

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

FILED

MAR 11 1999

Missouri Public
Service Commission

In the Matter of Laclede Gas Company's)
Tariff to Revise Natural Gas Rate)
Schedules.)

Case No. GR-99-315

A F F I D A V I T

STATE OF MISSOURI)
) SS.
CITY OF ST. LOUIS)

Patricia A. Krieger, of lawful age, being first duly sworn,
deposes and states:

1. My name is Patricia A. Krieger. My business address is
720 Olive Street, St. Louis, Missouri 63101; and I am Manager of
Accounting for Laclede Gas Company.

2. Attached hereto and made a part hereof for all purposes is
my direct testimony, consisting of pages 1 to 31, inclusive;
Section A - Schedules 1 to 7; and Section C - Schedules 3 to 11 and
Schedule 21.

3. I hereby swear and affirm that my answers contained in the
attached testimony to the questions therein propounded and the
information contained in the attached schedules are true and correct
to the best of my knowledge and belief.

Patricia A. Krieger
Patricia A. Krieger

Subscribed and sworn to before me this 10th day of March, 1999.

Thomas M. Byrne
THOMAS M BYRNE
NOTARY PUBLIC STATE OF MISSOURI
ST. LOUIS CITY
MY COMMISSION EXPIRES JULY 28, 1999

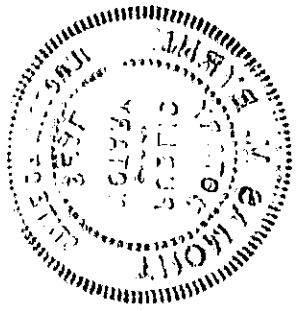


Exhibit No.:
Issue:
Witness:
Type of Exhibit:
Sponsoring Party:
Case No.:

Accounting Schedules
Patricia A. Krieger
Direct Testimony
Laclede Gas Company
GR-99-315

FILED

MAR 11 1999

Missouri Public
Service Commission

LACLEDE GAS COMPANY

GR-99-315

DIRECT TESTIMONY

OF

PATRICIA A. KRIEGER



Direct Testimony of Patricia A. Krieger

Table of Contents

<u>Issue</u>	<u>Page</u>
General Information/Qualifications	1
Rate Base	3
Large User Load Changes	6
Residential and Small Commercial Customer Growth	8
Weather Normalization	8
Unbilled Revenues	25
Gas Supply Incentive Plan Revenues	26
Rates Used in Calculation of Adjustments	26
Natural Gas Supply Expense	27
Unrealized Effect of Case No. GR-98-374 Tariff Changes	28
Depreciation and Amortization	30
Appliance Service Work	30



DIRECT TESTIMONY OF PATRICIA A. KRIEGER

1 Q. Please state your name and business address.

2 A. My name is Patricia A. Krieger and my business ad-
3 dress is 720 Olive St., St. Louis, Missouri 63101.

4 Q. What is your present position?

5 A. I am Manager of Accounting for Laclede Gas Company.

6 Q. Please state how long you have held your position and
7 briefly describe your responsibilities.

8 A. I was appointed to my present position in January,
9 1997. I am responsible for managing three depart-
10 ments: Corporate Accounting, General Accounting, and
11 Plant Accounting. These departments maintain the
12 books of the Company in accordance with generally
13 accepted accounting principles and the rules and
14 regulations of this Commission.

15 Corporate Accounting duties include preparing
16 reports to the Securities and Exchange Commission, to
17 stockholders, and to this Commission. Plant Account-
18 ing maintains the continuing property records of the
19 Company and carries out related duties. General
20 Accounting duties include processing of payments to
21 our suppliers and maintaining various records.

22 Q. What is your educational background?

1 A. I graduated from Saint Louis University in 1976 with
2 the degree of Bachelor of Science in Business Adminis-
3 tration, majoring in accounting.

4 Q. Will you briefly describe your experience with the
5 Company prior to becoming Manager of Accounting?

6 A. I joined Laclede in November, 1976 as an Accountant
7 in the Corporate Accounting Department. I was promot-
8 ed to Senior Auditor in June, 1979 and transferred to
9 the Internal Audit Department. In June, 1983, I was
10 transferred to the Budget Department, where I served
11 as Senior Budget Analyst and Assistant Manager until
12 being promoted to Manager of the Budget Department in
13 April, 1988. I held this position until being promot-
14 ed to Manager of Accounting.

15 Q. Have you previously filed testimony before this Com-
16 mission?

17 A. Yes, I have.

18 Q. What is the purpose of your testimony?

19 A. I am sponsoring the Company's rate base on an origi-
20 nal cost basis and certain components of working
21 capital for inclusion in the Company's rate base. I
22 am also sponsoring income statement adjustments in
23 the areas of revenue and gas costs, depreciation and
24 amortization, and appliance service work.

25 Q. Please list the schedules you are sponsoring.

26 A. The following schedules were prepared by me or under
27 my supervision: Section A, RATE BASE: Schedule 1.
28 This schedule summarizes the components of the Compa-

1 ny's original cost rate base at March 31, 1999.
2 Schedules 2 through 7 of Section A. These schedules
3 provide detailed information in support of certain
4 elements of rate base, including working capital, and
5 are described later in my testimony. Section C, TEST
6 YEAR UTILITY OPERATING INCOME STATEMENTS AND
7 ADJUSTMENTS; Schedules 3 through 11, Schedule 21.
8 These schedules provide supporting detail for certain
9 adjustments to test year utility operating income
10 which I am sponsoring. These adjustments are
11 described later in my testimony.

12 Rate Base

13 Q. What items are you sponsoring for inclusion in the
14 Company's original cost rate base (Schedule 1 of
15 Section A)?

16 A. Gross Plant amounts for Laclede and its subsidiary,
17 Laclede Pipeline Company, have been estimated to
18 March 31, 1999. Deducted therefrom is the estimated
19 balance of accumulated provision for depreciation,
20 depletion and amortization at the same date. I also
21 deducted the December 31, 1998 balance of customer
22 advances for construction. Schedules 2 through 7 of
23 Section A include the detail of balances for working
24 capital which I am sponsoring as additions to rate
25 base.

26 Q. What is "working capital?"

27 A. Working capital, as I use the term here, is the aver-
28 age amount of investment in the utility business

1 provided by investors, in excess of that which is
2 included in net utility plant, offset by appropriate
3 deferred income taxes. Working capital includes the
4 Company's investment in its various inventories,
5 prepayments and deposits, applicable deferred items
6 and cash working capital.

7 Q. Please explain the working capital schedules you are
8 sponsoring in Section A.

9 A. Schedule 2 shows actual balances for Special Deposits
10 over the test year ending December 31, 1998, and
11 derives an average balance.

12 Schedules 3, 4 and 5 list actual balances for
13 the Company's Propane Gas Inventory, the current
14 portion of Natural Gas Stored Underground in the
15 Laclede storage field and Natural Gas Stored Under-
16 ground in the Mississippi River Transmission Corpora-
17 tion storage fields, over the test year ended
18 December 31, 1998 and derive average balances.

19 Schedule 6 of Section A shows actual balances in
20 Prepayments over the test period ending December 31,
21 1998, and derives an average balance for inclusion in
22 rate base.

23 Schedule 7 shows the actual balances in
24 Accounts 154 and 163, General Materials and Supplies
25 and Related Stores Expense, at the beginning of the
26 test year and at month end for each of the months in
27 the test year. These balances have been taken from
28 the books and records of the Company. Also shown is

1 the average balance which I have included in rate
2 base.

3 Q. What items of rate base do other Company witnesses
4 address in this case?

5 A. The Environmental Cost, Year 2000, and Gas Safety
6 deferrals, as well as Pension and FAS 106 deferrals
7 are described in the testimony of Company witness
8 J. A. Fallert. The Prepaid Pension Asset is de-
9 scribed in the testimony of Company witness
10 M. D. Waltermire. The cash working capital require-
11 ment of the Company is described in the testimony of
12 Company witness G. W. Buck. The impact on rate base
13 of the Insulation Financing Program, the EnergyWise
14 Program, and Customer Deposits is described in the
15 testimony of Company witness M. T. Dorries. In addi-
16 tion, the related balances of deferred income taxes
17 have been deducted from rate base.

18 Adjustments to Utility Operating Income

19 Q. Please explain the adjustments you are sponsoring to
20 Laclede's operating income.

21 A. I am sponsoring adjustments to revenues and gas costs
22 to reflect changes in large users, increases in resi-
23 dential and small commercial customers, the unreal-
24 ized effect of tariff changes, and the elimination of
25 unbilled revenue accruals and amounts related to the
26 Gas Supply Incentive Plan on the Company's books. In
27 addition, I am sponsoring adjustments concerning the
28 effect of weather on the Company's revenues and ex-

1 penses. I am also sponsoring adjustments to the
2 depreciation and amortization expense and to the
3 revenues and expenses related to appliance service
4 work. These adjustments appear on Schedule 2 of
5 Section C. Finally, I am sponsoring several
6 schedules which provide supporting detail to these
7 adjustments.

8 Large Users

9 Q. Please discuss the adjustments related to large users.

10 A. Adjustments 1.b., 1.c., 1.d., and 1.e. reflect known
11 and measurable changes through March 31, 1999 in the
12 usage levels and/or rate schedules for several of our
13 large customers. These are customers whose circum-
14 stances have changed or are expected to change due to
15 changes in volumes, newly contracted-for demand lev-
16 els, and/or changes in the rates under which they
17 purchase gas. These adjustments are necessary to
18 include the most recent known sales information for
19 these customers in normalized revenues. The four
20 categories are:

21 I. Firm Sales Service

22 Adjustment 1.b. (Schedule 4) reflects the rate
23 switching and/or load changes of fourteen specif-
24 ic customers who were or are served under this
25 rate classification. Ten accounts have switched
26 to firm or basic transportation and sales ser-
27 vice, three accounts are purchasing gas on dif-
28 ferent firm sales rates, and one account has

switched from basic transportation and sales service.

II. Firm Transportation and Sales Service

Adjustment 1.c. (Schedule 5) reflects the rate switching and/or load changes of thirteen specific customers who were or are served under this rate classification. Three accounts have switched to basic transportation and sales service, seven accounts have switched to firm transportation and sales service from firm sales service, and three accounts have changed their contracted-for demand levels.

III. Basic Transportation and Sales Service

Adjustment 1.d. (Schedule 6) reflects the rate switching and/or load changes of twenty-one specific customers who were or are served under this rate classification. One account has ceased operations; six accounts have switched to basic transportation and sales service from other classifications; one account has switched to interruptible sales service; one account has switched to firm sales service; and twelve accounts have changed their contracted-for demand levels.

IV. Interruptible Sales Service

Adjustment 1.e. (Schedule 7) reflects the rate switching and/or load changes of one specific customer who has switched to interruptible sales

1 service from basic transportation and sales
2 service.

3 Residential and Small Commercial Customers

4 Q. Please explain the revenue adjustment made to reflect
5 growth in residential and small commercial customers.

6 A. During the test year, the Company experienced modest
7 growth in both its residential and small commercial
8 customers billed at the General Service rate. Adjust-
9 ment 1.f. (Schedule 8) increases revenues to an
10 annualized level which includes all of these custom-
11 ers as if they had been customers for the full year.
12 Furthermore, the adjustment adds revenues related to
13 customer levels the Company expects at March 31, 1999.

14 Q. What is the basis for this adjustment?

15 A. This overall residential and small commercial custom-
16 er adjustment reflects annual customer growth based
17 on the period ended January 1999 and the same rate of
18 change through March 31, 1999.

19 Weather Normalization

20 Q. Please discuss the adjustments you sponsor concerning
21 the effect of weather on the Company's revenues and
22 expenses.

23 A. Actual weather experienced in the heating season
24 affects the Company's sales levels, its revenues and
25 its gas cost expenses. If weather is colder than was
26 anticipated, each of these items (i.e. sales, reve-
27 nues and gas cost expenses) will increase in amount.

1 Conversely, if weather is warmer than was
2 anticipated, the amount of these items will decrease.

3 Q. Is the effect of weather significant?

4 A. Yes. The weather sensitivity of a local gas distribu-
5 tor's sales levels is widely recognized in the indus-
6 try and in financial and regulatory circles. Space
7 heating constitutes by far the largest end-use of gas
8 in Laclede's system. In fact, in terms of the per-
9 cent of revenue attributable to space heating,
10 Laclede's percentage is among the highest of utili-
11 ties in Missouri and near the top of major utilities
12 in the nation.

13 Approximately 98% of Laclede's residential cus-
14 tomers use gas for their primary heat source. A
15 number of the remaining residential customers use gas
16 for a secondary heat source. In our service area,
17 the vast majority of an average heating customer's
18 usage is for space heating, followed by water heating
19 usage. Other end uses, such as cooking, clothes
20 drying, and lighting constitute a small fraction of
21 the total. Because Laclede is particularly dependent
22 on space heating for its revenues, weather is a prima-
23 ry variable in determining Laclede's revenues.

24 Q. How does the ratemaking process address the impact of
25 weather fluctuations on a gas utility's operations?

26 A. Space heating sales levels are primarily determined
27 by heating season temperatures in the gas utility's
28 service area. In setting rates, this Commission has

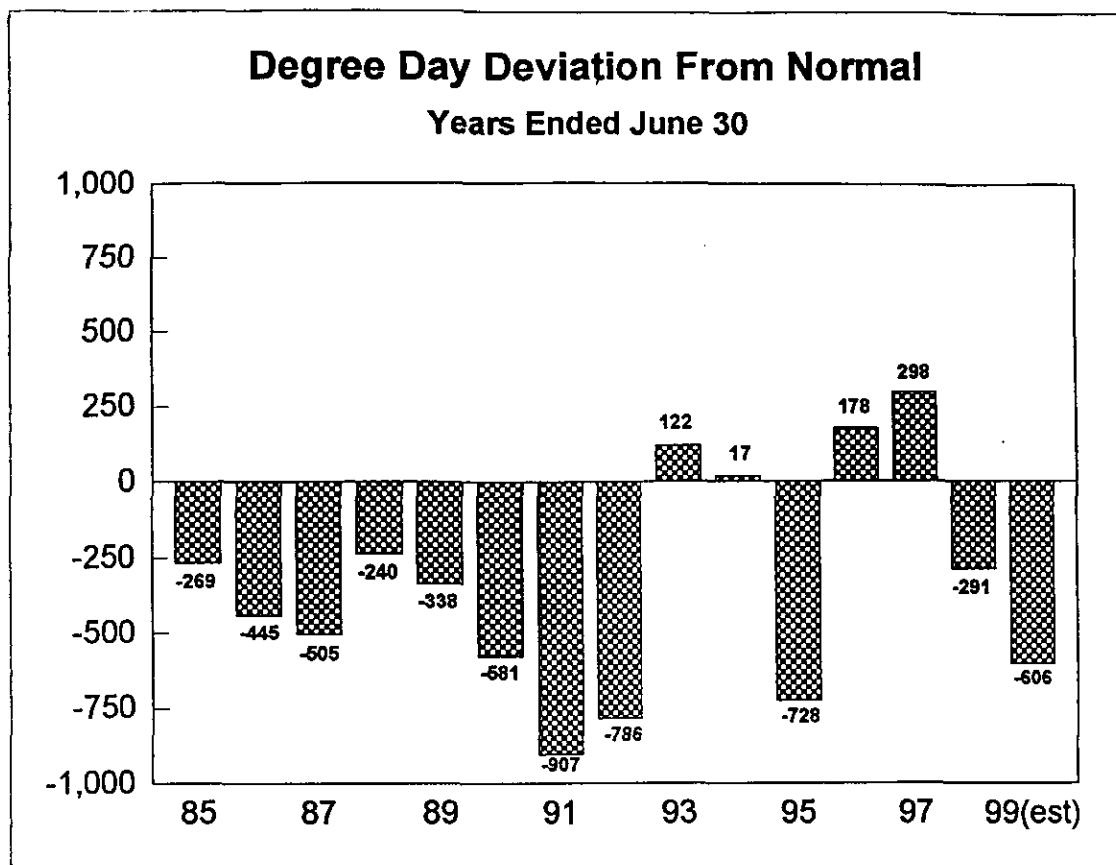
1 traditionally approved an adjustment to Laclede's
2 test year data to account for the effects of weather
3 through use of a measure known as heating degree days
4 (also referred to as "degree day deficiencies" or
5 simply "degree days"). This adjustment has
6 traditionally been calculated through a comparison of
7 the actual number of degree days experienced in the
8 test year in Laclede's service area with a historical
9 measure of degree days considered to be normal in
10 such area. The adjustment is designed to adjust test
11 year operating results to levels which would have
12 been experienced had the test year contained a normal
13 number of heating degree days.

14 Q. Please define the term "heating degree day."

15 A. A heating degree day is a unit used to measure the
16 requirement for space heating due to the coldness of
17 weather. Specifically, each heating degree day repre-
18 sents each degree by which the average temperature
19 for a day falls below 65° Fahrenheit based on daily
20 high and low temperatures recorded and published by
21 the National Oceanic and Atmospheric Administration
22 (NOAA), an agency of the United States Government.
23 Thus, an average daily temperature of 45° Fahrenheit
24 would be equal to 20 degree days. Degree days can be
25 calculated and accumulated for a number of days, such
26 as a month or a heating season, to provide a measure
27 of heat requirements.

28 Q. How are normal degree days determined?

1 A. Generally, normal degree days are determined by an
2 analysis of historical data. In the past, the Compa-
3 ny's rates have been based on various normals calcu-
4 lated by averaging actual degree days experienced
5 over periods ranging from thirty years to longer-term
6 averages which used all historical weather data avail-
7 able for this century. More recently, rates have
8 been set based on thirty years of historical data.
9 In years past, fluctuations in earnings or return for
10 a utility due to normal variations in weather have
11 been accepted by many utilities. Utilities have
12 accepted this fluctuation based upon the concept that
13 the actual weather to be experienced in the near
14 future has an equal chance of having a lower or high-
15 er number of degree days than the normal level of
16 degree days used in setting the utility's rates and,
17 that over a span of years, the weather will approxi-
18 mate normal. However, recent experience has shown
19 that traditional 30-year normals are unreliable in
20 approximating expected degree days, even over a span
21 of a number of years. The following table illus-
22 trates heating season degree days actually experi-
23 enced during recent years compared with the NOAA
24 30-year normal degree days for St. Louis, Missouri.



	Year	Actual Degree Days	Normal Degree Days	Degree Day Variation From Normal
1	1985	4,669	4,938 *	(269)
2	1986	4,493	4,938 *	(445)
3	1987	4,433	4,938 *	(505)
4	1988	4,698	4,938 *	(240)
5	1989	4,600	4,938 *	(338)
6	1990	4,357	4,938 *	(581)
7	1991	4,031	4,938 *	(907)
8	1992	4,152	4,938 *	(786)
9	1993	4,880	4,758 **	122
10	1994	4,775	4,758 **	17
11	1995	4,030	4,758 **	(728)
12	1996	4,936	4,758 **	178
13	1997	5,056	4,758 **	298
14	1998	4,467	4,758 **	(291)
15	1999 est.	4,152	4,758 **	(606)

20 * 30-year normal based on 1951-1980 period
 21 published by NOAA.
 22 ** 30-year normal based on 1961-1990 period
 23 published by NOAA.

1 Since the mid-1980s, eleven heating seasons have been
2 significantly warmer than this normal (averaging 11%
3 fewer degree days), and four heating seasons have
4 been colder than normal (averaging only 3% more de-
5 gree days). The actual experience for the fifteen-
6 year period is 7% warmer than the normal overall.

7 The warmer weather experienced during this peri-
8 od caused Laclede's sales levels to fall short of
9 those levels predicated on long-term norms upon which
10 rates were set, having a significant adverse effect
11 on the Company's earnings and rate of return. Earn-
12 ings have been depressed by millions of dollars dur-
13 ing these years, accumulating to an earnings short-
14 fall of over \$23 million since fiscal 1985.

15 Q. Isn't this deviation between actual degree day experi-
16 ence and assumed normals simply the result of natural
17 weather variability?

18 A. No, I do not believe so. This increased incidence of
19 warmer-than-normal heating seasons is particularly
20 disturbing in view of the increasing recognition and
21 acceptance within the scientific community of the
22 existence of global warming. The weather experienced
23 in the St. Louis area in recent years coincides with
24 this global climate trend. In my opinion, it would
25 be extremely unlikely that such experience resulted
26 from chance alone. The likelihood that this trend is
27 the result of natural weather variation diminishes
28 each year the trend persists; each additional warmer-

1 than-normal year increases the statistical
2 probability that global warming exists and will
3 continue into the future.

4 Q. Are there other factors contributing to the increased
5 incidence of warmer-than-normal heating seasons?

6 A. There appears to be an acceleration in the number of
7 occurrences of major El Nino events experienced in
8 recent years, contributing further to the warming
9 effect. "El Nino" has become a household word during
10 recent years as a result of the frequency of such
11 events. Scientists generally refer to El Nino and
12 its related phenomena as the El Nino - Southern Oscil-
13 lation (ENSO), which is a warm ocean current that
14 flows southward along the northern Coast of Peru that
15 is often associated with atmospheric changes. Major
16 ENSO disturbances affect other ocean-current patterns
17 and cause widespread climatic changes over the West-
18 ern Hemisphere and other areas. There have been nine
19 strong ENSO events in recent history. Six of these
20 events have occurred during the 16-year period since
21 1982, while only three such events occurred in the
22 25-year period prior to 1982.

23 Q. How does the weather actually experienced in the
24 St. Louis area coincide with global climate trends?

25 A. Laclede experienced eight significantly warmer-than-
26 normal heating seasons from 1985 through 1992 (averag-
27 ing 10% warmer than normal). The 1993 and 1994 heat-
28 ing seasons were just slightly colder than normal

(averaging only 1% colder than normal). The 1995 heating season returned to the experience of the early 1990s and was 15% warmer than normal. The 1996 and 1997 heating seasons averaged 5% colder than normal, while the 1998 heating season was 6% warmer than normal. Based on actual temperatures to date, the current heating season is projected to be about 13% warmer than normal, resulting in the sixth warmest heating season this century. Based on the 1999 projection, of the ten warmest heating seasons this century, five have occurred since the beginning of this decade. When ranked warmest to coldest since the beginning of this century, the heating seasons in Laclede's service area rank statistically as follows:

<u>Heating Season</u>	<u>Rank Since 1900</u>
1989-1990	10th warmest
1990-1991	4th warmest
1991-1992	5th warmest
1994-1995	2nd warmest
1998-1999	6th warmest

For the most part, the weather experienced in St. Louis mirrors warming trends being reported globally. The global surface temperature records indicate that the latter-half of the 1980s was the warmest half-decade on record. Calendar 1990 set a record for the warmest year during the period of instrumental data. Sulphur emissions into the atmosphere from the eruption of Mt. Pinatubo in June 1991

1 are believed to have provided a cooling effect for
2 approximately a two-year period with the maximum
3 effect beginning in the summer of 1992 (coinciding
4 with the colder-than-normal weather experienced by
5 Laclede during the 1993 heating season and the
6 beginning of the 1994 heating season). Warm surface
7 temperatures re-appeared globally in 1995 climbing to
8 the record-high and topping the previous record set
9 in 1990. The trend has continued. Globally, 1998
10 has become the warmest year on record topping 1997
11 which surpassed the previous 1995 record.

12 Q. Does evidence of a global climate trend mean that we
13 will not have colder-than-normal seasons?

14 A. No. There will still be colder-than-normal seasons,
15 but not as frequently as in the past. Weather fluctu-
16 ates widely and natural weather variability still
17 exists. However, traditional 30-year normals do not
18 adequately reflect this climate trend which has be-
19 come more pronounced since the mid-1980s and is accel-
20 erating. The probability of warmer-than-normal sea-
21 sons is now greater than the probability of colder-
22 than-normal seasons. We can no longer expect weather
23 fluctuations to "level out" over a span of years and
24 approximate the 30-year normal.

25 Q. Should the Commission provide some type of recogni-
26 tion of this climate trend in setting rates in this
27 proceeding?

1 A. Yes. Failure to recognize the warm-weather climate
2 trend discussed above is totally inappropriate for a
3 utility like Laclede, whose earnings are so dependent
4 on weather-related space heating sales. When the
5 level of normal degree days assumed in the regulatory
6 process is consistently too high, it becomes a virtu-
7 al certainty that the utility will not be able to
8 earn a fair return. A utility which is consistently
9 denied an opportunity to earn a fair return will soon
10 suffer adverse financial consequences which will
11 negatively affect its ability to serve its custom-
12 ers. Having experienced over \$23 million in earnings
13 shortfalls since 1985 due to weather which was warmer
14 than the long-term norms upon which rates were set,
15 the Company can no longer continue to absorb such
16 shortfalls and remain financially strong. The in-
17 creased unlikelihood of being able to achieve a 30-
18 year degree day normal upon which rates have tradi-
19 tionally been set, coupled with Laclede's higher-
20 than-average weather-sensitive load, serves only to
21 further increase the Company's risk of being unable
22 to recover its fixed operational costs and achieve a
23 fair rate of return.

24 Q. How can the adverse effects of this climate trend on
25 the Company be addressed in the ratemaking process?

26 A. I propose that the most recent ten-year historical
27 period be used to set rates in this proceeding so as
28 to ensure that the current climate trend is reflected

1 in rates. The ten-year normal based on the NOAA
2 calculation for the calendar 1989 through 1998 period
3 (rather than the traditional 30 years) is 4,420 degree
4 days.

5 Q. Is ten years of data a sufficient information base
6 upon which to base a normal?

7 A. I believe the ten-year normal is an appropriate way
8 to recognize global warming and recent climate trends
9 which deviate significantly from long-term norms.
10 There will continue to be research for several years
11 to come on the global warming issue. Only time and
12 analyses of various types of data collected in the
13 years ahead will prove conclusively what we are now
14 experiencing. However, recognition of global climate
15 change has grown in recent years from a scientific
16 issue to one that encompasses various sectors of
17 businesses and governments around the world. The
18 Kyoto Protocol of the United Nations treaty on cli-
19 mate change, which was negotiated in December 1997,
20 calls for industrialized countries to aggressively
21 reduce greenhouse gas emissions from 1990 baseline
22 levels to combat global warming. Never before have
23 so many in government, environmental planning, and
24 the scientific community recognized this warming
25 trend. The business environment, as well as the
26 State of Missouri, have also begun to consider the
27 economic ramifications of global warming. While
28 there is a wide range of estimates as to the past and

1 future impacts of global warming, many scientists
2 will certainly agree that the experience of this past
3 decade is compelling evidence in favor of the theory
4 of a climatic warming trend rather than one of
5 natural weather variability; likewise, many
6 scientists agree that some degree of warming will
7 continue into the next century. I am proposing a
8 ten-year normal as a short-term alternative for
9 setting rates in the interim to better approximate
10 the weather most probable to occur near-term. If the
11 Commission consistently monitors these climate trends and
12 periodically updates the rate setting standard, both the
13 Company and its customers will receive equitable treatment
14 in the future.

15 Q. Is there any evidence to support the reliability of a
16 ten-year "normal."

17 A. Traditional 30-year normals as published by NOAA are
18 not intended to predict future weather experience.
19 Such "normals" merely provide a baseline predicated
20 on past history to which current experience can be
21 compared. For long-term temperature predictions, the
22 Climate Prediction Center (a division of NOAA), cur-
23 rently utilizes optimal climate normals (OCNs). OCNs
24 are based on a ten-year history of weather experience.

25 Q. Explain how OCNs were developed.

26 A. A statistical study was conducted to determine the
27 optimal time period which would produce the highest
28 correlation between forecasts and actual observa-

1 tions. The study was based on temperature data at
2 344 U.S. climate divisions during the period
3 1931-1993. The results indicated that, in most
4 cases, annually updated climate normals averaged over
5 shorter than 30-year periods are better than the NOAA
6 30-year baseline normals in predicting the upcoming
7 year and periods beyond one year. In most cases, the
8 optimal number of years was less than fifteen.

9 Q. How are OCNs being applied in forecasts issued by the
10 Climate Prediction Center?

11 A. Although varying OCNs can be determined by location
12 for each season, the result in nearly all cases is
13 that a shorter time period results in the best predic-
14 tion. In light of these results, the Climate Predic-
15 tion Center has chosen to use a constant time period
16 of ten years to calculate forecasted temperatures for
17 all seasons and all locations.

18 Q. How would implementation of a 10-year normal have
19 compared with degree days actually experienced in
20 recent years?

21 A. The table on the next page illustrates actual degree
22 days compared with both the NOAA 30-year published
23 normal degree days and with a 10-year degree day
24 normal based on the average of temperatures experi-
25 enced in the ten years prior to the year being com-
26 pared.

Degree Day Summary
Years Ending June 30

				Degree Day Variation From NOAA Normal	Rolling 10-Year Normal	Degree Day Variation From 10-Year Normal
	<u>Year</u>	<u>Actual Degree Days</u>	<u>NOAA 30-Year Normal</u>	<u>Normal</u>	<u>Normal</u>	<u>Normal</u>
9	1990	4,357	4,758	(401)	4,753	(396)
10	1991	4,031	4,758	(727)	4,694	(663)
11	1992	4,152	4,758	(606)	4,648	(496)
12	1993	4,880	4,758	122	4,536	344
13	1994	4,775	4,758	17	4,564	211
14	1995	4,030	4,758	(728)	4,508	(478)
15	1996	4,936	4,758	178	4,443	493
16	1997	5,056	4,758	298	4,488	568
17	1998	4,467	4,758	(291)	4,549	(82)
18	1999(e)	4,152	4,758	(606)	4,526	(374)
19	Total	44,836	47,580	(2,744)	45,709	(873)
20	(Warmer)/Colder					
21	Than Normal			(5.8)%		(1.9)%
22	(e) estimated					

1 Q. What would have been the impact on a company's earn-
2 ings had the 10-year normal been implemented in rates
3 during the past decade?

4 A. Had a company's rates been set on a 10-year normal
5 level of degree days during this decade, instead of a
6 30-year NOAA normal, an overall earnings shortfall
7 would have been reduced by approximately two-thirds.
8 Even though an overall earnings shortfall would still
9 have existed over a relatively long span of years, a
10 normal based on more recent data (recognizing the
11 global warming trend) would have been the better
12 predictor of future near-term periods.

13 Q. Have you sponsored an adjustment based on the ten-
14 year normal of degree days?

15 A. Adjustment 1.a. reflects the increase in revenues at
16 base rates to the level that would have been achieved
17 at 4,420 degree days. Calculations supporting the
18 amount of the adjustment are shown on Schedule 3 of
19 Section C, Pages 1 through 14.

20 Actual revenues for the twelve months ending
21 December 1998 reflected 4,047 heating degree days on
22 a billing cycle basis. As is shown on Page 2 of
23 Schedule 3, this was 373 heating degree days less
24 than the 10-year period ended December 1998 normal
25 heating degree day level of 4,420.

26 Q. What is the significance of using heating degree days
27 on a billing cycle basis?

1 A. Heating degree days recorded on a calendar day basis
2 have been converted by the Company to a billing cycle
3 basis, which reflects the Company's cycle method of
4 billing its customers. Although the Company recognizes
5 revenues on a calendar-month basis for financial
6 reporting, its underlying records are maintained on a
7 cycle billing basis, with a separate entry each month
8 to adjust to a calendar month basis. I am also sponsoring
9 an adjustment to reverse this entry, effectively
10 returning the income statement set out on
11 Schedule 1 of Section C to a billing cycle basis.
12 Under this method, the Company recognizes revenue as
13 recorded by its meters, which are read throughout the
14 month. Thus, monthly billing cycle revenues do not
15 reflect usage through month-end for most customers
16 but generally reflect one month of consumption ending
17 on various days during the billing month. For consistency,
18 heating degree days have been calculated on a
19 billing cycle basis.

20 Q. Please continue with your explanation of Schedule 3
21 of Section C.

22 A. Pages 3 through 14 of this schedule contain the calculation
23 of the weather normalization adjustment to
24 therm sales and revenues. A separate calculation is
25 made for each appropriate revenue class of each operating
26 division. In each case, the average annual use
27 per customer is the starting point, and the customer
28 use that does not vary with degree days is subtracted

1 to yield the use per customer that varies with degree
2 days. This weather sensitive use per customer is
3 divided by the total degree days experienced during
4 the period to yield use per customer per degree day.

5 Q. How do you determine the portion of customer use
6 which does not vary with temperature?

7 A. This use per customer is based upon the July and
8 August use per customer. The months of July and
9 August do not reflect any space heating load. This
10 two-month use is multiplied by six, to produce an
11 annual figure, and the product of this multiplication
12 is finally multiplied by a factor of 1.35 (135%) to
13 calculate the annual usage which does not vary with
14 temperature. It is necessary to increase the
15 12 months of summer usage by 35% to reflect the fact
16 that customers' "base" usage in winter months exceeds
17 their usage during the summer. This increase is
18 separate from any space heating requirement and is
19 not a function of the number of degree days experi-
20 enced. Rather, it arises in large part from the
21 necessity of heating water from lower starting temper-
22 atures during the winter. The seasonal increase in
23 water heating load has been supported over the years
24 by special studies of Laclede customers wherein month-
25 ly usages have been analyzed and patterned.

26 Q. Please continue with your explanation.

27 A. The degree day departure from the average level for
28 each month has been multiplied by the use per custom-

1 er per degree day to determine the monthly adjustment
2 to use per customer necessary to reflect normal
3 weather. This monthly factor is then multiplied by
4 the number of customers each month in that rate class
5 to determine the total adjustment to therm sales for
6 the month. The total therm sales adjustment is then
7 multiplied by the appropriate rate per therm to
8 calculate the adjustment to net revenue for each rate
9 class by division. Page 1 of Schedule 3 contains a
10 summary of the calculations made on Pages 3 through
11 14. The total therm adjustment from this schedule is
12 the basis of my Adjustment 2.a. to natural gas cost,
13 which is shown on Schedule 9.

14 Q. Does this complete your discussion of weather?

15 A. Yes, it does.

16 Unbilled Revenue

17 Q. Please explain the revenue adjustment involving accru-
18 als of unbilled revenues.

19 A. Adjustment 1.g. removes accruals of unbilled revenues
20 from test year operating income.

21 Q. Why have you made this adjustment?

22 A. The Company reads meters throughout the month, so
23 revenues billed to our customers do not reflect usage
24 through the end of the month in most cases. The
25 Company records revenues and the related cost of gas
26 for all gas delivered during a month. This method
27 properly reports revenues in the period in which gas
28 was used by our customers but requires that broad

1 estimates of sales be made each month between the
2 date meters were read and the end of the month.
3 Adjustments 1.g. and 2.g. eliminate the effect of
4 these estimates so that test year revenues and gas
5 costs are based on an actual billed twelve-month
6 period.

7 Gas Supply Incentive Plan

8 Q. Please explain the adjustments related to the Gas
9 Supply Incentive Plan.

10 A. Adjustments 1.h. and 2.h. eliminate revenues and gas
11 costs related to the Gas Supply Incentive Plan from
12 test year operating income.

13 Q. Why have you made this adjustment?

14 A. Pursuant to the Stipulation and Agreement and tariff
15 provisions approved by the Commission in Case No.
16 GR-96-193, such revenues and costs may not be consid-
17 ered in this proceeding.

18 Rates Used in Calculation of Adjustments

19 Q. What rates have you used to price out the revenue and
20 gas cost adjustments you have made to test year utili-
21 ty operating income?

22 A. Revenue and gas cost adjustments herein have been
23 calculated using the base rates in the Company's
24 current tariffs. The Purchased Gas Adjustment (PGA)
25 Clause included in Laclede's tariffs provides for
26 current recovery of projected gas cost levels and for
27 deferred recovery of other gas cost price differenc-
28 es. Changes in the PGA rate are made on a prorated

1 basis for billing purposes, based on number of days
2 at the respective rate. In addition, differences
3 which occur between PGA revenue recovery and
4 experienced gas cost are adjusted through deferral.
5 We have not adjusted revenues for PGA rates in our
6 individual adjustments of revenue and gas cost. This
7 makes some of the adjustments less complicated and
8 has absolutely no impact on the Company's pro forma
9 operating income because in each case where we use
10 base rates to calculate revenue we also use base
11 rates to calculate natural gas costs. In other
12 words, if we had changed PGA revenue, we would also
13 have changed expenses by exactly the same amount of
14 adjusted natural gas cost and the result would have
15 been the same operating income as the one calculated
16 in our filing. In addition, we have not adjusted for
17 gross receipts taxes in the revenue adjustments
18 because if we had done so, we would have again
19 adjusted exactly the same amount of dollars in the
20 expense account for Taxes Other Than Income. As with
21 the PGA, we have eliminated several calculations
22 without changing the net result.

23 Natural Gas Supply Expense

24 Q. Has Natural Gas Supply Expense also been adjusted
25 whenever a change in sales volume was the basis for a
26 revenue adjustment?

27 A. Yes. These adjustments are reflected in
28 Adjustment 2.a. (detailed on Schedule 9) and Adjust-

ments 2.b. through 2.f. (detailed on Schedules 10 and 11) which I am sponsoring. The calculation involves multiplying the change in therms sold and transported in the corresponding revenue adjustments 1.a. through 1.f. by the appropriate base cost of gas for each customer classification. These adjustments to Natural Gas Supply Expense were made at base rates to be consistent with the calculation of the revenue adjustments.

Unrealized Effect of Case No. GR-98-374 Tariff Changes

Q. Please describe Adjustment 1.i. of Section C.

A. Adjustment 1.i. adjusts revenues to the level which would have resulted if the Company's most recent tariff changes, effective October 27, 1998, had been in effect for the entire test period. This adjustment is necessary in order to normalize revenues for the unrealized portion of the rate changes authorized in Case No. GR-98-374.

Q. Please explain the derivation of this adjustment.

A. Settlement of the last general rate case authorized changes in the tariff schedules related to the charge for gas used, the customer charge, the unauthorized use charge, or the demand charge for the large volume, interruptible, and large volume transportation and sales service classifications. First I will explain that portion of the adjustment relative to the increase in the charge for gas used.

1 I determined the therm sales for each affected
2 rate schedule that were billed in the test period
3 without the newly authorized rates. All therm sales
4 billed from January, 1998 through September, 1998
5 were billed without the new rates. In addition,
6 since the Company uses cycle billing and since the
7 rate change was effective October 27, 1998, a portion
8 of both October sales (about 97%) and November sales
9 (about 28%) were billed without the new rates. Cus-
10 tomers whose billing period spanned the October 27
11 effective date were charged the new rate only for
12 those days in the billing period starting with
13 October 27.

14 Q. Please continue with your explanation.

15 A. I derived the revenue adjustment by summing January
16 through September, 1998 sales by rate schedule and
17 October and November 1998 sales billed without the
18 new rates by rate schedule. These total therm sales
19 by rate schedule were multiplied by the rate change
20 per therm applicable to that rate.

21 The adjustment related to the changes in the
22 customer charge, the unauthorized use charge, and in
23 the demand charge were calculated in the same manner
24 as described above. Customers whose billing periods
25 spanned the October 27 effective date were billed the
26 new rates only for those days in the billing period
27 starting with October 27.

1 Depreciation and Amortization

2 Q. Are you sponsoring any adjustments to depreciation
3 and amortization expense?

4 A. Yes. Adjustment 7, detailed on Schedule 21 of
5 Section C, shows calculations which decrease deprecia-
6 tion and amortization expense to the levels expected
7 as of March 31, 1999. This amount is based on pro-
8 posed new depreciation rates listed on Schedule 1 of
9 Section D., in the testimony of Company witness
10 Richard A. Kottemann, Jr. Applicable utility plant
11 in service estimated at March 31, 1999 was multiplied
12 by these effective rates. The resulting annualized
13 amount was compared to actual test year expense to
14 derive the adjustment.

15 Appliance Service Work

16 Q. Are you sponsoring any other income statement adjust-
17 ments?

18 A. Yes. Adjustment 6.1., eliminates the net revenues
19 related to the Company's appliance service work,
20 pursuant to Section 386.756 (RSMo. Supp. 1998). The
21 Company's expenses incurred to perform appliance
22 service work are primarily recorded on its books and
23 records as distribution expenses in Account 879.
24 Revenues billed to customers for this work are record-
25 ed as an offset to the distribution expense account.
26 While the actual costs of these specific revenue-pro-
27 ducing jobs are not separately accounted for, the
28 total expenses charged to this account were allocated

1 to provide the costs associated with appliance
2 service work. The net amount of revenues in excess
3 of related expenses have been removed from the income
4 statement.

5 Q. Does this conclude your testimony?

6 A. Yes.

