DIRECT TESTIMONY

OF

SCOTT A. MOORE

MISSOURI PIPELINE COMPANY

CASE NO. WR-92-314

Q. Please state your name.

A. My name is Scott A. Moore.

Q. Please state your business address.

A. My business address is P.O. Box 360, Jefferson City, Missouri, 65102

Q. What is your present occupation?

A. I am employed as a Financial Analyst for the Missouri Public Service Commission. I accepted this position in May 1991.

Q. Were you employed before you joined the Missouri Public Service Commission?

A. Yes, I was employed by Mark Twain Bancshares, Inc. in St. Louis, Missouri from June 1989 to February 1991 as an Internal Auditor. I received training in various facets of banking, including financial and operational aspects of the commercial loan department, capital markets group, mortgage loan department, trust department, and individual branch banking.

Q. What is your educational background?

A. In 1987, I earned a Bachelor of Science degree in Finance from Southern Illinois University, Carbondale, Illinois. In 1989, I earned a Master of Business Administration degree with a concentration in Finance from the University of Missouri, Columbia, Missouri.

Q. Are you a member of any professional organizations?

A. Yes, I am a member of the Institute of Management Accountants.

Q. What is the purpose of your testimony in this case?

A. The purpose of my testimony is to present a recommendation of a fair and

reasonable rate of return for Missouri Pipeline Company (MPC, the Company) to the Missouri Public Service Commission. My recommendation is intended to be forward-looking from about December 1, 1992, the approximate date of the most recent financial data available to me in preparing my testimony in this docket.

Q. Have you prepared any schedules to your analysis of the cost of capital for MPC?

A. Yes. I am sponsoring 39 schedules entitled "An Analysis of the Cost of Capital for Missouri Pipeline Company, Case No. GR-92-314" attached to this direct testimony (see Schedules 1-1, 1-2, and 1-3).

Q. What do you conclude is the cost of capital for MPC?

A. My analysis leads me to conclude that a reasonable cost of capital for MPC is in the range of 10.28 to 10.73 percent, with a mid-range of 10.51 percent.

Economic and Legal Rationale for Regulation

Q. Please discuss the legal basis for determining a fair and reasonable rate of return for a public utility.

A. Several landmark decisions were made by the U.S. Supreme Court that provide the legal framework for regulation and for what constitutes a fair and reasonable rate of return for a public utility. Listed below are some of these cases:

1. Munn v. People of Illinois Case (1877),
2. Bluefield Water Works and Improvement Co. Case (1923),
3. Hope Natural Gas Company Case (1944), and
4. Natural Gas Pipeline Co. of America Case (1942).

In the case of Munn v. People of Illinois, 94 U.S. 113 (1877), the Court found that:

> . . . when private property is affected with a public interest, it

> ceases to be juris privati only . . . . Property does become clothed with a public interest when used in a manner to make it of public consequence, and affect the community at large. When, therefore, one devotes his property to a use in which the public has an interest, he, in effect, grants to the public an interest in that use, and must submit to be controlled by the public for the common good, to the extent of the interest he has thus created. Id. at 126.

The Munn decision is important because it states the regulatory basis for both utility and non-utility industries.

In the case of Bluefield Water Works and Improvement County v. Public Service Commission of the State of West Virginia, 262 U.S. 679 (1923), the Supreme Court ruled that a fair return would be:

1. A return "generally being made at the same time" in that "general part of the country,"

2. A return achieved by other companies with "corresponding risks and uncertainties," and

3. A return "sufficient to assure confidence in the financial soundness of the utility."

The Court specifically stated:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility, and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. A rate of return may be reasonable at one time, and become too high or too low by changes affecting opportunities for investment, the money market, and business conditions generally. Id. at 692-3.

The U.S. Supreme Court also discussed the reasonableness of utility rates of return in the case of Federal Power Commission v. Hope Natural Gas Company, 320 U.S. 591 (1944).

The Court stated that:

> The ratemaking process under the Act, i.e., the fixing of "just and reasonable" rates, involves a balancing of the investor and the consumer interests. Thus we stated in the Natural Gas Pipeline Co. Case that "regulation does not insure that the business shall produce net revenues."

The Court continues:

> . . . it is important that there be enough revenue not only for operating expenses but also for the capital cost of the business. These include service on the debt and dividends on the stock . . . . By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital. Id. at 603.

The Hope Case thus restates the concept of comparable returns to include those returns achieved by any enterprise that has "corresponding risk." The Supreme Court also noted in the Hope Case that regulation does not guarantee a utility company profits.

Finally, in Federal Power Commission v. Natural Gas Pipeline Company of America, 315 U.S. 575 (1942), the Court decided that:

> The Constitution does not bind rate-making bodies to the service of any single formula or combination of formulas . . . . If the Commission's order, as applied to the facts before it and viewed in its entirety, produces no arbitrary result, our inquiry is at an end. Id. at 586.

Through these and other court decisions, it is generally accepted that regulation is required to offset the lack of competition and maintain prices at a reasonable level. It is the regulatory agency's duty to determine a fair rate of return and appropriate revenue requirement for the utility, while maintaining a reasonable price to the public.

In summary, the courts believe that a fair rate of return on common equity should be similar to returns for businesses with similar risks. This fair rate of return should provide a fair and reasonable return to investors of the company, as well as prevent excessive earnings that

result from the utility's monopolistic competitive advantage. However, this fair and reasonable rate does not necessarily guarantee revenues or the continued financial integrity of the utility and will typically vary over time as economic and business conditions change. Therefore, historical, as well as current business and economic conditions have been analyzed in order to determine a fair and reasonable rate of return.

Historical Economic Conditions

Q. Please discuss the recent economic environment in which MPC is operating.

A. At the end of 1982, the United States economy was in the early stages of recovery from the longest post-World War II recession. This economic expansion began when the Federal Reserve Board (Federal Reserve) reduced the discount rate charged to banks seven times in the second half of 1982 in an attempt to stimulate the economy. Within a five month period, the discount rate was reduced from 12.0 percent to 8.5 percent (see Schedules 2-1 and 2-2). This also led to a reduction in the prime interest rate from 16.26 percent in July 1982, to 11.50 percent in December 1982 (see Schedules 3-1 and 3-2). The recovery and resulting economic expansion continued and was further stimulated when the Federal Reserve reduced the discount rate four additional times in 1986. By year-end 1986, the discount rate was at 5.5 percent and the prime rate was at 7.50 percent.

The expansionary period began slowing during the second quarter of 1987. Fears of increasing inflation (see Schedules 4-1 and 4-2), the falling value of the dollar, and increasing Federal Government deficits led to increased interest rates in the second and third quarters of 1987. These conditions eventually led to the stock market crash of October 1987. After "the crash," major banks reduced the prime rate to 8.5 percent, but additional inflation and a Federal Reserve decision to increase the discount rate to 7.0 percent resulted in a corresponding increase of the prime rate to 11.5 percent during the first quarter of 1989. The increase in the

discount rate was only the third such move by the Federal Reserve since May 1984 and was the result of a need to hedge the economy against the aforementioned fears of increasing inflation.

In August 1990, the Iraqi invasion of Kuwait produced higher crude oil prices and as a result, inflation was spurred again. The pressures of war in the Persian Gulf, the savings and loan bailouts, and unfavorable economic indicators led to a slowdown in economic growth. It is thought that the economic expansion ceased after approximately eight years when the economy entered into a recessionary period in July 1990 (the assumed starting point of the recession).

By February 1991, economic uncertainties centered around the Persian Gulf War and the length and severity of the recession. In March 1991, the issue of the Persian Gulf was resolved with a quick victory by United States and coalition forces. As a result, the market shifted its focus to the unresolved economic issues in the United States.

In response to the struggling economy, the Federal Reserve lowered the discount rate to 5.5 percent on April 30, 1991. This easing of credit corresponded with the statistical end of the recession in the second quarter of 1991. Since the end of the recession, extremely slow economic growth has ensued. In an effort to further stimulate economic growth, the Federal Reserve has lowered the discount rate to 5.0 percent on September 13, 1991, to 4.50 percent on November 16, 1991, to 3.5 percent on December 20, 1991, and to 3.0 percent on July 3, 1992. This equates to a 300 basis points reduction in the discount rate since April 30, 1991. The current 3.0 percent rate is the lowest discount rate level since 1963.

Q. Given this economic overview, what has specifically happened in recent history to stock and bond yields for utility companies?

A. Economic changes and capital cost changes are clearly reflected in the yields on public utility bonds as compared to the 30 Year U.S. Treasury Bonds (Treasury Yields)(see

Schedules 5-1, 5-2, 6-1, and 6-2). Current interest rates are at their lowest levels since the first quarter of 1987. In reviewing historical interest rates prior to the 1987 time period, it was 1977 since interest rates were at their current low levels.

Schedule 6-2 displays how closely the Moody's "Public Utility Bond Yields" (Utility Bond Yields) have followed the Treasury Yields during the period of January 1977 to the present. The average spread between the Utility Bond Yields and the Treasury Yields over this time period has been 137 basis points, with a low spread of 48 basis points and a high spread of 330 basis points (see Schedule 6-3). The current Utility Bond Yield is 8.44 percent, the current Treasury Yield is 7.58 percent, and the resulting current spread is 86 basis points (as of October 1992). These spreads can be used as forecasting tools to estimate future cost of debt changes within the utility industry by comparing the spread parameters to the numerous published forecasts of the Treasury Yields.

Utility Bond Yields are also graphically compared to Standard & Poor's "Utility Stock Yields" (Utility Stock Yields) and Standard & Poor's "Industrial Stock Yields" at Schedule 6-4. A review of the historical spreads between Utility Bond Yields and Utility Stock Yields reveals an average five-year spread of 335 basis points with a five-year high spread of 457 basis points, a low five-year spread of 263 basis points, and a current spread of 292 basis points. These spreads are often indicative of valuation levels for utility common stocks and can give an indication of the reasonableness of utility dividend yields at a specific point in time.

Current and Projected Economic Environment

Q. What are the inflationary expectations for the remainder of 1992 and beyond?

A. The latest inflation rate, as measured by the 12-month change in the Consumer Price Index-All Urban Consumers (CPI), was 3.2 percent for October 1992. Standard and Poor's "The Outlook", June 17, 1992, predicts inflation to be 3.4 percent for 1992 and 3.6

percent for 1993. Salomon Brothers Inc.'s "Comments on Credit", October 23, 1992, predicts inflation will be 3.0 percent in 1992 and 2.9 percent in 1993. Value Line Investment Survey's "Selection & Opinion", September 25, 1992, expects inflation to be 3.4 percent for 1992, 3.5 percent for 1993, and 3.9 percent for 1994 (see Schedule 7).

Q. What are current and forecasted interest rates for 1992, 1993, and 1994?

A. Current short-term interest rates, as measured by the 3-month Treasury Bill, are 3.23 percent, and current long-term interest rates, as measured by the 30-year Treasury Bond, are 7.55 percent as noted in Salomon Brothers Inc.'s "Bond Market Roundup" dated November 20, 1992. Standard & Poor's expects short-term interest rates to be approximately 3.9 percent by year-end of 1992 and 4.6 percent by the second quarter of 1993. Value Line expects short-term rates to be 3.9 percent at year-end 1992, 4.6 percent in 1993, and 5.6 percent in 1994. Standard & Poor's estimates long-term interest rates to be 7.8 percent by year-end 1992 and 7.9 percent by the second quarter of 1993. Value Line expects long-term interest rates to be 7.9 percent in 1992, 8.3 percent in 1993, and increase to 8.6 percent in 1994.

Q. What are growth expectations of real Gross Domestic Product (GDP)?

A. The real GDP is measured by the actual GDP adjusted for inflation. Currently, the change in real GDP is increasing by 1.4 percent (see Schedule 7). Salomon Brothers Inc. predicts that the real GDP is likely to show an increase of 1.9 percent at year-end 1992 and 2.3 percent at year-end 1993. Standard and Poor's anticipates a 3.6 percent increase at year-end 1992 and a 3.4 percent increase in 1993. Value Line's expectations are for real GDP growth to increase 1.7 percent at year-end 1992, 2.8 percent at year-end 1993, and 3.1 percent at year-end 1994.

Q. Please summarize the expectations of the economic conditions through 1994.

A. In summary, by combining the previously mentioned sources, inflation is expected to be in the range of 2.9 to 3.9 percent, real GDP in the range of 1.7 to 3.6 percent,

and expected long-term interest rates in the range of 7.8 to 8.6 percent. Value Line's "Quarterly Economic Review" dated September 25, 1992 states:

> . . . the 1991-92 recovery remains a muted affair. In fact, over the past five quarters, each of which has seen some rise in economic output, the pace of this expansion has averaged less than one-third the typical first and second-year rate of 5%-6%. What's more, we look for only a slight acceleration in growth (into the 1.8%-2.3% range) during this year's third and fourth quarters. Thereafter, we would expect to see a moderate firming and broadening of the recovery.

Natural Gas Pipeline Industry

Q. Please summarize the current business environment and economic conditions as they pertain to the natural gas pipeline industry?

A. The natural gas pipeline industry has been encountering some rather substantive changes in recent years. Some of these changes include increased competition as a result of open access, extended periods of warm weather, recent mergers and acquisitions involving gas transmission companies, as well as poor performance of unregulated energy related business activities. Standard & Poor's Corporation's "CreditReview" dated June 15, 1992 states:

> . . . S&P has anticipated that significant improvement would occur in the pipeline industry. This opinion was based on expectations for stronger gas demand and eventual full transition to an open access transportation environment. S&P, along with the pipelines themselves, expected substantially increased cash generation due to the projected boost in volumes. This has not happened to the extent expected. First, the open access world has heightened competition and led to very heavy discounting of transportation rates. This has significantly affected the profitability of many pipelines. In addition, extended periods of warm weather have penalized the industry's cash flow and profits.

S&P further states:

> In addition, much of the financial difficulty has been caused by the poor performance of the unregulated, energy-based activities, which have been seriously hurt by the collapse in energy prices over the past year.

S&P continues:

> . . . the basic fundamentals of gas pipelines are good, especially in light of new pipeline restructuring rules (Order 636) recently promulgated by the Federal Energy Regulatory Commission (FERC).

Value Line Investment Survey dated July 3, 1992, regarding the impact of Order 636 on the natural gas pipeline industry, states:

> The order deregulates sales to end-users. In conjunction with the Wellhead Decontrol Act, which frees wellhead gas from regulation in January, 1993, the implementation of Order 636 will fully unshackle the entire gas market for the first time since 1936. . . . The unbundling of services will produce a new balance between pipelines and customers, with the latter bearing more of the risk. Only services requested through contract must be supplied by the pipelines. They will no longer find themselves bound to furnish services that customers have no obligation to take.

In regard to gas demand, Value Line states:

> In our view, growth of natural gas demand will come from the construction of new gas-burning electricity generating facilities and from transportation markets. In the near term, transportation will play only a tiny role, but we think environmental concerns will lead to a substantial market for natural gas-powered vehicles later in the decade.

In sum, expectations of increased demand and deregulation are expected to lessen the overall business risk that has been facing the pipeline industry. This expected risk reduction should lower expected returns over time. However, full implementation of Order 636, as well as expected increases in natural gas demand have not yet come to fruition. Thus, although the investment community appears somewhat positive about the long-term prospects of the natural gas pipeline industry, the full ramifications and resulting fundamental changes in the risk profile of the industry are unknown.

Business Operations of Missouri Pipeline Company

Q. Please describe MPC business operations.

A. MPC is a wholly-owned subsidiary of Omega Pipeline Company. Omega Pipeline Company is a wholly-owned subsidiary of ESCO Energy, Inc. ESCO Energy, Inc. is a wholly-owned subsidiary of Edisto Resources Corporation.

MPC is an intrastate natural gas pipeline company doing business solely in the State of Missouri. The Company's operating revenue was $3,554,363 in 1991 which resulted in net income of $700,132. These revenue and net income amounts were generated from a net utility plant with a book value of $25,459,552. All of the preceding figures were taken from MPC's 1991 Annual Report on file with the Missouri Public Service Commission.

Q. Does MPC have any storage facilities, production facilities, or any other non-regulated businesses operations?

A. To my knowledge, MPC is a pure intrastate natural gas pipeline providing transportation services from producer to distributor.

Cost of Capital

Q. Why is the cost of capital important?

A. The cost of capital is a weighted average of the costs of short-term debt, long-term debt, preferred stock, and equity capital. The costs of senior capital components (long-term debt and preferred stock) are fixed by contractual obligations between the company and the investors in the securities. As such, these components are easily determined using a weighted average embedded cost computation. The cost of short-term debt and common equity, however, require a more detailed analysis. Short-term debt costs are also fixed by contractual obligation, albeit generally a variable cost indexed to a benchmark financial measure such as the Prime Interest Rate. However, the amount of short-term debt to be included in the capital structure for ratemaking purposes should be reduced by the amount of Construction Work in Progress (CWIP). This treatment results from the practice of regulatory agencies

generally allowing the recovery of costs associated with Allowance for Funds Used During Construction (AFUDC). AFUDC is the term given to capitalized interest costs as calculated based on the amount of CWIP at the time plant is put into service. Analysis required in determining the equity portion of capital is more subjective in nature, and must be determined by the presiding regulatory body. This cost of equity should allow a company a return that equals its costs, thus not unduly subsidizing either ratepayers or stockholders.

As it is a primary objective of utility regulation to mirror a competitive economic environment, it becomes imperative that a thorough and reasonable analysis be performed regarding each of these cost of capital components. If such an analysis is not performed, and arbitrary determinations are made regarding the cost of capital, it would be virtually impossible to monitor the effectiveness of the regulatory process.

Q. What capital structure have you employed in developing a weighted average cost of capital for MPC?

A. I have employed the September 30, 1992, capital structure for MPC (see Schedule 8). The capital structure is comprised of 4.74 percent short-term debt, 49.48 percent long-term debt, 0.00 percent preferred stock, and 45.78 percent common equity.

Q. What was the embedded cost of long-term debt for MPC?

A. The embedded cost of long-term debt for MPC was determined to be 8.50 percent (see Schedule 9).

Q. Does MPC have any preferred stock in their capital structure?

A. No.

Q. Does MPC have any short-term debt in its capital structure?

A. Yes, as of September 30, 1992, MPC had $1,723,142.47 in short-term debt. This amount represents of 4.74 percent of MPC's total capital. MPC had no Construction Work in Progress as of September 30, 1992.

In response to Staff Data Request No. 3802, company representatives state "[a]ll short term debt is with an affiliated company. Interest rates are based on rates the lending affiliate is receiving on their overnight investments." The interest rate on the overnight investments was 4.27 percent for the quarter ended December 31, 1991, 3.92 percent for the quarter ended March 31, 1992, 3.57 percent for the quarter ended June 30, 1992, and 2.96 for the quarter ended September 30, 1992. Given the relatively wide range of interest rates associated with the overnight investments, I have chosen to incorporate an average of the prior four quarterly rates in determining the cost rate to apply to MPC's short-term debt balance. This computation yields a cost of short-term debt of 3.68 percent.

Cost of Equity

Q. How do you propose to analyze those factors by which the cost of equity may be determined?

A. I have selected the discounted cash flow (DCF) model as the primary tool for calculating the cost of equity. I have also employed a pro forma pre-tax interest coverage analysis as an additional test of reasonableness to my DCF analysis.

Discounted Cash Flow Model

Q. Please describe the DCF model.

A. The DCF model is a market oriented approach used to derive the cost of equity of a firm. The continuous growth form of the DCF model will be used in estimating the cost of equity. This model relies upon the fact that a company's common stock price is dependent upon expected cash dividends and cash flows received through capital gains or losses that result from stock price fluctuations. The rate which discounts the sum of the future expected cash flows to the current market price of the common stock is the calculated cost of equity.

This can be expressed algebraically as:

$$\text{Present Price} = \underset{\text{Discounted by K}}{\text{Expected Dividends}} + \underset{\text{Discounted by K}}{\text{Expected Price in 1 year}}$$

As the expected price of a stock in one year is equal to the present market price multiplied by one plus the sustainable growth rate, the above equation can be restated as follows:

$$\text{Present Price} = \frac{\text{Expected Dividends}}{(1+k)} + \frac{\text{Present Price } (1+g)}{(1+k)}$$

where g equals the growth rate, and k equals the cost of equity. Allowing the present price to equal P and expected dividends to equal D1, the equation appears as:

$$\bullet P = \frac{D1}{(1+k)} + \frac{P(1+g)}{(1+k)}$$

The cost of equity may be then algebraically represented as follows:

$$\bullet P = \{D1 + P(1+g)\} / (1+k)$$
$$\bullet P(1+k) = D1 + P(1+g)$$
$$\bullet P + Pk = D1 + P + Pg$$
$$\bullet Pk = D1 + Pg$$
$$\bullet k = (D1/P) + g$$

Thus, the cost of common stock equity, k, is equal to the expected dividend yield (D1/P) plus the expected sustainable growth rate (g), continuously summed into the future. The growth in dividends and implied growth in earnings will be reflected in the current market price. Therefore, this model also recognizes the potential of capital gains or losses associated with owning shares of common stock. It is important to note that the (g) variable estimate must be considered sustainable. Essentially, this means that the estimate of growth must encompass historical and projected company-specific information, industry-specific information, and overall economic conditions, and provide for a long-term growth perspective. If each of these factors is not considered within the framework of the DCF model, then the analysis will be flawed.

The DCF model is a continuous stock valuation model and is based upon the

following assumptions:

1. Market equilibrium,
2. Perpetual life of the company,
3. Constant payout ratio,
4. Payout of less than 100% of earnings,
5. Constant price/earnings ratio,
6. Constant growth in cash dividends,
7. Stability in interest rates over time,
8. Stability in required rates of return over time, and
9. Stability in earned returns over time.

It is further assumed that an investor's growth horizon is unlimited and that earnings, book values, and market prices grow consistently with each other. It should be noted that this list of assumptions is rarely, if ever, met, but that the basic premise of the model is reasonable and that it describes an investor's expectations and resulting behaviors.

The return on equity calculated from the DCF model is inherently capable of attracting capital. This results from the theory that security prices adjust continually over time, so that an equilibrium price exists, and a stock is neither under nor over valued. It can also be stated that stock prices continually reflect the required rate of return for the investor and this, in turn, is the investor's expected return.

Q. Can you directly analyze the cost of equity for MPC ?

A. No. MPC has no publicly traded common stock on which to base the analysis.

Q. Please explain how you will approach the determination of the cost of equity for MPC?

A. I propose a three-step process for determining a reasonable return on equity for MPC. Step 1 is to perform a primary DCF analysis on a comparable group of natural gas

transmission companies. Step 2 is to perform a secondary DCF analysis for a group of natural gas distributors. A "risk premium" will then be added to the secondary DCF return on equity to compensate MPC for any additional business and financial risks inherent in the natural gas pipeline business. In my opinion, the review of the natural gas distribution companies is necessary as the natural gas pipeline industry has been mired by extraordinary changes in recent years. These changes have resulted in historical financial data which is somewhat difficult to evaluate. The addition of the secondary DCF analysis will aid in providing a further understanding of risk and return relationships in the natural gas industry, as well as provide a basis for determining if the results of the primary DCF analysis are reasonable. Step 3 consists of an analysis of pro forma pre-tax interest coverage ratios. In my opinion, this analysis will provide the basis for an appropriate determination of a fair and reasonable rate of return for MPC, as well as provide that MPC will have the opportunity to attract capital going forward.

Q. How was the primary comparable natural gas pipeline group chosen?

A. As presented at Schedule 10-1, four criteria were established for the purpose of selecting a comparable group of natural gas pipelines. These criteria are:

1. Information should be available from Value Line Investment Survey.
2. The company should be a member of Moody's "Natural Gas Transmission Companies."
3. Information should be available from Standard & Poor's Corporation.
4. The company should have no Missouri operations.

In my opinion, these criterion result in a comparable group of publicly traded natural gas pipeline companies in which investors have adequate financial information and reasonably identify as being natural gas pipeline companies. A list of the six companies and their corresponding ticker symbols is at Schedule 10-2.

Q. How was the secondary comparable natural gas distribution group chosen?

A. As presented at Schedule 10-3, six criteria were established for the purpose of selecting a comparable group of natural gas distribution companies. These criteria are:

1. Information should be available from Value Line Investment Survey.
2. Information should be available from Standard & Poor's Corporation.
3. Year-ending 1991 gas revenues as a percentage of total revenues must be greater than 90 percent.
4. Year-ending 1991 pre-tax interest coverage must be greater than 2.00 times pursuant to Standard & Poor's Corporation's "Risk Adjusted Ratio Guidelines" outlining pre-tax interest coverage requirements for a "BBB" rated natural gas distribution company ("BBB" is considered an investment grade credit rating by Standard & Poor's).
5. Year-ending 1991 total debt to total capital percentage must be less than 60 percent. This requirement is also within Standard & Poor's "BBB" requirements.
6. The company should have no Missouri operations.

In my opinion, these criterion establish a secondary natural gas distribution company group that adequately reflects the economic and business risks facing the natural gas distribution industry. A list of the eleven natural gas distribution companies and their corresponding ticker symbols can be seen at Schedule 10-4.

Q. Please describe the statistical and underlying data employed in your analysis of the growth rate portion of the DCF model for the primary and secondary comparable groups.

A. Annual compounded growth rates and trend-line growth rates for the time periods of 1981-1991 and 1986-1991 for dividends per share, earnings per share, and book value per share for the six natural gas pipeline companies were reviewed and are presented at Schedule 11-1. Annual compounded growth rates and trend-line growth rates for the time periods of 1981-1991 and 1986-1991 for dividends per share and earnings per share for the eleven

natural gas distribution companies were reviewed and are presented at Schedule 11-2.

The trend line growth rate computation involves the use of a log-linear model utilizing a regression model. This method of calculating growth rates considers each data point within a series, while the annual compound growth relies on only two data points (values at the beginning and end of the period). Dr. Robert J. Stalla, Ph.D., CFA, states in his CFA II Review Course Instruction Manual 1992, in regard to the annual compound growth calculations:

> This method, while easy to compute, only relies on two data points . . . . It is, however, the actual (historical) growth rate over the measurement period. While this simple method is preferable for measuring past (actual) growth rates, the log-linear model utilizing a regression model is preferable for estimating future growth rates.

Dr. Stalla's statement affirms the appropriateness of the use of the trend line growth rates. As the use of annual compound growth rates is prevalent within the investment community, it is my opinion that trend line and annual compound growth rates calculations should both be considered.

Q. Have you incorporated the reviewed historical data into your calculation of growth for the primary group of six comparable natural gas pipeline companies?

A. No. A review of ranges and standard deviations for dividends per share, earnings per share, and book value per share growth rates for the six comparable natural gas pipeline companies reveals that the historical data displays extremely wide ranges and large fluctuations. For example, average earnings per share growth rates ranged from -13.92 to 26.75 percent (4,067 basis points) while dividends per share growth rates ranged from -2.48 to -0.04 percent (244 basis points). In addition, standard deviations for the sample population regarding earnings per share data were calculated, and ranged from 7.12 to 53.96 percent. Dividends per share standard deviation data yielded a range of 4.25 to 11.56 percent. These large variations have been the result of the aforementioned extraordinary changes that have

been encountered by the natural gas pipeline companies. As a result, it is my opinion that the use of historical growth rates would result in erroneous sustainable growth rates. Although it is not customary and, in my opinion, generally inappropriate to rely solely on outside analyst projected growth data, in this instance, the projected data more appropriately reflects investor risk perceptions and long-term expectations for the natural gas pipeline industry.

Q. Could you please describe the projected data you have reviewed in the determination of an appropriate sustainable growth rate for the six natural gas pipeline companies?

A. Yes. I have chosen to incorporate growth rate projections from Value Line in the form of projected 3-5 year dividends per share, earnings per share, and book value per share growth rates as well as I/B/E/S' 5 year growth projections. I have chosen to use both sources in order to smooth any extraordinary analyst expectations, as well as to provide a mechanism of reasonableness for the two separate sources. As detailed at Schedule 11-3, Value Line 3-5 year growth rate estimates for earnings per share growth were substantially higher than those from I/B/E/S. Further, Value Line dividends per share data reflect relatively low growth rate expectations. In my opinion, the sustainable growth rate likely falls somewhere between these two values. As such, and as the I/B/E/S data also falls between these two data points, I have averaged the dividends per share, earnings per share, and book value per share data to compute what I believe is a reasonable sustainable growth rate estimate from Value Line. By combining the Value Line data and the I/B/E/S data, I have derived a sustainable growth rate estimate of 9.79 percent.

Q. Have you incorporated historical statistical data into your calculation of a growth rate for the secondary group of eleven comparable natural gas distribution companies?

A. Yes. A comparison of ranges and standard deviations for dividends per share and earnings per share growth rates shows that historical earnings per share and dividends per

share data in no way shows the exorbitant fluctuations of the historical data for the natural gas pipeline industry. As such, I have chosen to incorporate historical data in conjunction with projected data to determine a sustainable growth rate for the natural gas distribution companies.

As seen at Schedule 11-2, growth rates derived from earnings per share data have generated wider ranges and larger fluctuations than growth rates derived from historical dividends per share data. For example, earnings per share growth rates ranged from 2.25 to 5.29 percent (304 basis points) while dividends per share growth rates have ranged from 4.88 to 5.56 percent (68 basis points). In addition, standard deviations for the sample populations of earnings per share data were calculated, and ranged from 2.51 to 14.52 percent. In contrast, dividends per share standard deviation calculations yielded a range of 2.41 to 2.68 percent. As a result of the wider variations and higher standard deviations, it is my opinion that historical growth rates derived from dividends per share data are more consistent and reliable than the historical growth rates derived from earnings per share data. As such, and given that the DCF model requires an analytical estimate of a sustainable growth rate, I have chosen to incorporate the historical dividends per share growth rates in my analysis.

Q. Could you please summarize the analysis you have performed in the determination of an appropriate sustainable growth rate for the eleven natural gas distribution companies?

A. As seen at Schedule 11-4, I have chosen to compute a historical growth rate comprised of 1986-1991 trend line and annual compound dividends per share, as well as 1981-1991 trend line and annual compound dividends per share. My analysis of projected growth rates uses the same methodology employed in the computation of a sustainable growth rate for the six comparable gas transmission companies. Using equal weighting of historical and projected growth rates yields a sustainable growth rate estimate for the eleven natural gas distribution companies of 5.26 percent.

Q. Please summarize your growth rate recommendations.

A. For my primary DCF analysis utilizing the six comparable natural gas transmission companies, I am recommending a growth rate 9.79 percent. For my secondary DCF analysis utilizing a comparable group of eleven natural gas distribution companies, I am recommending a growth rate of 5.26 to be applied within the framework of the DCF model.

Q. What value did you determine to be an appropriate dividend yield for the six comparable natural gas transmission companies?

A. First, the average three month high/low stock price average for each of the six comparable natural gas pipeline companies was calculated (see Schedule 12-1). I used the three month time period because, in my opinion, that period of time is long enough to avoid daily fluctuations in stock prices, and recent enough to adequately reflect current investor expectations. Second, the next quarterly dividend payment (fourth quarter 1992) for each of the six comparable pipeline companies was estimated, and subsequently annualized to determine the expected dividend (see Schedule 12-2). This expected dividend (D1) was then divided by the average three month high/low stock price average, the high stock price for the three month period, and the low stock price for the three month period (P) to determine an appropriate dividend yield range (see Schedule 12-3). These calculations result in a dividend yield range of 3.29 to 4.01 percent, with a mid-range of 3.58 percent.

Q. What value did you determine to be an appropriate dividend yield for the eleven comparable natural gas distribution companies?

A. The average three month high/low stock price average for each of the eleven comparable natural gas pipeline companies was calculated at Schedule 12-4. As with the six comparable natural gas transmission companies, I used the three month time period to avoid daily fluctuations in stock prices, as well as to adequately reflect current investor expectations. The next quarterly dividend payment (fourth quarter 1992) for each of the eleven comparable

natural gas distribution companies was estimated, and subsequently annualized to determine the expected dividend (see Schedule 12-5). This expected dividend (D1) was then divided by the average three month high/low stock price average (P) to determine the appropriate dividend yield (see Schedule 12-6). These calculations result in a dividend yield mid-range of 5.61 percent.

Q. Please explain your methodology for computing the D1 variable of the DCF model as it pertains to your dividend yield range.

A. Dr. Myron J. Gordon, who developed the DCF model and first used it in regulatory proceedings, stated before federal regulators:

> D1 is the forecast dividend for the coming year if dividends are paid annually. Common practice, however, is to pay dividends quarterly, in which case Dt in Eq. (1), the fundamental expression for share price, is a quarterly dividend.
>
> $P0 = D1/(1+k) + \ldots + Dt/(1+k)^t + \ldots (D_\infty/(1+k)^\infty$ (1)
>
> Because it is customary and convenient to think in terms of annual and not quarterly figures for rate of return and growth statistics, annualized figures will be used here. Annualized figures are simply four times quarterly figures. . . . **Hence, in arriving at the cost of equity capital, the correct figure for the dividend yield term in Eq.[3] is the annualized value of the forecast dividend for the coming quarter divided by the current price.**" (Testimony of M.J. Gordon, F.C.C. Docket No. 79-63, pp. 63-64)(Emphasis added)

Thus, it is my interpretation that the proper dividend yield to use in the DCF model is based on the coming quarters expected dividend, annualized, which is consistent with the methodology Dr. Gordon used in his testimony before Federal regulators.

Q. Please summarize the results of your growth rate and dividend yield analysis for the DCF cost of equity for the six comparable natural gas transmission companies.

A. Using the previously described factors, the summarized DCF cost of equity range (see Schedule 13-1) for the six comparable pipeline companies utilized to determine a fair and

reasonable return on equity for MPC lies in a range from 13.09 to 13.80 percent, with a mid-range of 13.38 percent. In my opinion, given the wide ranges of growth rate parameters discussed previously, this range is too small to be realistic. To attain what I consider a reasonable return on equity range, I have subtracted and added 50 basis points from the mid-range return on equity estimate of 13.38 percent. The adjusted recommended return on equity is in a range of 12.88 to 13.88 percent with the mid-range value of 13.38 percent. This is the range I am recommending to be applied to the common equity of MPC.

Q. Please summarize the results of your growth rate and dividend yield analysis for the DCF cost of equity for the eleven comparable natural gas distribution companies.

A. Using the previously described factors, the summarized DCF cost of equity range (see Schedule 13-2) for the eleven comparable natural gas distribution companies is estimated at 11.00 percent.

Q. Do you believe this is an adequate return on equity for MPC.

A. No. However, this return on equity data aids in garnering a further understanding of required equity returns for the natural gas industry and thus can be used in determining if my primary recommendation is reasonable.

Q. How do you propose to equate the equity return levels of the natural gas distribution industry to that of the natural gas pipeline industry.

A. I propose to add a risk premium to the secondary return on equity proposal. This risk premium will be based on a risk adjustment figure derived by quantifying risks in terms of Beta.

Q. What is Beta?

A. Beta is a measurement of the systematic risk of an individual security. Essentially, Beta measures the tendency of a security's return to respond to broader market changes. Utility stock Betas generally fall within a range of 0.6 to 0.8. This range is well below

the market average beta which, by definition, is 1.0, and essentially illustrates that utility stocks are, in general, less risky than the market as a whole.

Value Line Betas are derived from a regression analysis between weekly percent changes in the price of a stock and weekly percent changes in the New York Stock Exchange Composite Index over a period of five years. Value Line states:

> There has been a tendency over the years for high Beta stocks to become lower and for low Beta stocks to become higher. This tendency can be measured by studying the Betas of stocks in consecutive five-year intervals. The Betas published by Value Line Investment Survey are adjusted for this tendency and hence are likely to be a better predictor of future Betas than those based exclusively on the experience of the past five years.

As Value Line financial information is widely used by investors, I believe the use of the Value Line Beta is reasonable. It is noted that other investment and financial publications offer different methodologies for computing the Beta figure. I am neither condoning nor discounting these methods, rather, I am relying on the reasonableness of the Value Line Beta for the purposes of the analysis I am performing.

Q. Could you be specific with the analysis you have performed?

A. Schedule 14-1 depicts the current bond ratings for the six comparable natural gas pipeline companies, as well as the eleven comparable natural gas distribution companies. This data reveals that the natural gas pipeline companies are, on average, at approximately a "BBB-" credit rating, while the natural gas distribution companies are approximately an "A" credit rating. All things being equal, this would clearly indicate that the financial markets perceive greater risks for investments within the natural gas pipeline industry in comparison to the natural gas distribution industry. This same scenario is observed when comparing the average Betas for the six comparable natural gas pipeline companies (1.05) with the average Betas for the natural gas distribution industry (0.63)(see Schedule 14-2).

As seen at Schedule 14-2, I have attempted to quantify the disparity of risks between

the distribution companies and pipeline companies via the use of the Beta measurement. In doing so, I have calculated a risk-adjusted market premium for both industries using the comparable company groups I have outlined previously. In calculating the risk-adjusted market premium for both industries I began with the Value Line published Betas for each individual company. The product of the Beta and the long-term market risk premium (calculated as the difference between the geometric mean long-term total return on common stocks of 10.4% and the geometric mean long-term total return on risk-free debt of 4.8% which equals 5.6%, per SBBI, Ibbotson Associates, Chicago 1992 Yearbook) equates to the risk-adjusted market risk premium for the industry. In my opinion, the difference between these two figures represents a reasonable estimate of the risk premium that investors would require when comparing the two industries.

To summarize, the results of the risk quantification analysis indicates a risk differential spread of 239 basis points. This figure was derived as the difference between the natural gas pipeline risk quantification value of 5.93 percent (5.6% x 1.05) and the natural gas distribution risk quantification value of 3.54 percent (5.6% x 0.63).

Q. What conclusions do you draw from your risk quantification analysis?

A. The sum of the 239 basis points (derived from the risk quantification analysis) and the 11.00 percent estimated return on equity for the natural gas distribution industry equals 13.39 percent. This value (13.39 percent) represents the end result of my secondary DCF analysis and is essentially a risk-adjusted estimated return on equity for the natural gas pipeline industry using data derived from the eleven comparable natural gas distribution companies. The results of this secondary DCF analysis provides substantive evidence of the reasonableness of my recommended return on equity of 12.88 to 13.88 percent, with a mid-range of 13.38 percent.

Q. Have you performed any other analysis to ascertain the reasonableness of your

DCF model derived cost of equity?

A. Yes. An analysis was performed regarding pro forma pre-tax interest coverage ratios.

Q. Please describe the pre-tax interest coverage analysis.

A. A pre-tax interest coverage (Coverage) analysis was completed (see Schedule 15) that displays (using a cost of equity range of 12.88 to 13.88 percent with a mid-range of 13.38 percent) a pro-forma Coverage for MPC ranging from 3.11 to 3.27 times with a mid-range value of 3.19 times. This data details that even the lowest proposed return on equity results in a pro-forma Coverage ratio that falls well within Standard & Poor's "Risk Adjusted Ratio Guidelines" range of 2.75 to 4.00 times which outlines criteria for natural gas pipeline companies in the "BBB" bond rating range. This data lends validity to the proposed return on equity, as well as prescribing that MPC will have the opportunity to attract capital going forward.

Adjustments to the Cost of Equity

Q. Do you see any need for adjusting your recommended return on equity range of 12.88 to 13.88 percent?

A. No. I have not included any flotation costs adjustments as MPC's common stock is not publicly traded and thus would not incur any of the expenses associated with issuing public stock.

Q. In light of the recent Chapter 11 Bankruptcy filing by three of Edisto Resources Corporation's six subsidiaries, do you believe it is appropriate to make an adjustment to your recommended return on equity for MPC?

A. No. In response to Staff Data Request No. 3807, Company representatives state:

Neither ESCO Energy, Inc., Omega Pipeline Company, or Missouri

> Pipeline Company anticipate prospective negative impacts resulting from the recent Chapter 11 Bankruptcy filing by certain subsidiaries of Edisto Resources Corporation. . . . Neither ESCO Energy, Inc. (and its subsidiaries Omega Pipeline Company and Missouri Pipeline Company), Multi-Flex, Inc. or Edisto International, Inc. are involved in the bankruptcy.

Company representatives continue:

> Missouri Pipeline Company currently anticipates no negative impact upon the Company's ability to attract capital in the future as a result of these filings.

Given that the Bankruptcy filing is expected to have no negative impact on MPC, it is my opinion that no adjustment to MPC's recommended return on equity is warranted.

Rate of Return

Q. Please explain how the returns developed for debt and common stock equity are used in the ratemaking approach you have adopted for MPC.

A. The cost of service ratemaking method was adopted in this case to develop the public utility's revenue requirement. The cost of service (revenue requirement) is based on the following components: operating costs, rate base, and a return to be allowed on the rate base (see Schedule 16). It is my responsibility to calculate a rate of return allowed on the rate base for MPC, using the cost of service ratemaking approach, that will allow the Company to earn a fair and reasonable rate of return. The weighted average cost of capital for MPC, given a capital structure of 4.74 percent short-term debt, 49.48 percent long-term debt, 0.00 percent preferred stock, and 45.78 percent common stock equity, ranges from 10.28 to 10.73 percent (see Schedule 17). This range was developed on the basis of a cost of short-term debt of 3.86 percent, a cost of long-term debt of 8.50 percent, and a cost of common equity ranging from 12.88 to 13.88 percent, with a mid-range of 13.38 percent. Therefore, I am recommending that MPC be allowed to earn a return on its original cost of rate base in the range of 10.28 to 10.73

percent, with a mid-range of 10.51 percent. Through my analysis, I believe I have developed a return to be applied to Missouri Pipeline Company's rate base that will allow the Company the opportunity to earn the revenue requirement established in this rate case.

Q. Does this conclude your testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the matter of Missouri Pipeline Company for authority to file tariffs increasing rates for gas transportation services within its service area.	)))	Case No. GR-92-314

AFFIDAVIT OF SCOTT A. MOORE

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

Scott A. Moore, of lawful age, on his oath states: that he has participated in the preparation of the foregoing written rebuttal testimony in question and answer form, consisting of twenty-eight (28) pages and thirty-nine (39) schedules to be presented in the above case; that the answers in the foregoing written 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.

Scott A. Moore

Subscribed and sworn to before me this 7th day of December, 1992.

Notary Public

My Commission expires 3-8-94

AN ANALYSIS OF THE COST OF CAPITAL

FOR

MISSOURI PIPELINE COMPANY

CASE NO. GR-92-314

BY

SCOTT A. MOORE

UTILITY SERVICES DIVISION

MISSOURI PUBLIC SERVICE COMMISSION

DECEMBER 1992

LIST OF SCHEDULES

Schedule Number	Description
1-1	List of Schedules
1-2	List of Schedules (continued)
1-3	List of Schedules (continued)
2-1	Federal Reserve Discount Rate Changes
2-2	Graph of the Federal Reserve Discount Rates
3-1	Average Prime Interest Rates
3-2	Graph of Average Prime Interest Rates
4-1	Rate of Inflation
4-2	Graph of Rate of Inflation
5-1	Average Yields on Moody's Public Utility Bonds
5-2	Graph of Average Yields on Moody's Public Utility Bonds
6-1	Yields on Long-Term Government Bonds
6-2	Graph of Average Yields on Public Utility Bonds vs. Long-Term Government Bonds
6-3	Graph of Yield Spreads between Utility Bonds and U.S. Long-Term Government Bonds
6-4	Graph of Average Yields on Public Utility Bonds & S&P Utilities & Industrial Stock Yields
7	Economic Estimates and Projections, 1992-1994
8	Capital Structure as of September 30, 1992
9	Embedded Cost of Long-Term Debt as of September 30, 1992
10-1	Criterion for Selecting Comparable Natural Gas Pipeline Companies
10-2	List of Six Comparable Natural Gas Pipeline Companies
10-3	Criterion for Selecting Comparable Natural Gas Distribution Companies
10-4	List of Eleven Comparable Natural Gas Distribution Companies

LIST OF SCHEDULES
(continued)

Schedule Number	Description
11-1	Historical Dividends Per Share & Earnings Per Share & Book Value Per Share Growth Rates; Six Comparable Natural Gas Pipeline Companies; Year Ending 1991 Data
11-2	Historical Dividends Per Share & Earnings Per Share Growth Rates; Eleven Comparable Natural Gas Distribution Companies; Year Ending 1991 Data
11-3	Projected Growth Rates; Six Comparable Natural Gas Pipeline Companies
11-4	Historical and Projected Growth Rates; Eleven Comparable Natural Gas Distribution Companies;
12-1	Average High / Low Stock Price for June 1, 1992 through November 30, 1992; Six Comparable Natural Gas Pipeline Companies
12-2	Estimated Dividend Payments; Six Comparable Natural Gas Pipeline Companies
12-3	Estimated Dividend Yields; Six Comparable Natural Gas Pipeline Companies
12-4	Average High / Low Stock Price for June 1, 1992 through November 30, 1992; Eleven Comparable Natural Gas Distribution Companies
12-5	Estimated Dividend Payments; Eleven Comparable Natural Gas Distribution Companies
12-6	Estimated Dividend Yields; Eleven Comparable Natural Gas Distribution Companies
13-1	Estimated Cost of Common Equity; Six Comparable Natural Gas Pipeline Companies
13-2	Estimated Cost of Common Equity; Eleven Comparable Natural Gas Distribution Companies
14-1	Natural Gas Industry Comparison; Standard & Poor's Senior Unsecured Debt Ratings
14-2	Natural Gas Pipeline vs. Natural Gas Distribution Risk Quantification
15	Pro Forma Pre-Tax Interest Coverage Ratios

LIST OF SCHEDULES
(continued)

Schedule Number	Description
16	Public Utility Revenue Requirements
17	Weighted Average Cost of Capital

MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

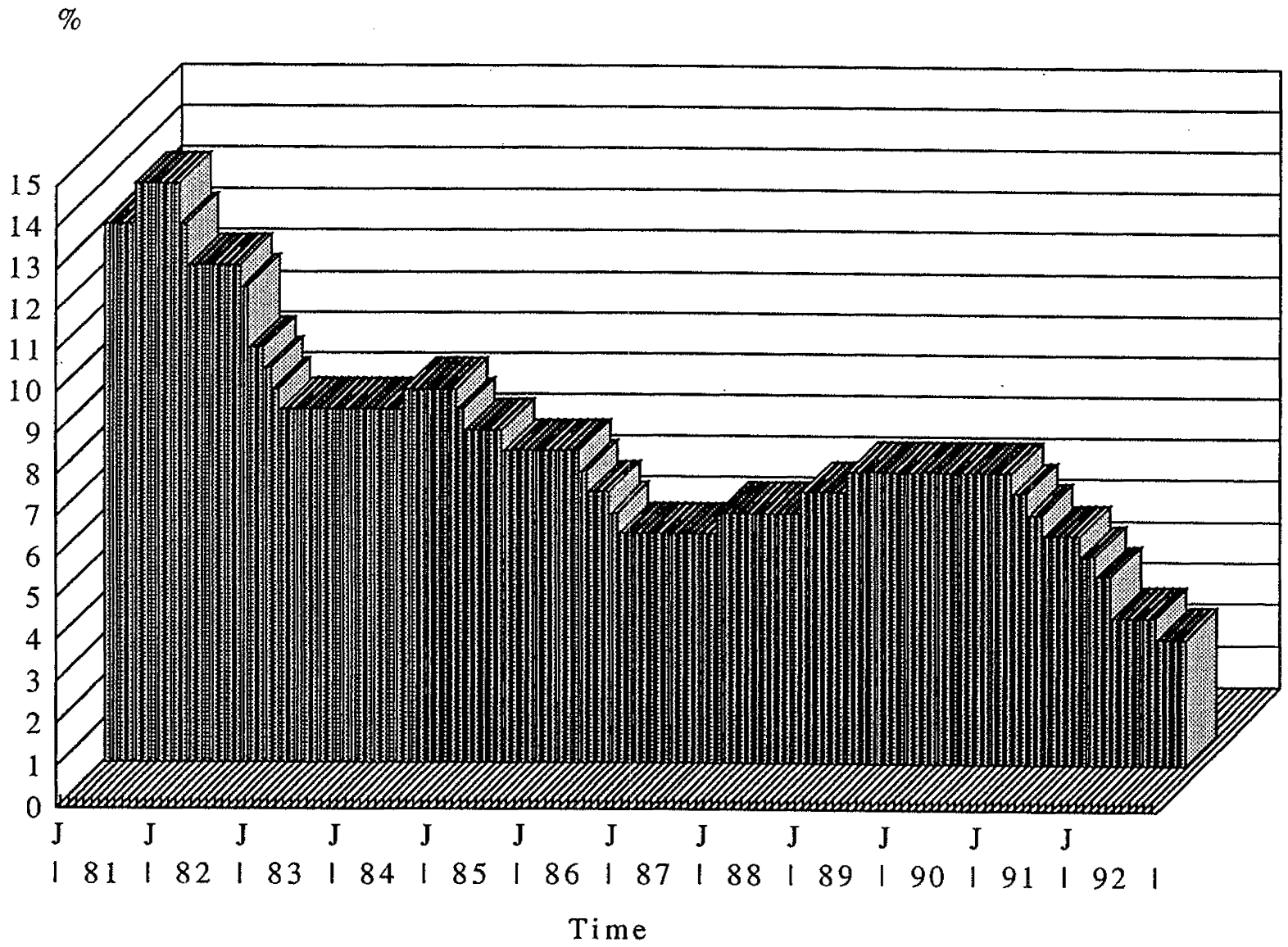
Federal Reserve Discount Rate Changes

Date	Discount Rate
01/01/81	13.0%
05/05	14.0%
11/02	13.0%
12/04	12.0%
07/20/82	11.5%
08/02	11.0%
08/16	10.5%
08/27	10.0%
10/12	9.5%
11/22	9.0%
12/15	8.5%
01/01/83	8.5%
12/31	8.5%
04/09/84	9.0%
11/21	8.5%
12/24	8.0%
05/20/85	7.5%
03/07/86	7.0%
04/21	6.5%
07/11	6.0%
08/21	5.5%
09/04/87	6.0%
08/09/88	6.5%
02/24/89	7.0%
12/19/90	6.5%
02/01/91	6.0%
04/30	5.5%
09/13	5.0%
11/16	4.5%
12/20	3.5%
07/03/92	3.0%

Sources: Federal Reserve Bulletin & The Wall Street Journal.

FEDERAL RESERVE DISCOUNT RATES

1981-1992



MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

Schedule 2-2

MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

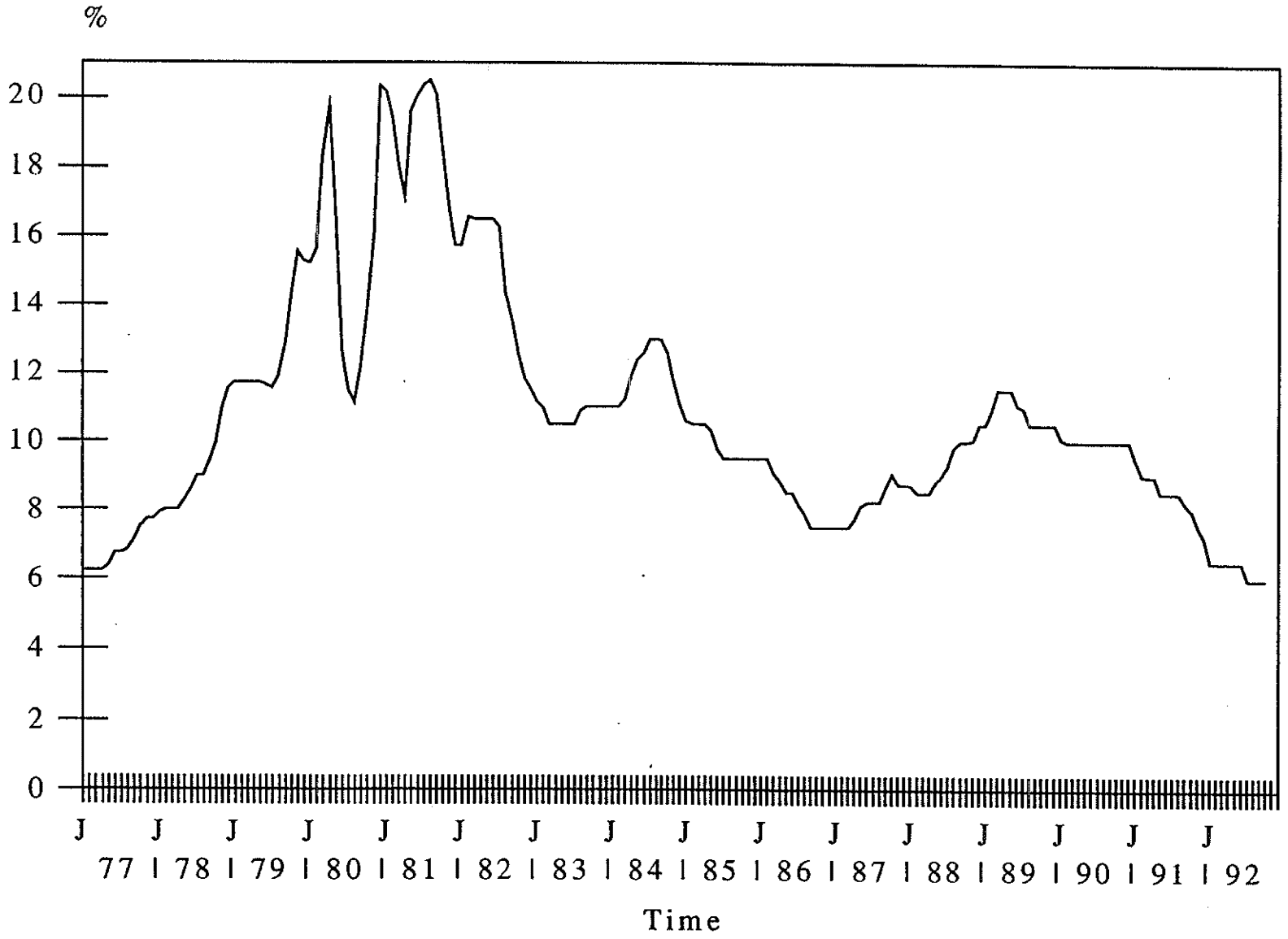
Average Prime Interest Rates

Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1977	6.25	Jan 1981	20.16	Jan 1985	10.61	Jan 1989	10.50
Feb	6.25	Feb	19.43	Feb	10.50	Feb	10.93
Mar	6.25	Mar	18.05	Mar	10.50	Mar	11.50
Apr	6.25	Apr	17.15	Apr	10.50	Apr	11.50
May	6.41	May	19.61	May	10.31	May	11.50
Jun	6.75	Jun	20.03	Jun	9.78	Jun	11.07
Jul	6.75	Jul	20.39	Jul	9.50	Jul	10.98
Aug	6.83	Aug	20.50	Aug	9.50	Aug	10.50
Sep	7.13	Sep	20.08	Sep	9.50	Sep	10.50
Oct	7.52	Oct	18.45	Oct	9.50	Oct	10.50
Nov	7.75	Nov	16.84	Nov	9.50	Nov	10.50
Dec	7.75	Dec	15.75	Dec	9.50	Dec	10.50
Jan 1978	7.93	Jan 1982	15.75	Jan 1986	9.50	Jan 1990	10.11
Feb	8.00	Feb	16.56	Feb	9.50	Feb	10.00
Mar	8.00	Mar	16.50	Mar	9.10	Mar	10.00
Apr	8.00	Apr	16.50	Apr	8.83	Apr	10.00
May	8.27	May	16.50	May	8.50	May	10.00
Jun	8.63	Jun	16.50	Jun	8.50	Jun	10.00
Jul	9.00	Jul	16.26	Jul	8.16	Jul	10.00
Aug	9.01	Aug	14.39	Aug	7.90	Aug	10.00
Sep	9.41	Sep	13.50	Sep	7.50	Sep	10.00
Oct	9.94	Oct	12.52	Oct	7.50	Oct	10.00
Nov	10.94	Nov	11.85	Nov	7.50	Nov	10.00
Dec	11.55	Dec	11.50	Dec	7.50	Dec	10.00
Jan 1979	11.75	Jan 1983	11.16	Jan 1987	7.50	Jan 1991	9.52
Feb	11.75	Feb	10.98	Feb	7.50	Feb	9.05
Mar	11.75	Mar	10.50	Mar	7.50	Mar	9.00
Apr	11.75	Apr	10.50	Apr	7.75	Apr	9.00
May	11.75	May	10.50	May	8.14	May	8.50
Jun	11.65	Jun	10.50	Jun	8.25	Jun	8.50
Jul	11.54	Jul	10.50	Jul	8.25	Jul	8.50
Aug	11.91	Aug	10.89	Aug	8.25	Aug	8.50
Sep	12.90	Sep	11.00	Sep	8.70	Sep	8.20
Oct	14.39	Oct	11.00	Oct	9.07	Oct	8.00
Nov	15.55	Nov	11.00	Nov	8.78	Nov	7.58
Dec	15.30	Dec	11.00	Dec	8.75	Dec	7.21
Jan 1980	15.25	Jan 1984	11.00	Jan 1988	8.75	Jan 1992	6.50
Feb	15.63	Feb	11.00	Feb	8.51	Feb	6.50
Mar	18.31	Mar	11.21	Mar	8.50	Mar	6.50
Apr	19.77	Apr	11.93	Apr	8.50	Apr	6.50
May	16.57	May	12.39	May	8.84	May	6.50
Jun	12.63	Jun	12.60	Jun	9.00	Jun	6.50
Jul	11.48	Jul	13.00	Jul	9.29	Jul	6.02
Aug	11.12	Aug	13.00	Aug	9.84	Aug	6.00
Sep	12.23	Sep	12.97	Sep	10.00	Sep	6.00
Oct	13.79	Oct	12.58	Oct	10.00	Oct	6.00
Nov	16.06	Nov	11.77	Nov	10.05		
Dec	20.35	Dec	11.06	Dec	10.50		

Sources: Federal Reserve Bulletin & The Wall Street Journal

AVERAGE PRIME INTEREST RATES

1977-1992



MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

Schedule 3-2

MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

Rate of Inflation

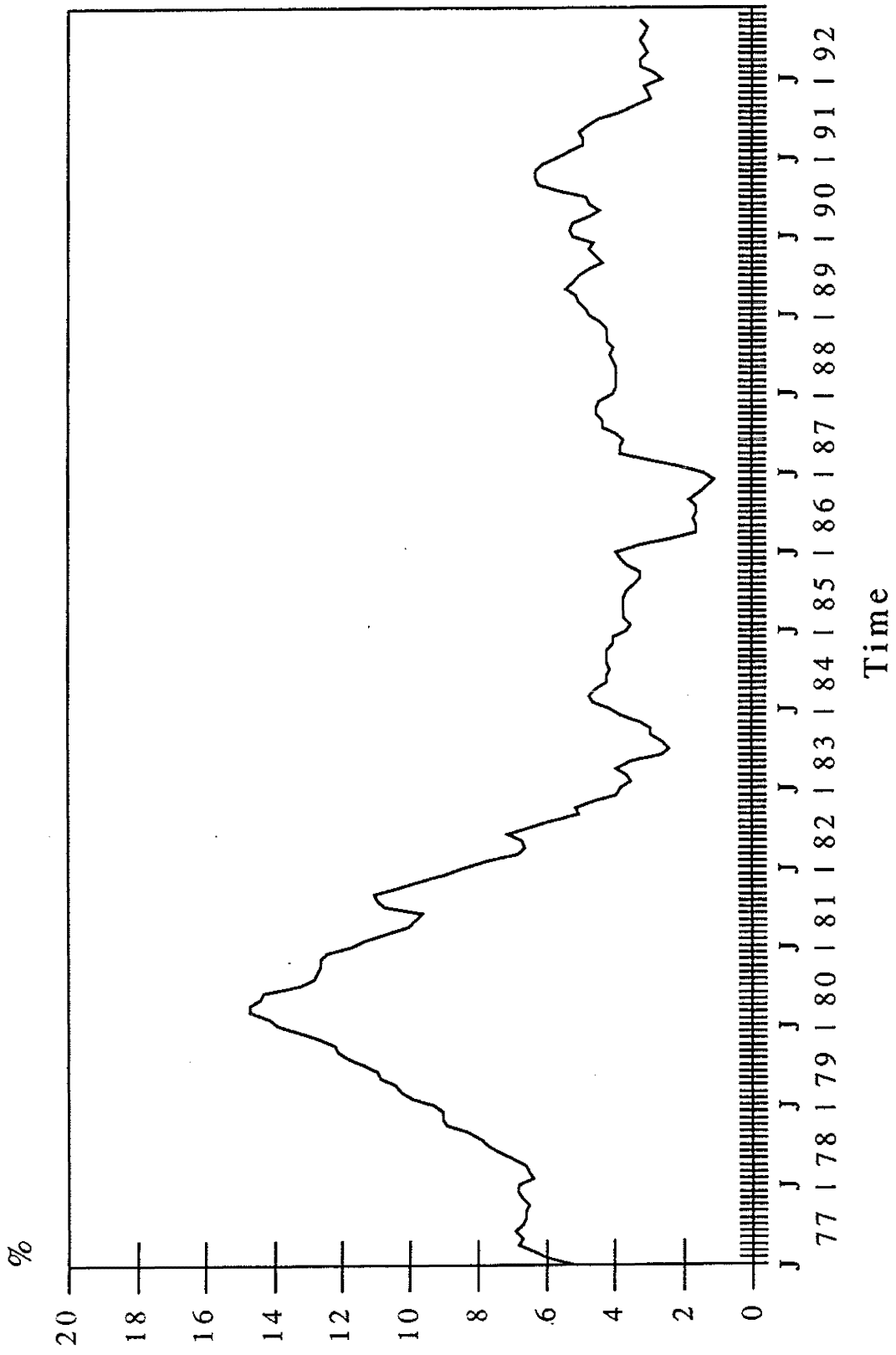
Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1977	5.20	Jan 1981	11.70	Jan 1985	3.60	Jan 1989	4.70
Feb	6.00	Feb	11.30	Feb	3.50	Feb	4.80
Mar	6.40	Mar	10.60	Mar	3.70	Mar	5.00
Apr	6.80	Apr	10.00	Apr	3.70	Apr	5.10
May	6.70	May	9.80	May	3.70	May	5.40
Jun	6.90	Jun	9.60	Jun	3.70	Jun	5.20
Jul	6.70	Jul	10.70	Jul	3.60	Jul	5.00
Aug	6.60	Aug	10.90	Aug	3.40	Aug	4.70
Sep	6.60	Sep	11.00	Sep	3.20	Sep	4.30
Oct	6.50	Oct	10.20	Oct	3.20	Oct	4.50
Nov	6.70	Nov	9.60	Nov	3.60	Nov	4.70
Dec	6.80	Dec	8.90	Dec	3.80	Dec	4.60
Jan 1978	6.80	Jan 1982	8.40	Jan 1986	3.90	Jan 1990	5.20
Feb	6.40	Feb	7.70	Feb	3.20	Feb	5.30
Mar	6.50	Mar	6.80	Mar	2.30	Mar	5.20
Apr	6.60	Apr	6.60	Apr	1.60	Apr	4.70
May	7.00	May	6.70	May	1.60	May	4.40
Jun	7.40	Jun	7.10	Jun	1.70	Jun	4.70
Jul	7.70	Jul	6.50	Jul	1.60	Jul	4.80
Aug	7.90	Aug	5.90	Aug	1.60	Aug	5.60
Sep	8.30	Sep	5.00	Sep	1.80	Sep	6.20
Oct	8.90	Oct	5.10	Oct	1.50	Oct	6.30
Nov	9.00	Nov	4.60	Nov	1.30	Nov	6.30
Dec	9.00	Dec	3.90	Dec	1.10	Dec	6.10
Jan 1979	9.30	Jan 1983	3.80	Jan 1987	1.40	Jan 1991	5.70
Feb	9.90	Feb	3.50	Feb	2.10	Feb	5.30
Mar	10.20	Mar	3.60	Mar	3.00	Mar	4.90
Apr	10.40	Apr	3.90	Apr	3.80	Apr	4.90
May	10.80	May	3.50	May	3.80	May	5.00
Jun	10.90	Jun	2.60	Jun	3.70	Jun	4.70
Jul	11.30	Jul	2.40	Jul	3.90	Jul	4.40
Aug	11.80	Aug	2.60	Aug	4.30	Aug	3.80
Sep	12.10	Sep	2.90	Sep	4.30	Sep	3.40
Oct	12.20	Oct	2.90	Oct	4.50	Oct	2.90
Nov	12.60	Nov	3.20	Nov	4.50	Nov	3.00
Dec	13.30	Dec	3.80	Dec	4.40	Dec	3.10
Jan 1980	13.90	Jan 1984	4.10	Jan 1988	4.00	Jan 1992	2.60
Feb	14.10	Feb	4.60	Feb	3.90	Feb	2.80
Mar	14.70	Mar	4.70	Mar	3.90	Mar	3.20
Apr	14.70	Apr	4.50	Apr	3.90	Apr	3.20
May	14.40	May	4.20	May	3.90	May	3.00
Jun	14.30	Jun	4.20	Jun	4.00	Jun	3.10
Jul	13.20	Jul	4.10	Jul	4.10	Jul	3.20
Aug	12.80	Aug	4.20	Aug	4.00	Aug	3.10
Sep	12.70	Sep	4.20	Sep	4.20	Sep	3.00
Oct	12.60	Oct	4.20	Oct	4.20	Oct	3.20
Nov	12.60	Nov	4.00	Nov	4.20		
Dec	12.40	Dec	4.00	Dec	4.40		

Source: U.S. Department of Labor, Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers, Change for 12-Month Period.

MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

RATE OF INFLATION

1977-1992



Schedule 4-2

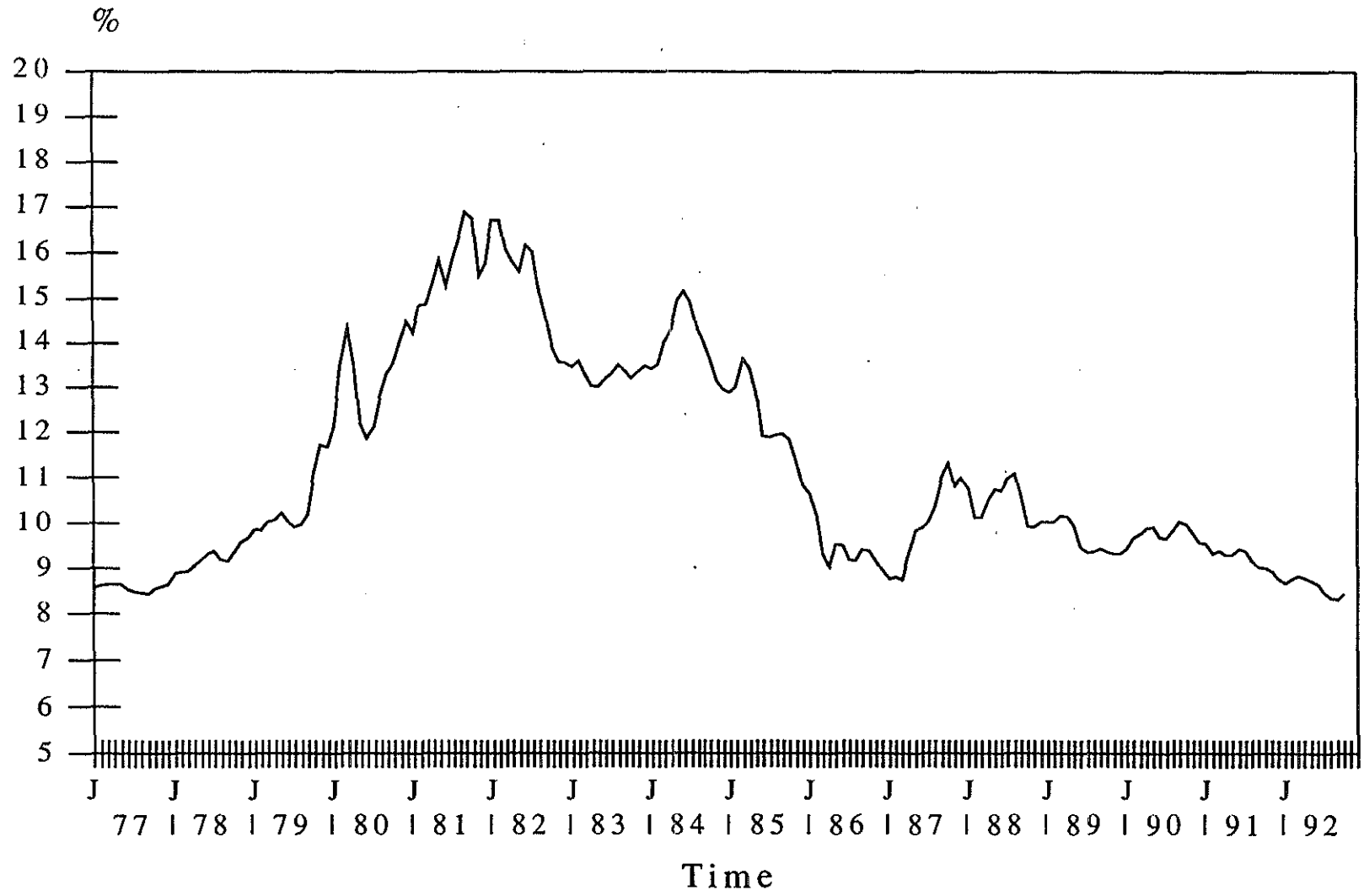
MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

Average Yields on Moody's Public Utility Bonds

Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1977	8.59	Jan 1981	14.22	Jan 1985	12.88	Jan 1989	10.02
Feb	8.63	Feb	14.84	Feb	13.00	Feb	10.02
Mar	8.66	Mar	14.86	Mar	13.66	Mar	10.16
Apr	8.65	Apr	15.32	Apr	13.42	Apr	10.14
May	8.64	May	15.84	May	12.89	May	9.92
Jun	8.53	Jun	15.27	Jun	11.91	Jun	9.49
Jul	8.48	Jul	15.87	Jul	11.88	Jul	9.34
Aug	8.47	Aug	16.33	Aug	11.93	Aug	9.37
Sep	8.43	Sep	16.89	Sep	11.95	Sep	9.43
Oct	8.56	Oct	16.76	Oct	11.84	Oct	9.37
Nov	8.61	Nov	15.50	Nov	11.33	Nov	9.33
Dec	8.65	Dec	15.77	Dec	10.82	Dec	9.31
Jan 1978	8.87	Jan 1982	16.73	Jan 1986	10.66	Jan 1990	9.44
Feb	8.90	Feb	16.72	Feb	10.16	Feb	9.66
Mar	8.93	Mar	16.07	Mar	9.33	Mar	9.75
Apr	9.05	Apr	15.82	Apr	9.02	Apr	9.87
May	9.19	May	15.60	May	9.52	May	9.89
Jun	9.33	Jun	16.18	Jun	9.51	Jun	9.69
Jul	9.38	Jul	16.04	Jul	9.19	Jul	9.66
Aug	9.21	Aug	15.22	Aug	9.15	Aug	9.84
Sep	9.17	Sep	14.56	Sep	9.42	Sep	10.01
Oct	9.37	Oct	13.88	Oct	9.39	Oct	9.94
Nov	9.58	Nov	13.58	Nov	9.15	Nov	9.76
Dec	9.67	Dec	13.55	Dec	8.96	Dec	9.57
Jan 1979	9.85	Jan 1983	13.46	Jan 1987	8.77	Jan 1991	9.56
Feb	9.84	Feb	13.60	Feb	8.81	Feb	9.31
Mar	10.02	Mar	13.28	Mar	8.75	Mar	9.39
Apr	10.05	Apr	13.03	Apr	9.30	Apr	9.30
May	10.23	May	13.00	May	9.82	May	9.29
Jun	10.04	Jun	13.17	Jun	9.87	Jun	9.44
Jul	9.90	Jul	13.28	Jul	10.01	Jul	9.40
Aug	9.97	Aug	13.50	Aug	10.33	Aug	9.16
Sep	10.19	Sep	13.35	Sep	11.00	Sep	9.03
Oct	11.13	Oct	13.19	Oct	11.32	Oct	8.99
Nov	11.73	Nov	13.33	Nov	10.82	Nov	8.93
Dec	11.68	Dec	13.48	Dec	10.99	Dec	8.76
Jan 1980	12.12	Jan 1984	13.40	Jan 1988	10.75	Jan 1992	8.67
Feb	13.48	Feb	13.50	Feb	10.11	Feb	8.77
Mar	14.33	Mar	14.03	Mar	10.11	Mar	8.84
Apr	13.50	Apr	14.30	Apr	10.53	Apr	8.79
May	12.17	May	14.95	May	10.75	May	8.72
Jun	11.87	Jun	15.16	Jun	10.71	Jun	8.64
Jul	12.12	Jul	14.92	Jul	10.96	Jul	8.46
Aug	12.82	Aug	14.29	Aug	11.09	Aug	8.34
Sep	13.29	Sep	14.04	Sep	10.56	Sep	8.31
Oct	13.53	Oct	13.68	Oct	9.92	Oct	8.44
Nov	14.07	Nov	13.15	Nov	9.89		
Dec	14.48	Dec	12.96	Dec	10.02		

Source: Moody's Bond Record.

AVERAGE YIELDS ON
MOODY'S PUBLIC UTILITY BONDS
1977-1992



MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

Schedule 5-2

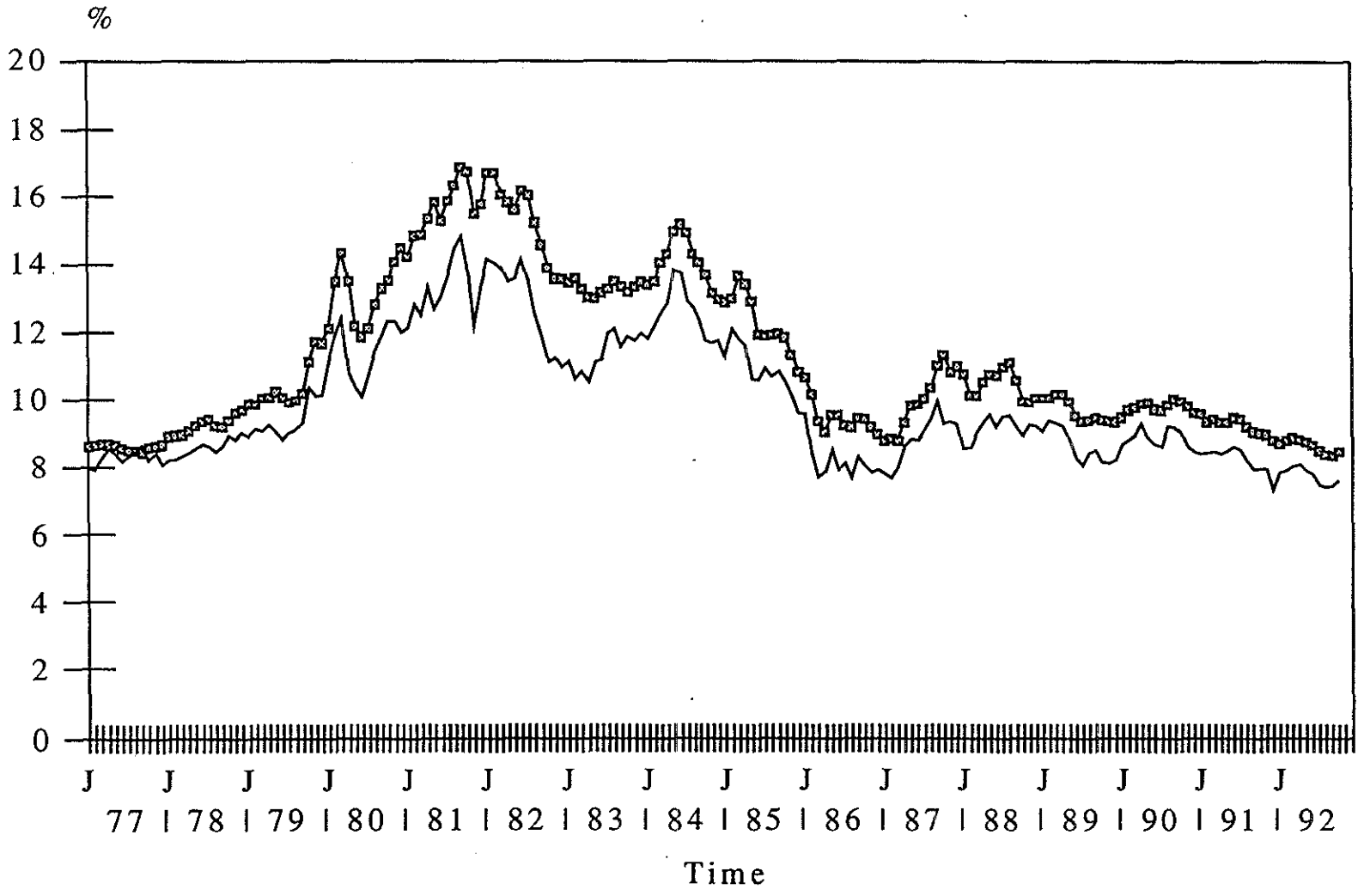
MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

Yields on
Long-Term Government Bonds

Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1977	7.64%	Jan 1981	12.11%	Jan 1985	11.27%	Jan 1989	9.03%
Feb	7.75%	Feb	12.83%	Feb	12.09%	Feb	9.35%
Mar	7.72%	Mar	12.48%	Mar	11.81%	Mar	9.29%
Apr	7.71%	Apr	13.32%	Apr	11.62%	Apr	9.18%
May	7.65%	May	12.65%	May	10.62%	May	8.78%
Jun	7.54%	Jun	13.04%	Jun	10.55%	Jun	8.22%
Jul	7.68%	Jul	13.70%	Jul	10.91%	Jul	8.01%
Aug	7.54%	Aug	14.45%	Aug	10.68%	Aug	8.41%
Sep	7.64%	Sep	14.82%	Sep	10.82%	Sep	8.47%
Oct	7.81%	Oct	13.84%	Oct	10.51%	Oct	8.10%
Nov	7.77%	Nov	12.20%	Nov	10.11%	Nov	8.08%
Dec	8.03%	Dec	13.34%	Dec	9.56%	Dec	8.16%
Jan 1978	8.16%	Jan 1982	14.15%	Jan 1986	9.58%	Jan 1990	8.65%
Feb	8.22%	Feb	14.02%	Feb	8.41%	Feb	8.76%
Mar	8.31%	Mar	13.87%	Mar	7.66%	Mar	8.89%
Apr	8.38%	Apr	13.48%	Apr	7.82%	Apr	9.24%
May	8.52%	May	13.58%	May	8.48%	May	8.83%
Jun	8.65%	Jun	14.12%	Jun	7.90%	Jun	8.64%
Jul	8.58%	Jul	13.52%	Jul	8.09%	Jul	8.60%
Aug	8.43%	Aug	12.54%	Aug	7.63%	Aug	9.20%
Sep	8.60%	Sep	11.83%	Sep	8.27%	Sep	9.14%
Oct	8.89%	Oct	11.12%	Oct	8.03%	Oct	8.98%
Nov	8.77%	Nov	11.25%	Nov	7.79%	Nov	8.58%
Dec	8.98%	Dec	10.95%	Dec	7.89%	Dec	8.44%
Jan 1979	8.86%	Jan 1983	11.13%	Jan 1987	7.78%	Jan 1991	8.37%
Feb	9.08%	Feb	10.60%	Feb	7.63%	Feb	8.41%
Mar	9.02%	Mar	10.83%	Mar	7.95%	Mar	8.44%
Apr	9.22%	Apr	10.51%	Apr	8.59%	Apr	8.37%
May	9.03%	May	11.12%	May	8.80%	May	8.45%
Jun	8.77%	Jun	11.19%	Jun	8.77%	Jun	8.60%
Jul	8.95%	Jul	11.98%	Jul	9.07%	Jul	8.50%
Aug	9.07%	Aug	12.10%	Aug	9.36%	Aug	8.18%
Sep	9.27%	Sep	11.57%	Sep	9.92%	Sep	7.90%
Oct	10.34%	Oct	11.88%	Oct	9.26%	Oct	7.91%
Nov	10.09%	Nov	11.76%	Nov	9.31%	Nov	7.89%
Dec	10.12%	Dec	11.97%	Dec	9.20%	Dec	7.30%
Jan 1980	11.14%	Jan 1984	11.80%	Jan 1988	8.52%	Jan 1992	7.79%
Feb	11.86%	Feb	12.17%	Feb	8.54%	Feb	7.85%
Mar	12.39%	Mar	12.53%	Mar	9.01%	Mar	7.97%
Apr	10.76%	Apr	12.84%	Apr	9.29%	Apr	8.04%
May	10.37%	May	13.81%	May	9.52%	May	7.86%
Jun	10.06%	Jun	13.74%	Jun	9.17%	Jun	7.77%
Jul	10.74%	Jul	12.93%	Jul	9.47%	Jul	7.44%
Aug	11.40%	Aug	12.70%	Aug	9.50%	Aug	7.40%
Sep	11.85%	Sep	12.35%	Sep	9.17%	Sep	7.42%
Oct	12.31%	Oct	11.73%	Oct	8.89%	Oct	7.58%
Nov	12.30%	Nov	11.69%	Nov	9.23%		
Dec	11.99%	Dec	11.70%	Dec	9.19%		

Sources: Stocks, Bonds, Bills, and Inflation 1992 Yearbook; Ibbotson Associates, Chicago and Salomon Brothers "Bond Market Roundup."

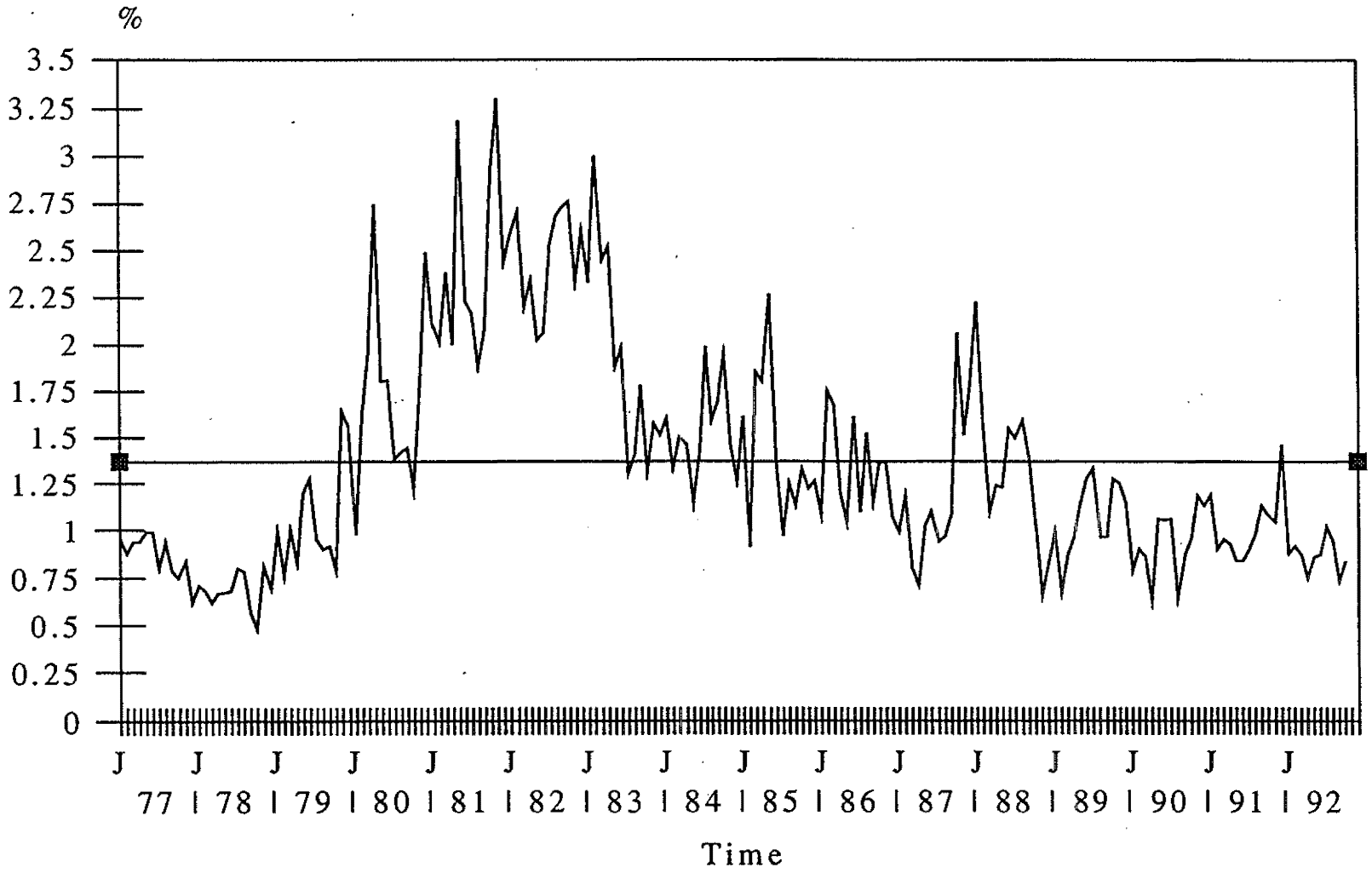
AVERAGE YIELDS ON PUBLIC UTILITY BONDS VS. LONG-TERM GOVERNMENT BONDS 1977-1992



MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

Schedule 6-2

YIELD SPREADS BETWEEN UTILITY BONDS AND U.S. LONG-TERM GOVERNMENT BONDS 1977-1992

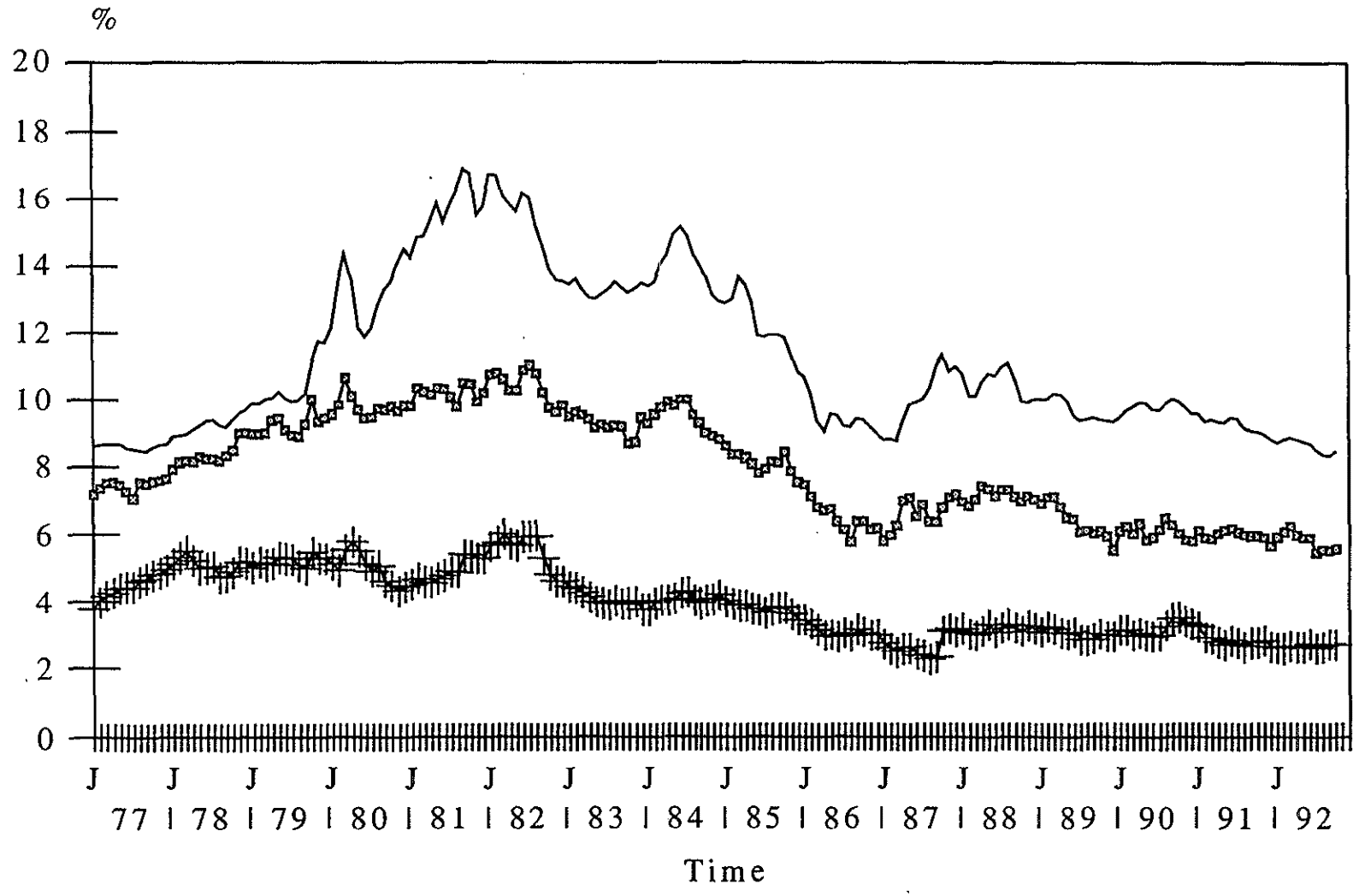


MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

Schedule 6-3

High Spread: 3.30%
Low Spread: 0.48%
Average Spread: 1.37%

AVERAGE YIELDS ON PUBLIC UTILITY BONDS & S&P UTILITIES & INDUSTRIALS STOCK YIELDS 1977-1992



MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

Schedule 6-4

MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

Economic Estimates and Projections, 1992 - 1994

	Inflation Rate			Real GDP			Unemployment			3-Mo. T-Bill Rate			30-Yr. T-Bond Rate		
Source	1992	1993	1994	1992	1993	1994	1992	1993	1994	1992	1993	1994	1992	1993	1994
Standard & Poor's Corp. "The Outlook" (06/17/92) ***	3.4%	3.6%	N.A.	3.6%	3.4%	N.A.	6.9%	6.4%	N.A.	3.9%	4.6%	N.A.	7.8%	7.9%	N.A.
Value Line's Investment Survey (09/25/92)	3.4%	3.5%	3.9%	1.7%	2.8%	3.1%	7.2%	6.6%	5.9%	3.9%	4.6%	5.6%	7.9%	8.3%	8.6%
Salomon Brothers Inc. "Comments on Credit" (10/23/92)	3.0%	2.9%	N.A.	1.9%	2.3%	N.A.	7.5%	7.3%	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Current rate	3.2%			1.4%			7.5%			3.23%			7.55%		

Notes: N.A. = Not Available.

*** Represents estimates through the 2nd quarter of 1993.

Schedule 7

Sources of Current Rates: Consumer Price Index - All Urban Consumers, 12-Month Period Ending October 1992.
The Value Line Investment Survey: Selection & Opinion, September 25, 1992.
The Value Line Investment Survey: Selection & Opinion, September 25, 1992.
Salomon Brothers Inc. "Bond Market Roundup", November 20, 1992.
Salomon Brothers Inc. "Bond Market Roundup", November 20, 1992.

MISSOURI PIPELINE COMPANY
CASE NO. GR-92-314

Capital Structure as of September 30, 1992 for Missouri Pipeline Company

Capital Component	Amount in Dollars	Percentage of Capital
Common Stock Equity	$16,651,572	45.78%
Preferred Stock	$0	0.00%
Long-Term Debt	$18,000,000	49.48%
Short-Term Debt	$1,723,142	4.74%
Total Capitalization	$36,374,715	100.00%

Notes: See Schedule 9 for amount of Long-Term Debt outstanding at 9/30/92.

Sources: Missouri Pipeline Company's response to Staff's Data Request # 3801 and # 3802.

MISSOURI PIPELINE COMPANY
CASE NO. GR-92-314

Embedded Cost of Long-Term Debt as of September 30, 1992 for Missouri Pipeline Company

Long-Term Debt	(1) Interest Rate	(2) Prinicipal Amount Outstanding (6/30/92)	(3) Annualized Cost to Company (1 * 2)
First Mortgage Bonds:			
ESCO Note	12.500%	$6,000,000	$750,000
Bank Line of Credit	6.500%	$12,000,000	$780,000
Total		$18,000,000	$1,530,000

Embedded Cost of Long-Term Debt = $\frac{\$1,530,000}{\$18,000,000}$

= **8.50%**

Notes: Principal Amount Outstanding as of 9/30/92 includes Current Maturities.

Line of Credit priced at an interest rate of Prime + .5 percent.

Source: Missouri Pipeline Company's response to Data Request No's 3801 and 3803.

Schedule 9

MISSOURI PIPELINE COMPANY
CASE NO. GR-92-314

CRITERION FOR SELECTING COMPARABLE NATURAL GAS PIPELINE COMPANIES

Natural Gas Companies (Diversified)	(1) Value Line Information Available	(2) Moody's Natural Gas Companies	(3) S&P CreditReview Information Available	(4) No Missouri Operations	(5) Met All Criteria
Arkla Inc.	Yes	No			
Burlington Resources Inc.	Yes	No			
Coastal Corporation	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Columbia Gas System Inc. (Chapter 11)	Yes	No			
Consol'd Natural Gas Company	Yes	No			
Eastern Enterprises	Yes	No			
Enron Corporation	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Enserch Corporation	Yes	No			
Equitable Resources, Inc.	Yes	No			
KN Energy	Yes	No			
Mitchell Energy	Yes	No			
National Fuel Gas	Yes	No			
Panhandle Eastern	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Seagull Energy	Yes	No			
Sonat Inc.	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Southwestern Energy	Yes	No			
Tenneco, Inc.	Yes	No			
Transco Energy	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Valero Energy	Yes	No			
Williams Companies	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Sources: Column 1 per Value Line Investment Survey.
Column 2 per the 1992 Moody's Public Utility Manual.
Column 3 per Standard & Poor's CreditReview dated October 12, 1992.

Schedule 10-1

MISSOURI PIPELINE COMPANY
CASE NO. GR-92-314

List of Six Comparable Natural Gas Pipeline Companies

Number	Ticker Symbol	Company Name
1	CGP	Coastal Corporation
2	ENE	Enron Corporation
3	PEL	Panhandle Eastern Corporation
4	SNT	Sonat Inc.
5	E	Transco Energy
6	WMB	Williams Cos. Inc.

MISSOURI PIPELINE COMPANY
CASE NO. GR-92-314

Criterion for Selecting Natural Gas Distribution Companies

Natural Gas Company (Distribution)	(1) Value Line Information Available	(2) S&P CreditReview Information Available	(3) Gas Revenues to Total Revenues > 90%	(4) "BBB" Pre-Tax Interest Coverage > 2.00x	(5) "BBB" Total Debt to Total Capital < 60%	(6) No Missouri Operations	(7) Met All Criteria
Atlanta Gas Light Company	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Atmos Energy Corporation	Yes	No					
Bay State Gas Company	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Brooklyn Union Gas Company	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Cascade Natural Gas Corporation	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Connecticut Energy Corporation	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Connecticut Natural Gas Corporation	Yes	Yes	No				
Energen Corporation	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Indiana Energy Inc.	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Laclede Gas Company	Yes	Yes	Yes	Yes	Yes	No	
MCN Corporation	Yes	Yes	Yes	Yes	No		
NUI Corporation	Yes	Yes	Yes	No			
New Jersey Resources Corporation	Yes	Yes	Yes	No			
NICOR, Inc.	Yes	Yes	No				
Northwest Natural Gas Company	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Oneok, Inc.	Yes	Yes	No				
Pacific Enterprises	Yes	Yes	No				
Peoples Energy Corporation	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Piedmont Natural Gas Company, Inc.	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Providence Energy	Yes	Yes	Yes	No			
Questar Corporation	Yes	Yes	No				
South Jersey Industries	Yes	No					
Southwest Gas Corporation	Yes	Yes	No				
UGI Corporation	Yes	Yes	No				
Washington Energy Company	Yes	Yes	No				
Washington Gas Light Company	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
WICOR Inc.	Yes	Yes	No				

Sources: Column 1 per Value Line Investment Survey.
Columns 2, 4, and 5 per Standard & Poor's Corporation CreditReview, June 15, 1992.
Column 3 per Edward D. Jones & Co.'s 1991 Natural Gas Industry Review.

Schedule 10-3

MISSOURI PIPELINE COMPANY
CASE NO. GR-92-314

List of Eleven Comparable Natural Gas Distribution Companies

Number	Ticker Symbol	Company Name
1	ATG	Atlanta Gas Light Company
2	BGC	Bay State Gas Company
3	BU	Brooklyn Union Gas Company
4	CGC	Cascade Natural Gas Corporation
5	CNE	Connecticut Energy Corporation
6	EGN	Energen Corporation
7	IEI	Indiana Energy Inc.
8	NWNG	Northwest Natural Gas Company
9	PGL	Peoples Energy Corporation
10	PNY	Piedmont Natural Gas Company
11	WGL	Washington Gas Light Company

MISSOURI PIPELINE COMPANY
CASE NO. GR-92-314

Historical Dividends Per Share & Earnings Per Share & Book Value Per Share Growth Rates
Six Comparable Natural Gas Pipeline Companies
Year Ending 1991 Data

	Dividends Per Share			Earnings Per Share			Book Value Per Share		
Company Name	1981	1986	1991	1981	1986	1991	1981	1986	1991
Coastal Corporation	N.A.	$0.18	$0.40	N.A.	$0.56	$0.92	N.A.	$9.68	$19.68
Enron Corporation	$0.98	$1.24	$1.26	$2.72	$0.02	$1.60	$14.95	$10.91	$16.86
Panhandle Eastern Corporation	$2.00	$2.23	$0.80	$6.52	$2.24	$0.86	$31.85	$18.92	$12.32
Sonat Inc.	$1.01	$2.00	$2.00	$4.24	$1.22	$1.82	$24.21	$24.10	$24.28
Transco Energy	$1.60	$2.48	$1.17	$5.41	$1.71	$0.66	$27.51	$24.70	$12.60
Williams Cos. Inc.	$1.20	$1.40	$1.40	$3.67	$0.50	$2.35	$34.50	$26.94	$25.63

--------- *Annual Compound Growth Rates* ----------

	Dividends Per Share			Earnings Per Share			Book Value Per Share		
Company Name	1986-91	1981-91	Avg.	1986-91	1981-91	Avg.	1986-91	1981-91	Avg.
Coastal Corporation	17.32%	N.A.	17.32%	10.44%	N.A.	10.44%	15.25%	N.A.	15.25%
Enron Corporation	0.32%	2.54%	1.43%	140.22%	-5.17%	67.53%	9.10%	1.21%	5.15%
Panhandle Eastern Corporation	-18.54%	-8.76%	-13.65%	-17.42%	-18.34%	-17.88%	-8.22%	-9.06%	-8.64%
Sonat Inc.	0.00%	7.07%	3.54%	8.33%	-8.11%	0.11%	0.15%	0.03%	0.09%
Transco Energy	-13.95%	-3.08%	-8.52%	-17.34%	-18.97%	-18.15%	-12.60%	-7.51%	-10.05%
Williams Cos. Inc.	0.00%	1.55%	0.78%	36.28%	-4.36%	15.96%	-0.99%	-2.93%	-1.96%
Average	-2.48%	-0.11%	0.15%	26.75%	-9.16%	9.67%	0.45%	-3.04%	-0.03%
Standard Deviation	11.56%	4.92%	9.78%	53.96%	7.12%	28.90%	9.50%	3.94%	8.55%

--------- *Trend Line Growth Rates* ----------

	Dividends Per Share			Earnings Per Share			Book Value Per Share		
Company Name	1986-91	1981-91	Avg.	1986-91	1981-91	Avg.	1986-91	1981-91	Avg.
Coastal Corporation	16.69%	N.A.	16.69%	11.54%	N.A.	11.54%	16.46%	N.A.	16.46%
Enron Corporation	0.23%	2.10%	1.17%	N.A.	N.A.	N.A.	10.91%	-0.27%	5.32%
Panhandle Eastern Corporation	-16.22%	-6.51%	-11.37%	-30.96%	-25.56%	-28.26%	-8.91%	-11.84%	-10.38%
Sonat Inc.	0.00%	6.41%	3.21%	7.62%	-11.10%	-1.74%	1.00%	-1.32%	-0.16%
Transco Energy	-13.24%	-4.09%	-8.67%	N.A.	N.A.	N.A.	-9.52%	-7.98%	-8.75%
Williams Cos. Inc.	0.00%	1.91%	0.96%	38.21%	-5.09%	16.56%	-2.50%	-4.07%	-3.29%
Average	-2.09%	-0.04%	0.33%	6.60%	-13.92%	-3.66%	1.24%	-4.25%	-1.50%
Standard Deviation	10.73%	4.25%	9.08%	20.39%	9.24%	14.19%	9.64%	4.36%	9.08%

Source: Value Line Investment Survey

MISSOURI PIPELINE COMPANY
CASE NO. GR-92-314

Historical Dividends Per Share & Earnings Per Share Growth Rates
Eleven Comparable Natural Gas Distribution Companies
Year Ending 1991 Data

	Dividends Per Share			Earnings Per Share		
Company Name	1981	1986	1991	1981	1986	1991
Atlanta Gas Light Company	$0.84	$1.40	$2.04	$1.29	$1.67	$2.07
Bay State Gas Company	$0.77	$0.91	$1.31	$0.93	$1.49	$1.32
Brooklyn Union Gas Company	$1.20	$1.62	$1.90	$2.03	$2.35	$2.18
Cascade Natural Gas Corporation	$1.06	$1.28	$1.36	$1.29	$0.24	$1.71
Connecticut Energy Corporation	$0.87	$1.12	$1.24	$1.11	$1.16	$1.38
Energen Corporation	$0.53	$0.70	$0.96	$0.97	$0.81	$1.42
Indiana Energy Inc.	$0.69	$1.03	$1.38	$1.12	$1.39	$1.67
Northwest Natural Gas Company	$1.24	$1.53	$1.69	$1.67	$1.74	$1.01
Peoples Energy Corporation	N.A.	$1.29	$1.71	$1.66	$2.27	$2.05
Piedmont Natural Gas Company	$0.87	$1.19	$1.74	$1.41	$1.54	$1.77
Washington Gas Light Company	$1.32	$1.76	$2.09	$1.68	$2.29	$2.28

--------- Annual Compound Growth Rates ----------

	Dividends Per Share			Earnings Per Share		
Company Name	1986-91	1981-91	Avg.	1986-91	1981-91	Avg.
Atlanta Gas Light Company	7.82%	9.28%	8.55%	4.39%	4.84%	4.62%
Bay State Gas Company	7.56%	5.46%	6.51%	-2.39%	3.56%	0.59%
Brooklyn Union Gas Company	3.24%	4.70%	3.97%	-1.49%	0.72%	-0.39%
Cascade Natural Gas Corporation	1.22%	2.52%	1.87%	48.10%	2.86%	25.48%
Connecticut Energy Corporation	2.06%	3.61%	2.83%	3.53%	2.20%	2.87%
Energen Corporation	6.52%	6.12%	6.32%	11.88%	3.88%	7.88%
Indiana Energy Inc.	6.03%	7.18%	6.60%	3.74%	4.08%	3.91%
Northwest Natural Gas Company	2.01%	3.14%	2.58%	-10.31%	-4.90%	-7.61%
Peoples Energy Corporation	5.80%	N.A.	5.80%	-2.02%	2.13%	0.06%
Piedmont Natural Gas Company	7.89%	7.18%	7.54%	2.82%	2.30%	2.56%
Washington Gas Light Company	3.50%	4.70%	4.10%	-0.09%	3.10%	1.51%
Average	4.88%	5.39%	5.15%	5.29%	2.25%	3.77%
Standard Deviation	2.41%	2.45%	2.09%	14.52%	2.51%	7.79%

--------- Trend Line Growth Rates ----------

	Dividends Per Share			Earnings Per Share		
Company Name	1986-91	1981-91	Avg.	1986-91	1981-91	Avg.
Atlanta Gas Light Company	7.58%	10.30%	8.94%	2.53%	5.86%	4.20%
Bay State Gas Company	7.55%	5.68%	6.62%	-0.72%	9.36%	4.32%
Brooklyn Union Gas Company	3.31%	4.16%	3.74%	-1.03%	0.92%	-0.05%
Cascade Natural Gas Corporation	1.07%	2.35%	1.71%	42.01%	5.98%	24.00%
Connecticut Energy Corporation	2.36%	3.82%	3.09%	0.20%	1.78%	0.99%
Energen Corporation	6.84%	6.59%	6.72%	6.91%	3.99%	5.45%
Indiana Energy Inc.	6.37%	7.12%	6.75%	6.27%	5.90%	6.09%
Northwest Natural Gas Company	1.99%	3.26%	2.63%	-4.60%	0.05%	-2.28%
Peoples Energy Corporation	5.68%	N.A.	2.84%	0.53%	3.76%	2.15%
Piedmont Natural Gas Company	8.15%	7.47%	7.81%	2.96%	5.40%	4.18%
Washington Gas Light Company	3.60%	4.82%	4.21%	0.70%	3.16%	1.93%
Average	4.95%	5.56%	5.26%	5.07%	4.20%	4.63%
Standard Deviation	2.43%	2.68%	2.55%	12.09%	2.56%	7.32%

Source: Value Line Investment Survey

MISSOURI PIPELINE COMPANY
CASE NOS. GR-92-314

Projected Growth Rates
for the Six Comparable Natural Gas Pipeline Companies

Company Name	(1) Average Projected 3-5 Yr. DPS Growth Value Line	(2) Average Projected 3-5 Yr. EPS Growth Value Line	(3) Average Projected 3-5 Yr. BVPS Growth Value Line	(4) Value Line 3-5 Yr. Growth Projection	(5) I/B/E/S 5 Year Growth Projection	(6) Average Projected Growth Rate
Coastal Corporation	16.00%	13.00%	13.00%	14.00%	14.33%	14.17%
Enron Corporation	7.00%	24.00%	9.00%	13.33%	13.41%	13.37%
Panhandle Eastern Corporation	-6.50%	7.00%	-0.50%	0.00%	10.17%	5.09%
Sonat Inc.	N.A.	9.00%	0.50%	4.75%	9.94%	7.35%
Transco Energy	1.50%	N.A.	5.50%	3.50%	8.36%	5.93%
Williams Cos. Inc.	7.00%	31.00%	6.50%	14.83%	10.86%	12.85%
Average	**5.00%**	**16.80%**	**6.80%**	**8.40%**	**11.18%**	**9.79%**

Estimated Sustainable Growth Rate: ***9.79%***

Sources: Columns 1, 2, and 3 per Value Line Investment Survey
Columns 4 = Average of Columns 1 - 3
Column 5 per I/B/E/S dated November 19, 1992
Columns 6 = Average of Columns 4 - 5

Schedule 11-3

MISSOURI PIPELINE COMPANY
CASE NO. GR-92-314

Historical and Projected Growth Rates for the Eleven Comparable Natural Gas Distribution Companies

Company Name	(1) Average 1986-91 Annual Compound (DPS)	(2) Average 1986-91 Trend Line (DPS)	(3) Average 1981-91 Annual Compound (DPS)	(4) Average 1981-91 Trend Line (DPS)	(5) Average Projected 3-5 Yr. DPS Growth Value Line	(6) Average Projected 3-5 Yr. EPS Growth Value Line	(7) Average Projected 3-5 Yr. BVPS Growth Value Line	(8) Value Line 3-5 Yr. Growth Projection	(9) I/B/E/S 5 Year EPS Growth Projection	(10) Average Historical Growth	(11) Average Projected Growth	(12) Sustainable Growth Rate Estimate
Atlanta Gas Light Company	7.82%	7.58%	9.28%	10.30%	3.00%	6.50%	5.50%	5.00%	6.27%	8.75%	5.64%	7.19%
Bay State Gas Company	7.56%	7.55%	5.46%	5.68%	4.00%	5.00%	4.50%	4.50%	7.00%	6.56%	5.75%	6.16%
Brooklyn Union Gas Company	3.24%	3.31%	4.70%	4.16%	3.00%	4.00%	3.00%	3.33%	5.43%	3.85%	4.38%	4.12%
Cascade Natural Gas Corporation	1.22%	1.07%	2.52%	2.35%	2.50%	7.50%	6.00%	5.33%	6.00%	1.79%	5.67%	3.73%
Connecticut Energy Corporation	2.06%	2.36%	3.61%	3.82%	2.50%	6.00%	4.50%	4.33%	7.00%	2.96%	5.67%	4.31%
Energen Corporation	6.52%	6.84%	6.12%	6.59%	5.00%	8.00%	4.50%	5.83%	7.00%	6.52%	6.42%	6.47%
Indiana Energy Inc.	6.03%	6.37%	7.18%	7.12%	5.00%	7.00%	5.00%	5.67%	7.25%	6.68%	6.46%	6.57%
Northwest Natural Gas Company	2.01%	1.99%	3.14%	3.26%	3.50%	7.50%	3.50%	4.83%	4.42%	2.60%	4.63%	3.61%
Peoples Energy Corporation	5.80%	5.68%	N.A.	N.A.	3.50%	4.00%	3.00%	3.50%	4.71%	5.74%	4.11%	4.92%
Piedmont Natural Gas Company	7.89%	8.15%	7.18%	7.47%	3.00%	4.50%	4.00%	3.83%	8.00%	7.67%	5.92%	6.79%
Washington Gas Light Company	3.50%	3.60%	4.70%	4.82%	3.00%	3.00%	3.00%	3.00%	4.43%	4.16%	3.72%	3.94%
Average	**4.88%**	**4.95%**	**5.39%**	**5.56%**	**3.45%**	**5.73%**	**4.23%**	**4.47%**	**6.14%**	**5.21%**	**5.30%**	**5.26%**
Standard Deviation	2.78%	2.70%	2.31%	2.73%	0.55%	1.21%	1.03%	0.68%	0.60%	2.53%	0.52%	1.34%

Estimated Sustainable Growth Rate: ***5.26%***

Schedule 11-4

Sources: Columns 1 - 4 per Schedule 11-2
Column 5, 6 and 7 per Value Line
Column 8 = Average of Columns 5 - 7
Column 9 per I/B/E/S dated November 19, 1992
Column 10 = Average of Columns 1 - 4
Column 11 = Average of Columns 8 - 9
Column 12 = Average of Columns 10 - 11

MISSOURI PIPELINE COMPANY
CASE NO. GR-92-314

Average High / Low Stock Price for September 1, 1992 through November 30, 1992 for the Six Comparable Natural Gas Pipeline Companies

	--- September 1992 ---			---- October 1992 ----			--- November 1992 ---			Average High/Low Stock Price	Low Stock Price	High Stock Price
Company Name	High Stock Price	Low Stock Price	Average	High Stock Price	Low Stock Price	Average	High Stock Price	Low Stock Price	Average	(9/1 - 11/30)	(9/1 - 11/30)	(9/1 - 11/30)
Coastal Corporation	$30.000	$28.000	$29.000	$30.000	$27.750	$28.875	$28.750	$24.750	$26.750	$28.208	$24.750	$30.000
Enron Corporation	$49.000	$44.875	$46.938	$50.125	$46.375	$48.250	$49.500	$44.625	$47.063	$47.417	$44.625	$50.125
Panhandle Eastern Corporation	$19.375	$18.125	$18.750	$19.750	$17.625	$18.688	$19.625	$16.250	$17.938	$18.458	$16.250	$19.750
Sonat Inc.	$43.250	$40.250	$41.750	$44.875	$39.125	$42.000	$46.000	$42.625	$44.313	$42.688	$39.125	$46.000
Transco Energy	$17.875	$16.125	$17.000	$16.250	$14.125	$15.188	$15.125	$13.250	$14.188	$15.458	$13.250	$17.875
Williams Cos. Inc.	$36.375	$32.375	$34.375	$39.500	$33.125	$36.313	$39.125	$37.125	$38.125	$36.271	$32.375	$39.500

Schedule 12-1

Sources: Standard & Poor's Corporation's "Stock Guide" and CompuServe.

MISSOURI PIPELINE COMPANY
CASE NO. GR-92-314

Estimated Dividend Payments
for the Six Comparable Natural Gas Pipeline Companies

	1989				1990			
Company	First	Second	Third	Fourth	First	Second	Third	Fourth
Coastal Corporation	$0.670	$0.670	$0.670	$0.670	$0.100	$0.100	$0.100	$0.100
Enron Corporation	$0.310	$0.310	$0.310	$0.310	$0.310	$0.310	$0.310	$0.310
Panhandle Eastern Corporation	$0.500	$0.500	$0.500	$0.500	$0.500	$0.500	$0.200	$0.200
Sonat Inc.	$0.500	$0.500	$0.500	$0.500	$0.500	$0.500	$0.500	$0.500
Transco Energy	$0.340	$0.340	$0.340	$0.340	$0.340	$0.340	$0.340	$0.340
Williams Cos. Inc.	$0.350	$0.350	$0.350	$0.350	$0.350	$0.350	$0.350	$0.350

	1991				1992			Estimated	**Estimated**
Company	First	Second	Third	Fourth	First	Second	Third	Fourth	**D1 (1)**
Coastal Corporation	$0.100	$0.100	$0.100	$0.100	$0.100	$0.100	$0.100	$0.100	**$0.400**
Enron Corporation	$0.310	$0.310	$0.310	$0.325	$0.325	$0.325	$0.325	$0.355	**$1.420**
Panhandle Eastern Corporation	$0.200	$0.200	$0.200	$0.200	$0.200	$0.200	$0.200	$0.200	**$0.800**
Sonat Inc.	$0.500	$0.500	$0.500	$0.500	$0.500	$0.500	$0.500	$0.500	**$2.000**
Transco Energy	$0.340	$0.340	$0.340	$0.150	$0.150	$0.150	$0.150	$0.150	**$0.600**
Williams Cos. Inc.	$0.350	$0.350	$0.350	$0.350	$0.380	$0.380	$0.380	$0.380	**$1.520**

Note: (1) D1 is the estimated fourth quarter dividend payment annualized.

Source: Value-Line Investment Survey

Schedule 12-2

MISSOURI PIPELINE COMPANY
CASE NO. GR-92-314

Estimated Dividend Yields
for the Six Comparable Natural Gas Pipeline Companies

Company Name	(1) Expected Dividend	(2) Average High/Low Stock Price (9/1-11/30)	(3) Low Stock Price (9/1-11/30)	(4) High Stock Price (9/1-11/30)	(5) Average High/Low Projected Dividend Yield	(6) Low Price Projected Dividend Yield	(7) High Price Projected Dividend Yield
Coastal Corporation	$0.40	$28.21	$24.75	$30.00	1.42%	1.62%	1.33%
Enron Corporation	$1.42	$47.42	$44.63	$50.13	2.99%	3.18%	2.83%
Panhandle Eastern Corporation	$0.80	$18.46	$16.25	$19.75	4.33%	4.92%	4.05%
Sonat Inc.	$2.00	$42.69	$39.13	$46.00	4.69%	5.11%	4.35%
Transco Energy	$0.60	$15.46	$13.25	$17.88	3.88%	4.53%	3.36%
Williams Cos. Inc.	$1.52	$36.27	$32.38	$39.50	4.19%	4.69%	3.85%
Average					**3.58%**	**4.01%**	**3.29%**

Notes: Column 1 per Schedule 12-2.

Column 2 - 4 per Schedule 12-1.

Column 5 = (Column 1 / Column 2).

Column 6 = (Column 1 / Column 3).

Column 7 = (Column 1 / Column 4).

Schedule 12-3

MISSOURI PIPELINE COMPANY
CASE NO. GR-92-314

Average High / Low Stock Price for September 1, 1992 through November 30, 1992 for the Eleven Comparable Natural Gas Distribution Companies

	--- September 1992 ---			---- October 1992 ----			--- November 1992 ---			Average High/Low Stock Price
Company Name	High Stock Price	Low Stock Price	Average	High Stock Price	Low Stock Price	Average	High Stock Price	Low Stock Price	Average	(9/1 - 11/30)
Atlanta Gas Light Company	$39.000	$37.000	$38.000	$37.750	$34.375	$36.063	$35.625	$33.750	$34.688	$36.250
Bay State Gas Company	$25.625	$24.375	$25.000	$25.875	$24.750	$25.313	$26.500	$24.875	$25.688	$25.333
Brooklyn Union Gas Company	$35.250	$33.250	$34.250	$33.875	$32.000	$32.938	$33.250	$32.500	$32.875	$33.354
Cascade Natural Gas Corporation	$25.125	$21.375	$23.250	$23.375	$22.000	$22.688	$22.750	$22.000	$22.375	$22.771
Connecticut Energy Corporation	$24.000	$21.750	$22.875	$22.250	$20.250	$21.250	$22.375	$20.125	$21.250	$21.792
Energen Corporation	$18.375	$17.625	$18.000	$18.625	$17.625	$18.125	$19.250	$18.125	$18.688	$18.271
Indiana Energy Inc.	$30.000	$28.875	$29.438	$29.500	$27.875	$28.688	$29.750	$28.500	$29.125	$29.083
Northwest Natural Gas Company	$32.750	$30.500	$31.625	$34.000	$29.500	$31.750	$30.250	$28.500	$29.375	$30.917
Peoples Energy Corporation	$31.625	$29.625	$30.625	$31.500	$29.750	$30.625	$31.250	$29.500	$30.375	$30.542
Piedmont Natural Gas Company	$39.000	$36.250	$37.625	$40.250	$37.875	$39.063	$39.875	$37.750	$38.813	$38.500
Washington Gas Light Company	$39.125	$38.000	$38.563	$39.000	$36.000	$37.500	$38.125	$36.125	$37.125	$37.729

Schedule 12-4

Source: Standard & Poor's Corporation's "Stock Guide" and CompuServe.

MISSOURI PIPELINE COMPANY
CASE NO. GR-92-314

Estimated Dividend Payments
for the Eleven Comparable Natural Gas Distribution Companies

	1989				1990			
Company	First	Second	Third	Fourth	First	Second	Third	Fourth
Atlanta Gas Light Company	$0.470	$0.470	$0.470	$0.490	$0.490	$0.490	$0.490	$0.510
Bay State Gas Company	$0.280	$0.300	$0.300	$0.300	$0.300	$0.320	$0.320	$0.320
Brooklyn Union Gas Company	$0.445	$0.445	$0.445	$0.445	$0.460	$0.460	$0.460	$0.460
Cascade Natural Gas Corporation	$0.320	$0.320	$0.320	$0.320	$0.320	$0.330	$0.330	$0.330
Connecticut Energy Corporation	$0.293	$0.293	$0.307	$0.307	$0.307	$0.307	$0.307	$0.307
Energen Corporation	$0.207	$0.210	$0.220	$0.220	$0.220	$0.220	$0.235	$0.235
Indiana Energy Inc.	$0.300	$0.300	$0.320	$0.320	$0.320	$0.320	$0.340	$0.340
Northwest Natural Gas Company	$0.400	$0.400	$0.400	$0.410	$0.410	$0.410	$0.410	$0.420
Peoples Energy Corporation	$0.380	$0.400	$0.400	$0.400	$0.400	$0.415	$0.415	$0.415
Piedmont Natural Gas Company	$0.370	$0.400	$0.400	$0.400	$0.400	$0.420	$0.420	$0.420
Washington Gas Light Company	$0.470	$0.490	$0.490	$0.490	$0.490	$0.510	$0.510	$0.510

	1991				1992			Estimated	**Estimated**
Company	First	Second	Third	Fourth	First	Second	Third	Fourth	**D1 (1)**
Atlanta Gas Light Company	$0.510	$0.510	$0.510	$0.510	$0.510	$0.520	$0.520	$0.520	**$2.08**
Bay State Gas Company	$0.320	$0.335	$0.335	$0.335	$0.335	$0.345	$0.345	$0.345	**$1.38**
Brooklyn Union Gas Company	$0.475	$0.475	$0.475	$0.475	$0.485	$0.485	$0.485	$0.485	**$1.94**
Cascade Natural Gas Corporation	$0.330	$0.340	$0.340	$0.340	$0.340	$0.350	$0.350	$0.350	**$1.40**
Connecticut Energy Corporation	$0.307	$0.312	$0.312	$0.312	$0.312	$0.320	$0.320	$0.320	**$1.28**
Energen Corporation	$0.235	$0.235	$0.250	$0.250	$0.250	$0.250	$0.260	$0.260	**$1.04**
Indiana Energy Inc.	$0.340	$0.340	$0.355	$0.355	$0.355	$0.355	$0.370	$0.370	**$1.48**
Northwest Natural Gas Company	$0.420	$0.420	$0.420	$0.430	$0.430	$0.430	$0.430	$0.440	**$1.76**
Peoples Energy Corporation	$0.415	$0.430	$0.430	$0.430	$0.440	$0.440	$0.440	$0.440	**$1.76**
Piedmont Natural Gas Company	$0.420	$0.440	$0.440	$0.440	$0.440	$0.460	$0.460	$0.460	**$1.84**
Washington Gas Light Company	$0.510	$0.525	$0.525	$0.525	$0.525	$0.535	$0.535	$0.535	**$2.14**

Note: (1) D1 is the estimated fourth quarter dividend payment annualized.

Source: Value Line Investment Survey.

MISSOURI PIPELINE COMPANY
CASE NO. GR-92-314

Estimated Dividend Yields
for the Eleven Comparable Natural Gas Distribution Companies

Company Name	(1) Expected Dividend	(2) Average High/Low Stock Price (9/1-11/30)	(3) Average High/Low Projected Dividend Yield
Atlanta Gas Light Company	$2.08	$36.25	5.74%
Bay State Gas Company	$1.38	$25.33	5.45%
Brooklyn Union Gas Company	$1.94	$33.35	5.82%
Cascade Natural Gas Corporation	$1.40	$22.77	6.15%
Connecticut Energy Corporation	$1.28	$21.79	5.87%
Energen Corporation	$1.04	$18.27	5.69%
Indiana Energy Inc.	$1.48	$29.08	5.09%
Northwest Natural Gas Company	$1.76	$30.92	5.69%
Peoples Energy Corporation	$1.76	$30.54	5.76%
Piedmont Natural Gas Company	$1.84	$38.50	4.78%
Washington Gas Light Company	$2.14	$37.73	5.67%
Average			**5.61%**

Notes: Column 1 per Schedule 12-5.

Column 2 per Schedule 12-4.

Column 3 = (Column 1 / Column 2).

MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

Estimated Costs of Common Equity for the Six Comparable Natural Gas Pipeline Companies

Company Name	(1) High Price Dividend Yield	(2) Low Price Dividend Yield	(3) Average High/Low Projected Dividend Yield	(4) Average Growth Rate	(5) High Price Estimated Cost of Common Equity	(6) Low Price Estimated Cost of Common Equity	(7) Average Estimated Cost of Common Equity
Coastal Corporation	1.33%	1.62%	1.42%	14.17%	15.50%	15.79%	15.59%
Enron Corporation	2.83%	3.18%	2.99%	13.37%	16.20%	16.55%	16.36%
Panhandle Eastern Corporation	4.05%	4.92%	4.33%	5.09%	9.14%	10.01%	9.42%
Sonat Inc.	4.35%	5.11%	4.69%	7.35%	11.70%	12.46%	12.04%
Transco Energy	3.36%	4.53%	3.88%	5.93%	9.29%	10.46%	9.81%
Williams Cos. Inc.	3.85%	4.69%	4.19%	12.85%	16.70%	17.54%	17.04%
	3.29%	**4.01%**	**3.58%**	**9.79%**	**13.09%**	**13.80%**	**13.38%**

	Low	*Mid*	*High*
Recommended Cost of Equity Range:	***12.88%***	***13.38%***	***13.88%***

Notes: Column 5 = (Column 1 + Column 4).

Column 6 = (Column 2 + Column 4).

Column 7 = (Column 3 + Column 4).

Sources: Columns 1, 2, and 3 per Schedule 12-3.

Column 4 per Schedule 11-3.

Schedule 13-1

MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

Estimated Costs of Common Equity
for the Eleven Comparable Natural Gas Distribution Companies

Company Name	(1) Average High/Low Projected Dividend Yield	(2) Average Growth Rate	(3) Average Estimated Cost of Common Equity
Atlanta Gas Light Company	5.74%	7.19%	12.93%
Bay State Gas Company	5.45%	6.16%	11.61%
Brooklyn Union Gas Company	5.82%	4.12%	9.94%
Cascade Natural Gas Corporation	6.15%	3.73%	9.88%
Connecticut Energy Corporation	5.87%	4.36%	10.23%
Energen Corporation	5.69%	6.47%	12.16%
Indiana Energy Inc.	5.09%	6.57%	11.66%
Northwest Natural Gas Company	5.68%	3.61%	9.29%
Peoples Energy Corporation	5.76%	4.92%	10.68%
Piedmont Natural Gas Company	4.78%	6.79%	11.57%
Washington Gas Light Company	5.67%	3.94%	9.61%
	5.61%	**5.26%**	**10.87%**

Estimated Cost of Equity: 11.00%

Schedule 13-2

Notes: Column 3 = (Column 1 + Column 2).

Sources: Columns 1 per Schedule 12-6.

Column 2 per Schedule 11-4.

Natural Gas Industry Comparison
S&P's Senior Unsecured Debt Ratings

Gas Pipeline Companies	S&P Bond Ratings	Gas Distribution Companies	S&P Bond Ratings
Coastal Corporation	BB+	Atlanta Gas Light Company	A-
Enron Corporation	BBB	Bay State Gas Company	A
Panhandle Eastern	BBB-	Brooklyn Union Gas Company	A
Sonat Inc.	BBB	Cascade Natural Gas Corp.	BBB+
Transco Energy	B	Connecticut Energy Corp.	A-
Williams Companies	BBB-	Energen Corp.	A
		Indiana Energy Inc.	AA-
Average	BBB-	Northwest Natural Gas Company	A-
		Peoples Energy	AA-
		Piedmont Natural Gas Company	A-
		Washington Gas Light Company	A+
		Average	A

Schedule 14-1

Indiana Energy's rating reflective of Indiana Gas Co.'s rating.
Peoples Energy's rating reflective of Peoples Gas Light & Coke Co.'s rating.

MISSOURI PIPELINE COMPANY
CASE NO. GR-92-314

Natural Gas Pipeline vs. Natural Gas Distribution Risk Quantification

Company Name	(1) Value Line Beta	(2) Long Term Risk Premium	(3) Risk Quantification B(Rm-Rf)
Coastal Corporation	1.10	5.60%	6.16%
Enron Corporation	1.00	5.60%	5.60%
Panhandle Eastern Corporation	0.95	5.60%	5.32%
Sonat Inc.	1.00	5.60%	5.60%
Transco Energy	1.25	5.60%	7.00%
Williams Cos. Inc.	1.05	5.60%	5.88%
Average	1.05		**5.93%**

Company Name	Value Line Beta	Long Term Risk Premium	Risk Quantification B(Rm-Rf)
Atlanta Gas Light Company	0.65	5.60%	3.64%
Bay State Gas Company	0.65	5.60%	3.64%
Brooklyn Union Gas Company	0.50	5.60%	2.80%
Cascade Natural Gas Corporation	0.60	5.60%	3.36%
Connecticut Energy Corporation	0.55	5.60%	3.08%
Energen Corporation	0.65	5.60%	3.64%
Indiana Energy Inc.	0.70	5.60%	3.92%
Northwest Natural Gas Company	0.60	5.60%	3.36%
Peoples Energy Corporation	0.80	5.60%	4.48%
Piedmont Natural Gas Company	0.70	5.60%	3.92%
Washington Gas Light Company	0.55	5.60%	3.08%
Average	0.63		**3.54%**

Spread:	***2.39%***
Cost of Equity Estimate for Distribution Companies:	***11.00%***
Spread:	***2.39%***
Risk Adjusted Result:	***13.39%***

Notes: Column 1 per Value Line Investmemt Survey.
Column 2 per SBBI, Ibbotson Associates, Chicago 1992 Yearbook.
Column 3 = Column 1 * Column 2

MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

Pro Forma Pre-Tax Interest Coverage Ratios for Missouri Pipeline Company

		12.88%	13.38%	13.88%
1.	Common Equity (Schedule 8)	$16,651,572	$16,651,572	$16,651,572
2.	Earnings Allowed (ROE * [1])	$2,144,722	$2,227,980	$2,311,238
3.	Preferred Dividends	$0	$0	$0
4.	Net Income Available ([2] + [3])	$2,144,722	$2,227,980	$2,311,238
5.	Tax Multiplier (1 / [1 - Tax Rate]) Tax Rate = 36.22%	1.5679	1.5679	1.5679
6.	Pre-Tax Earnings ([4] * [5])	$3,362,688	$3,493,227	$3,623,766
7.	Annual Interest Costs (Schedule 8 and 9) (1)	$1,593,412	$1,593,412	$1,593,412
8.	Avail. for Coverage ([6] + [7])	$4,956,100	$5,086,639	$5,217,178
9.	**Pro Forma Pre-Tax Interest Coverage** ([8] / [7])	**3.11 x**	**3.19 x**	**3.27 x**

Notes: (1) Annual interest costs equal to long-term debt interest costs of $1,530,000 * estimated short-term debt interest costs of $63,411.63 = $1,593,412 ($1,723,142 * 3.68%)

MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

Public Utility Revenue Requirement

or

Cost of Service

The formula for the revenue requirement of a public utility may be stated as follows :

Equation 1 : **Revenue Requirement = Cost of Service**

or

Equation 2 : $$RR = O + (V - D)R$$

The symbols in the second equation are represented by the following factors :

RR	=	Revenue Requirement
O	=	Prudent Operating Costs, including Depreciation and Taxes
V	=	Gross Valuation of the Property Serving the Public
D	=	Accumulated Depreciation
$(V - D)$	=	Rate Base (Net Valuation)
$(V - D)R$	=	Return Amount ($$) or Earnings Allowed on Rate Base
R	=	$iL + dP + kE$ or Overall Rate of Return (%)
i	=	Embedded Cost of Debt
L	=	Proportion of Debt in the Capital Structure
d	=	Embedded Cost of Preferred Stock
P	=	Proportion of Preferred Stock in the Capital Structure
k	=	Required Return on Common Equity (ROE)
E	=	Proportion of Common Equity in the Capital Structure

MISSOURI PIPELINE COMPANY
CASE NO. WR-92-314

Weighted Cost of Capital as of September 30, 1992 for Missouri Pipeline Company

Capital Component	Percentage of Capital	Embedded Cost	Weighted Cost of Capital Using Common Equity Return of: 12.88%	13.38%	13.88%
Common Stock Equity	45.78%	-----	5.90%	6.13%	6.35%
Preferred Stock	0.00%	N.A.	0.00%	0.00%	0.00%
Long-Term Debt	49.48%	8.50%	4.21%	4.21%	4.21%
Short-Term Debt	4.74%	3.68%	0.17%	0.17%	0.17%
Total	100.00%		**10.28%**	**10.51%**	**10.73%**

Notes: See Schedule 8 for the Capital Structure Ratios.

See Schedule 9 for the Embedded Cost of Long-Term Debt.

Short-term debt cost of 3.68 percent equals the previous calendar year average interest rate (on a quarterly basis) incurred by MPC per Data Request No. 3802.