,131 | 3,131 |
| 311.00 | LPG EQUIPMENT | 1,650,759 | 868,203 | 31 | R1 | 0 | 3.23 | 3.23 | 1,796,225 | 2,403,158 | 0 | 58,018 | 77,622 |
| 311.10 | LPG STORAGE CAVERNS | 4,297,273 | 1,073,067 | 100 | SQ | 0 | 1.00 | 3.96 | 4,804,094 | 4,804,094 | <142,201> | 48,041 | 48,041 |
| 351.20 | COMPRESSOR STATION STRUCTURES | 446,821 | 233,059 | 32 | L0 | 0 | 3.13 | 1.96 | 538,435 | 538,435 | 6,300 | 16,853 | 16,853 |
| 351.40 | OTHER STRUCTURES-UND. GN. STORE | 647,239 | 272,955 | 53 | L0 | 0 | 1.98 | 2.00 | 798,634 | 799,675 | <160> | 15,813 | 15,834 |
| 352.00 | WELLS-UND. GN. STORE | 5,851,915 | 2,146,375 | 88 | SQ | 0 | 1.17 | 2.31 | 5,863,032 | 5,876,464 | <66,839> | 68,597 | 68,755 |
| 352.20 | RESERVOIRS - UND. GN. STORE | 166,393 | 72,894 | 79 | SQ | 0 | 1.27 | 2.22 | 245,023 | 245,023 | <2,328> | 31,112 | 31,112 |
| 352.40 | WELLS - OIL & VENT GAS | 413,955 | 440,663 | 40 | R3 | <78> | 3.08 | 2.31 | 643,218 | 643,218 | 4,953 | 19,811 | 19,811 |
| 353.00 | LINES - UND. GN. STORE | 2,202,932 | 869,803 | 75 | R2 | <18> | 1.50 | 2.08 | 2,352,223 | 2,352,223 | <13,643> | 35,283 | 35,283 |
| 354.00 | COMPRESSOR STATION EQPT. | 1,889,485 | 1,303,927 | 49 | S2.5 | 0 | 2.04 | 2.04 | 2,374,457 | 2,374,457 | 0 | 48,439 | 48,439 |
| 355.00 | MEASURING & REGULATING EQ. | 1,647,851 | 1,051,235 | 43 | S1 | <14> | 2.66 | 2.19 | 1,777,284 | 1,825,493 | 8,353 | 47,276 | 48,558 |
| 356.00 | PURIFICATION EQ | 185,450 | 134,974 | 44 | S0.5 | <13> | 2.58 | 2.32 | 258,611 | 258,611 | 672 | 6,672 | 6,672 |
| 357.00 | OTHER EQ | 12,922 | 20,664 | 65 | S1.5 | <37> | 2.36 | 5.00 | 41,503 | 41,503 | <1,096> | 979 | 979 |
| 361.00 | STRUCTURES - OTH STORE PLT. | 284,891** | | | | | 22.20 | 22.20 | 234,813 | 234,813 | 0 | 52,128 | 52,128 |
| 362.00 | GAS HOLDERS | 1,696,897** | | | | | 0*** | 11.28 | 1,839,135 | 1,839,135 | 0 | 207,454 | 0 |
| 375.10 | STRUCTURES - DISTRIBUTION | 94,226 | 72,717 | 90 | L4 | 0 | 1.11 | 1.11 | 230,498 | 230,498 | 0 | 2,558 | 2,558 |
| 375.20 | STRUCTURES - SVC. CENTER | 1,451,370 | 1,093,895 | 79 | R0.5 | <14> | 1.45 | 1.29 | 4,944,404 | 5,301,359 | 7,911 | 71,694 | 76,870 |
| 375.30 | STRUCTURES - GARAGES | 191,334 | 175,158 | 72 | R0.5 | <18> | 1.64 | 1.05 | 581,824 | 601,346 | 3,433 | 9,542 | 9,862 |
| 375.70 | STRUCTURES - MO NAT | 52,832 | 24,250 | 50 | R0.5 | 0 | 2.00 | 2.00 | 61,294 | 61,294 | 0 | 1,226 | 1,226 |
| 375.90 | STRUCTURES - MIDWEST | <5,277> | | 50 | | 0 | 2.00 | 2.00 | 3,982 | 3,982 | 0 | 80 | 80 |
| 376.10 | MAINS - STEEL | 112,178,426 | 49,607,148 | 83 | S0.5 | <7> | 1.28 | 1.71 | 179,857,119 | 182,120,496 | <773,386> | 2,302,171 | 2,331,142 |
| 376.20 | MAINS - CAST IRON | 5,987,930 | 14,740,216 | 80 | R0.5 | <95> | 2.43 | 2.43 | 15,246,661 | 15,156,174 | 0 | 370,494 | 368,295 |
| 376.30 | MAINS - PLASTIC* | 20,361,071 | 7,940,328 | 53 | R1 | <1> | 1.91 | 2.36 | 111,722,829 | 118,605,091 | <502,753> | 2,133,906 | 2,265,357 |
| 378.99 | MEASUR & REG. EQ, GENERAL | 775,612 | 1,742,153 | 35 | L0 | <29> | 3.69 | 2.02 | 4,876,219 | 4,960,232 | 81,433 | 179,932 | 183,033 |
| 379.99 | MEAS. & REG. EQ, CITY GATE | 441,225 | 278,443 | 47 | L0.5 | <6> | 2.26 | 2.35 | 1,336,055 | 1,411,849 | <1,202> | 30,195 | 31,908 |
| 380.10 | SERVICES - STEEL | 30,762,430 | 24,306,375 | 45 | R0.5 | <60> | 3.55 | 4.60 | 37,810,762 | 37,937,595 | <397,013> | 1,342,282 | 1,346,785 |
| 380.20 | SERVICES - PL & CU | 79,152,572 | 64,701,750 | 44 | R2.5 | <15> | 2.61 | 4.68 | 220,594,158 | 234,995,844 | <4,566,299> | 5,757,507 | 6,133,391 |
| 381.00 | METERS | 18,678,283 | 23,189,961 | 35 | L1.5 | 1 | 2.83 | 2.86 | 100,691,019 | 105,218,791 | <30,207> | 2,849,556 | 2,977,692 |
| 383.00 | HOUSE REGULATORS | 3,599,942 | 3,780,469 | 41 | R3 | 0 | 2.44 | 2.44 | 13,429,215 | 14,447,479 | 0 | 327,673 | 352,518 |
| 385.00 | COM. & IND. MES. & REG. ST. EQ. | 1,004,655 | 1,571,332 | 28 | S0 | <8> | 3.85 | 3.13 | 5,807,078 | 6,372,859 | 41,811 | 223,572 | 245,355 |
| 387.99 | OTHER EQ - STREET LIGHTS | 117,250 | 237,281 | 28 | L1.5 | <206> | 10.92 | 16.67 | 256,870 | 263,627 | <14,770> | 28,050 | 28,788 |
| 390.70 | STRUCTURES - MO NAT | 55,248 | 48,942 | 50 | L0.5 | 0 | 2.00 | 2.00 | 248,123 | 264,607 | 0 | 4,962 | 5,292 |
| 390.80 | STRUCTURES - FRANK CTY | 61* | | 50 | L0.5 | 0 | 2.00 | 2.00 | 3,675 | 5,952 | 0 | 73 | 119 |
| 390.90 | STRUCTURES - MIDWEST | <328> | 787 | 50 | L0.5 | 0 | 2.00 | 2.00 | 15,800 | 15,800 | 0 | 316 | 316 |

LACLEDE GAS COMPANY
CASE GR-99-315

| ACCT # | TITLE | ACCRUED RESERVE 9/30/97 | THEORETICAL RESERVE | ASL YR | | NET SALVAGE % | NEW DEP. RATE % | PRE GR-98-374 DEPR. RATE % | 9/30/97 PLANT BALANCE | 9/30/98 PLANT BALANCE | (CASE GR-98-374) ANNUAL DEPR. EXP | | 9/30/97 ANNUAL ACCRUAL | 9/30/98 ANNUAL ACCRUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 391.97 | OFFICE FURNITURE EQ | 739,903 | 435,393 | 31 | L0 | 0 | 3.23 | 2.56 | 2,549,729 | 2,708,139 | <17,083> | | 82,356 | 87,473 |
| 391.98 | DATA PROCESSING SYSTEMS | 4,290,169 | 2,646,614 | 10 | S1.5 | 0 | 10.00 | 12.25 | 7,490,873 | 9,258,889 | <168,545> | | 917,632 | 925,889 |
| 391.99 | MECHANICAL OFFICE EQ | <190,908> | 225,755 | 10 | L1.5 | 3 | 9.67 | 6.57 | 450,158 | 573,259 | 13,955 | | 43,530 | 55,434 |
| 392.98 | TRANSPORTATION - AUTOS | 2,137,387 | 1,373,944 | 6 | L2.5 | 9 | 15.17 | 16.00 | 3,729,005 | 3,920,342 | <30,951> | | 565,690 | 594,716 |
| 392.99 | TRANSPORTATION - TRUCKS | 4,603,075 | 3,716,693 | 11 | L3 | 5 | 8.63 | 8.70 | 11,809,838 | 11,286,894 | <8,267> | | 1,027,456 | 974,059 |
| 393.99 | STORES EQUIPMENT | 169,520 | 91,989 | 37 | L2 | 6 | 2.54 | 3.46 | 256,819 | 274,934 | <2,362> | | 6,521 | 6,983 |
| 394.00 | TOOLS, SHOP & GARAGE EQUIPT. | 1,920,823 | 855,275 | 42 | R0.5 | 1 | 2.36 | 3.38 | 6,628,867 | 6,975,710 | <67,614> | | 156,441 | 164,627 |
| 395.00 | LABORATORY EQUIPMENT | 83,989 | 76,925 | 22 | L2 | 0 | 4.55 | 3.45 | 184,375 | 190,037 | 2,028 | | 8,389 | 8,647 |
| 396.98 | POWER OF EQ - TRAILERS | 4,609,089 | 2,810,526 | 12 | L2 | 6 | 7.80 | 8.78 | 9,828,493 | 10,322,006 | <98,285> | | 766,622 | 805,116 |
| 396.99 | POWER OF EQ - TRUCKS | 1,501,164 | 1,370,994 | 12 | L4 | 2 | 8.16 | 9.50 | 3,070,097 | 3,340,427 | <41,139> | | 250,520 | 272,579 |
| 397.00 | COMMUNICATION EQUIPMENT | 881,824 | 691,641 | 16 | S2.5 | 0 | 6.21 | 3.73 | 1,700,303 | 1,685,500 | <42,167> | | 105,589 | 104,670 |
| 398.99 | MISCELLANEOUS EQUIPMENT | 151,763 | 81,205 | 26 | R0.5 | 3 | 3.73 | 3.45 | 336,502 | 353,761 | 931 | | 12,402 | 13,195 |
| | | 315,858,986 | 216,642,435 | | | | | | 770,302,066 | 803,220,144 | <6,839,245> | | 20,238,544 | 20,847,193 |

*376.30 - PL Mains - (Net Salvage Error on GR-98-374 spreadsheet) - should have been <1%> not <35%>

** These accounts were studied and changed in GR-96-193

*** This is the only depreciation rate to be changed from the rates set in GR-98-374

## LACLEDE - SEPTEMBER 30, 1998

| | | RESERVE BALANCE | | | | | ACTUAL ACCRUAL 9/30/98 | THEO RESERVE "CLASSICAL" 9/30/98 | DIFFERENCE |
|---|---|---|---|---|---|---|---|---|---|
| | | LACLEDE | ST. CHARLES | FRANKLIN | MO NAT. | MIDWEST | TOTAL | | ACTUAL - THEO. |
| 376.10 | STREC MAINS | 96,148,778 | 8,084,290 | 1,141,386 | 5,620,480 | 2,223,600 | 113,218,534 | 66,297,403 | 46,921,131 |
| 376.30 | PLASTIC MAINS | 16,123,270 | 4,327,392 | 877,624 | 383,262 | 1,145,635 | 22,857,183 | 17,062,286 | 5,794,897 |
| 380.20 | PL & Cu SERVICES | 74,605,763 | 7,824,005 | 347,806 | 514,069 | 2,527,959 | 85,819,602 | 108,580,889 | -22,761,287 |
| 381.00 | METERS | 16,418,250 | 2,128,455 | 138,033 | 1,110,892 | 559,531 | 20,355,161 | 23,189,961 | -2,834,800 |
| 380.10 | STEEL SERVICES | 24,650,730 | 3,072,442 | 11,072 | 3,574,714 | 59,173 | 31,368,131 | 31,912,169 | -544,038 |
| | | | | | | | | | 26,575,903 over |

ADJUSTMENT TO NET SALVAGE RATE
(AN EXAMPLE)

GIVEN DATA:

Plant Balance: $2,352,223 (9-30-97)
Computed ASL: R2-75
Net Salvage History:

| FISCAL YEAR | TOTAL RETIREMENT VALUE | COST OF REMOVAL | GROSS SALVAGE | TOTAL NET SALVAGE | PERCENT SALVAGE |
|---|---|---|---|---|---|
| | | | | | |
| 1996 | - | - | - | - | 0.00% |
| 1995 | 0.01 | - | - | - | 0.00% |
| 1994 | 1,078.00 | - | - | - | 0.00% |
| 1993 | 11,049.98 | 451.09 | - | (451.09) | <4.08%> |
| 1992 | - | - | - | - | 0.00% |
| 1991 | 21,313.24 | 6,064.75 | - | (6,064.75) | <28.46%> |
| 1990 | - | - | - | - | 0.00% |
| 1989 | 1,863.00 | - | - | - | 0.00% |
| 1988 | - | - | - | - | 0.00% |
| 1987 | - | - | - | - | 0.00% |
| | 35,304.23 | 6,515.84 | 0 | <6,515.84> | |
| | | | | | |
| | | TIME SPAN | PERCENT SALVAGE | | |
| | 10 YEAR AVG. | 1987-1996 | -18.46% | | |

$35,304.23 = $3,530.42/Year Av. Annual Retirements
10 Years

Schedule 3-1

$6,515.84 = $651.58 Av. Annual Net Salvage Required
10 Years

**FORMULA**

$$DR = \frac{100\% - NS\%}{ASL}$$

DR - Depreciation Rate
NS - Net Salvage
ASL - Average Service Life

$$DR = \frac{100\%}{ASL} - \frac{NS\%}{ASL}$$

$$DR = \text{Plant Recovery} - \text{Net Salvage Recovery}$$

**THIS EXAMPLE**

$$DR = \frac{100\%}{75} - \frac{<18.46\%>}{75}$$

Concentrating Now On Net Salvage Only.

$$DR_{NS} = \frac{<18.46\%>}{75} = .00246$$

Plant Balance * $DR_{NS}$ = Dollars Accrued For Interum Net Salvage
$2,352,223 * .00246 = $5,790.00 Annually

Note: $651.58/Yr. Is The Historical Average For The Past 10 Years.
The Company Would Over Accrue $5,138.02 Each Year Using A Net Salvage of <18.46%>

To Adjust Net Salvage Recovery To Reflect The Current Amount Needed For Net Salvage

$$\frac{\text{PLANT BALANCE}}{\text{AV. ANNUAL RET}} = \frac{\$2,352,223}{\$3,530.42./YR} = 666 \text{ YRS IMPLIED RETIREMENT}$$

THUS, TO GET THE CORRECT ACCRUAL

$$DR_{NS} = \frac{NS\%}{666} = \frac{18.46\%}{666} = .000277$$

Plant Balance * $DR_{NS}$
$2,352,223 * .000277 = $651.98

NOTE: Now the actual dollars accrued is equal to the current average amount for net salvage

ie: $651.58

TO COMBINE INTO ONE DEPRECIATION RATE FORMULA:

$$DR = \frac{100\% - NS\%}{ASL}$$ ORIGINAL FORMULA

$$= 100\% - NS\% * \frac{ASL}{\text{IMPLIED RETIREMENT LIFE}}$$

$$\frac{}{ASL}$$

OUR EXAMPLE BECOMES:

$$DR = \frac{100\% - [<18.46\% * 75/666>]}{75}$$

$$= \frac{100\% - [<18.46\% * .1126>]}{75}$$

$$= \frac{100\% - <.0208>}{75}$$

$$= \frac{100\%}{75} - \frac{<.0208>}{75}$$

$$= .0013 + .000277$$

Recovery of Plant — Recover of Interum Net Salvage

DR = .0133

PLANT BALANCE * DR = RECOVERY
$2,352,223 * .0133 = $31,284

INCORRECT CALCULATION:

$$DR = \frac{100\% - <18.46\%>}{75}$$

$$= \frac{100\% + 18.46\%}{75}$$

$$= \frac{100\%}{75} + \frac{18.46\%}{75}$$

$$= .013 + .00246$$

DR = .0155

PLANT BALANCE * DR = RECOVERY
$2,352,223 * .0155 = $36,459

$\Delta$ = $36,459 - $31,284

= $5,175

$$\% \text{ ERROR} = \frac{\$5,175}{\$31,284}$$

= 16.5% OVER RECOVERY EACH YEAR