

Exhibit No.:
Issues: *Economic & Legal Rationale for Regulation; Historical Economic Conditions; Economic Projections; Business Operations of Aquila, Inc.; Determination of Cost of Capital; Capital Structure & Embedded Costs; Cost of Equity; DCF Model; & Rate of Return for MPS and L&P*

Witness: *David Murray*
Sponsoring Party: *MoPSC Staff*
Type of Exhibit: *Direct Testimony*
Case No.: *GR-2004-0072*
Date Testimony Prepared: *January 6, 2004*

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY SERVICES DIVISION

DIRECT TESTIMONY

OF

DAVID MURRAY

**AQUILA, INC.
d/b/a AQUILA NETWORKS-MPS AND
AQUILA NETWORKS-L&P**

CASE NO. GR-2004-0072

*Jefferson City, Missouri
January 2004*

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Aquila, Inc. d/b/a Aquila)
Networks-MPS and Aquila Networks-L&P,)
Natural Gas General Rate Increase)

Case No. GR-2004-0072

AFFIDAVIT OF DAVID MURRAY

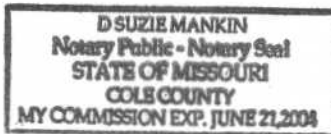
STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

David Murray, being of lawful age, on his oath states: that he has participated in the preparation of the following Direct Testimony in question and answer form, consisting of 35 pages to be presented in the above case; that the answers in the following Direct Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of his knowledge and belief.



David Murray

Subscribed and sworn to before me this 2nd day of January 2004.





Notary

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DIRECT TESTIMONY

OF

DAVID MURRAY

AQUILA, INC.

d/b/a AQUILA NETWORKS MPS AND

AQUILA NETWORKS L&P

CASE NO. GR-2004-0072

Q. Please state your name.

A. My name is David Murray.

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 (Commission). I accepted this position in June 2000.

Q. Were you employed before you joined the Commission’s Staff (Staff)?

A. Yes, I was employed by the Missouri Department of Insurance in a regulatory position.

Q. What is your educational background?

A. In May 1995, I earned a Bachelor of Science degree in Business Administration with an emphasis in Finance and Banking, and Real Estate from the University of Missouri-Columbia. I earned a Masters in Business Administration from Lincoln University in December 2003.

Q. Have you filed testimony in other cases before this Commission?

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1 A. Yes. I filed testimony in the following cases:

- 2 • TR-2001-344 Northeast Missouri Rural Telephone Company
- 3 • TC-2001-402 Ozark Telephone Company
- 4 • TT-2001-328 Oregon Farmers Mutual Telephone Company
- 5 • TC-2002-1076 BPS Telephone Company
- 6 • GR-2001-292 Southern Union Company d/b/a Missouri Gas Energy
- 7 • ER-2001-672 UtiliCorp United, Inc. d/b/a Missouri Public Service
- 8 • ER-2002-424 The Empire District Electric Company
- 9 • GM-2003-0238 Southern Union Company d/b/a Missouri Gas Energy
- 10 • WR-2003-0500 Missouri-American Water Company
- 11 • ER-2004-0034, Aquila, Inc. d/b/a Aquila Networks-MPS-Electric and
- 12 HR-2004-0024 Aquila Networks-L&P-Electric and Steam
- 13 • ST-2003-0562, Osage Water Company
- 14 WT-2003-0563

15 Q. Have you made recommendations in any other cases before this Commission?

16 A. Yes, I have made recommendations on finance, merger and acquisition cases
17 before this Commission.

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

19 A. My testimony is presented to recommend to the Commission a fair and
20 reasonable rate of return for Aquila, Inc. d/b/a Aquila Networks MPS and Aquila Networks
21 L&P (MPS and L&P) natural gas utility rate base.

22 Q. Have you prepared any schedules to your analysis of the cost of capital for
23 MPS's and L&P's natural gas utility operations?

24 A. Yes. I am sponsoring a study entitled "An Analysis of the Cost of Capital for
25 Aquila, Inc. d/b/a Aquila Networks MPS and Aquila Networks L&P Case
26 No. GR-2004-0072" consisting of 23 schedules which are attached to this direct testimony
27 (see Schedule 1).

28 Q. What do you conclude is the cost of capital for MPS and L&P?

29 A. The cost of capital for MPS and L&P is in the range of 8.00 to 8.35 percent.

1 **Economic and Legal Rationale for Regulation**

2 Q. Why are the prices charged to customers by utilities such as MPS and L&P
3 regulated?

4 A. A primary purpose of price regulation is to restrain the exercise of monopoly
5 power. Monopoly power represents the ability to charge excessive or unduly discriminatory
6 prices. Monopoly power may arise from the presence of economies of scale and/or from the
7 granting of a monopoly franchise.

8 For services that operate efficiently and have the ability to achieve economies of
9 scale, a monopoly is the most efficient form of market organization. Utility companies can
10 supply service at lower costs if the duplication of facilities by competitors is avoided. This
11 allows the use of larger and more efficient equipment and results in lower per unit costs. For
12 instance, it may cost more to have two or more competing companies maintaining natural gas
13 utility distribution systems and providing competing residential services to one household.
14 This situation could result in price wars and lead to unsatisfactory and perhaps irregular
15 service. For these reasons, exclusive rights may be granted to a single utility to provide
16 service to a given territory. This also creates a more stable environment for operating the
17 utility company. Utility regulation acts as a substitute for the economic control of market
18 competition and allows the consumer to receive adequate utility service at a reasonable price.

19 Natural gas utility providers such as MPS and L&P provide natural gas utility
20 services essentially under a monopoly franchise. Therefore, it is clear that MPS and L&P
21 have monopoly power.

22 Another purpose of price regulation is to provide the utility company with an
23 opportunity to earn a fair return on its capital, particularly on investments made as a result of
24 a monopoly franchise.

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1 Q. Please describe your understanding of the legal basis you must use when
2 determining a fair and reasonable return for a public utility.

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

- 6 1. *Munn v. People of Illinois* (1877);
- 7 2. *Bluefield Water Works and Improvement Company* (1923);
- 8 3. *Natural Gas Pipeline Company of America* (1942); and
- 9 4. *Hope Natural Gas Company* (1944).

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

11 . . . when private property is “affected with a public interest, it ceases
12 to be *juris privati* only” Property does become clothed with a
13 public interest when used in a manner to make it of public
14 consequence, and affect the community at large. When, therefore, one
15 devotes his property to a use in which the public has an interest, he, in
16 effect, grants to the public an interest in that use, and must submit to
17 be controlled by the public for the common good, to the extent of the
18 interest he has thus created. Id at 126.

19 The *Munn* decision is important because it states the basis for regulation of both utility and
20 non-utility industries.

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

- 24 1. A return “generally being made at the same time” in that “general
25 part of the country”;
- 26 2. A return achieved by other companies with “corresponding risks
27 and uncertainties”; and
- 28 3. A return “sufficient to assure confidence in the financial soundness
29 of the utility”.

1 The Court specifically stated:

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

17 In Federal Power Commission et al. v. Natural Gas Pipeline Company of America
18 et al., 315 U.S. 575 (1942), the Court decided that:

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

24 The U.S. Supreme Court also discussed the reasonableness of a return for a utility in
25 the case of Federal Power Commission et al. v. Hope Natural Gas Company, 320 U.S. 591
26 (1944). The Court stated that:

27 The rate-making process . . . , i.e., the fixing of "just and reasonable"
28 rates, involves a balancing of the investor and the consumer interests.
29 Thus we stated . . . that "regulation does not insure that the business
30 shall produce net revenues" . . . it is important that there be enough
31 revenue not only for operating expenses but also for the capital costs
32 of the business. These include service on the debt and dividends on
33 the stock By that standard the return to the equity owner should
34 be commensurate with returns on investments in other enterprises
35 having corresponding risks. That return, moreover, should be
36 sufficient to assure confidence in the financial integrity of the
37 enterprise, so as to maintain its credit and to attract capital. Id. at 603.

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1 The Hope case restates the concept of comparable returns to include those achieved by any
2 other enterprises that have “corresponding risks.” The Supreme Court also noted in this case
3 that regulation does not guarantee profits to a utility company.

4 A more recent case heard by the Supreme Court of Pennsylvania discusses the Hope
5 case decision as it relates to balancing the interests of the investors and the consumers. The
6 Supreme Court of Pennsylvania stated that:

7 We do not believe, however, . . . that the end result of a
8 rate-making body’s adjudication *must* be the setting of rates at a level
9 that will, in any given case, guarantee the continued financial integrity
10 of the utility concerned In cases where the balancing of
11 consumer interests against the interests of investors causes rates to be
12 set at a “just and reasonable” level which is insufficient to ensure the
13 continued financial integrity of the utility, it may simply be said that
14 the utility has encountered one of the risks that imperil any business
15 enterprise, namely the risk of financial failure. Pennsylvania Electric
16 Company, et al. v. Pennsylvania Public Utility Commission, 502 A.2d
17 130, 133-34 (1985), cert. denied, 476 U.S. 1137 (1986).

18 I included the Pennsylvania Electric Company case in my testimony to illustrate a point,
19 which is simply this: captive ratepayers of public utilities should not be forced to bear the
20 brunt of management decisions that result in unnecessarily higher costs. It should be noted
21 that I do not believe that utility companies should be casually subjected to risk of financial
22 failure in a rate case proceeding. However, in the case of inefficient management, I do not
23 believe it would always be appropriate for a regulatory agency to provide sufficient funds for
24 management to continue operations, no matter what the costs are to the ratepayers.

25 Through these and other court decisions, it has generally been recognized that public
26 utilities can operate more efficiently when they operate as monopolies. It has also been
27 recognized that regulation is required to offset the lack of competition and maintain prices at
28 a reasonable level. It is the regulatory agency’s duty to determine a fair rate of return and the

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1 appropriate revenue requirement for the utility, while maintaining reasonable prices for the
2 public consumer.

3 The courts today still believe that a fair return on common equity should be similar to
4 the return for a business with similar risks, but not as high as a highly profitable or
5 speculative venture requires. The authorized return should provide a fair and reasonable
6 return to the investors of the company, while ensuring that excessive earnings do not result
7 from the utility's monopolistic powers. However, this fair and reasonable rate does not
8 necessarily guarantee revenues or the continued financial integrity of the utility.

9 It should be noted that the courts have determined that a reasonable return may vary
10 over time as economic and business conditions change. Therefore, the past, present and
11 projected economic and business conditions must be analyzed in order to calculate a fair and
12 reasonable rate of return.

13 **Historical Economic Conditions**

14 Q. Please discuss the relevant historical economic conditions in which MPS and
15 L&P have operated?

16 A. One of the most commonly accepted indicators of economic conditions is the
17 discount rate set by the Federal Reserve Board (the Federal Reserve). The Federal Reserve
18 tries to achieve its monetary policy objectives by controlling the discount rate (the interest
19 rate charged by the Federal Reserve for loans of reserves to depository institutions) and the
20 Federal (Fed) Funds Rate (the overnight lending rate between banks). However, recently the
21 Fed Funds Rate has become the primary means for the Federal Reserve to achieve its
22 monetary policy and the discount rate has become more of a symbolic interest rate. At the
23 end of 1982, the U.S. economy was in the early stages of an economic expansion, following

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1 the longest post-World War II recession. This economic expansion began when the Federal
2 Reserve reduced the discount rate seven times in the second half of 1982 in an attempt to
3 stimulate the economy. This reduction in the discount rate led to a reduction in the prime
4 interest rate (the rate charged by banks on short-term loans to borrowers with high credit
5 ratings) from 16.50 percent in June 1982, to 11.50 percent in December 1982. The economic
6 expansion continued for approximately eight years until July 1990, when the economy
7 entered into a recession.

8 In December 1990, the Federal Reserve responded to the slumping economy by
9 lowering the discount rate to 6.50 percent (see Schedules 2-1 and 2-2). Over the next year-
10 and-a-half, the Federal Reserve lowered the discount rate another six times to a low of
11 3.00 percent, which had the effect of lowering the prime interest rate to 6.00 percent
12 (see Schedules 3-1 and 3-2).

13 In 1993, perhaps the most important factor for the U.S. economy was the passage of
14 the North American Free Trade Agreement (NAFTA). NAFTA created a free trade zone
15 consisting of the United States, Canada and Mexico. The rate of economic growth for the
16 fourth quarter of 1993 was one the Federal Reserve believed could not be sustained without
17 experiencing higher inflation. In the first quarter of 1994, the Federal Reserve took steps to
18 try to restrict the economy by increasing interest rates. As a result, on March 24, 1994, the
19 prime interest rate increased to 6.25 percent. On April 18, 1994, the Federal Reserve
20 announced its intention to raise its targeted interest rates, which resulted in the prime interest
21 rate being increased to 6.75 percent. The Federal Reserve took action on May 17, 1994, by
22 raising the discount rate to 3.50 percent. The Federal Reserve took three additional
23 restrictive monetary actions with the last occurring on February 1, 1995. These actions

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1 raised the discount rate to 5.25 percent, and in turn, banks raised the prime interest rate to
2 9.00 percent.

3 The Federal Reserve then reversed its policy in late 1995 by lowering its target for the
4 Fed Funds Rate by 0.25 percentage points on two different occasions. This had the effect of
5 lowering the prime interest rate to 8.50 percent. On January 31, 1996, the Federal Reserve
6 lowered the discount rate to a rate of 5 percent.

7 The actions of the Federal Reserve from 1996 through 2000 were primarily focused
8 on keeping the level of inflation under control, and it was successful. The inflation rate, as
9 measured by the *Consumer Price Index - All Urban Consumers* (CPI), was at a high of
10 3.70 percent in March 2000. The increase in CPI stood at 1.80 percent for the period ending
11 November 30, 2003 (see attached Schedule 6). Although inflation has not been a problem
12 recently, the unemployment rate has shown some signs that the job market has loosened,
13 meaning unemployment has increased. While not as high as the January 1993 level of
14 7.3 percent, the unemployment rate now stands at 5.9 percent as of November 30, 2003 (see
15 Schedule 6).

16 The combination of low inflation and low unemployment had led to a prosperous
17 economy, until recently, as evidenced by the real gross domestic product (GDP) of the
18 United States. Over the period of 1993 through the end of 2000, real GDP had increased
19 every quarter. However, GDP data for the first three quarters of 2001 indicate there was a
20 contraction in the economy during these three quarters. This contraction of GDP for more
21 than two quarters in a row meets the textbook definition of a recession. According to the
22 National Bureau of Economic Research, the recession began in March of 2001 and ended
23 eight months later. Since the recession ended, GDP has been low for the most part from

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1 quarter-to-quarter, except for the first and third quarters of 2002 and the most recent quarter
2 in 2003 when it grew by 8.20 percent (see attached Schedule 6). The stock market, as
3 measured by the Dow Jones Composite Index, has increased by 16.64 percent between
4 August 7, 1997 and December 18, 2003, while the Dow Jones Industrial Index has increased
5 by 25.16 percent over that same time frame. The stock market has decreased 21.12 percent
6 as measured by The Value Line Geometric Averages Composite Index from August 7, 1997
7 through December 18, 2003. The Value Line Geometric Averages Composite Index
8 currently consists of an equally weighted geometric average of 1667 companies as compared
9 to the Dow Jones Composite Index, which consists of a price-weighted arithmetic average of
10 only 65 companies.

11 After raising the Fed Funds Rate six times in 1999 and 2000 to hold down inflation in
12 a rapidly growing economy, Federal Reserve policy-makers began expressing concern about
13 a slowdown in December 2000. On January 3, 2001, the Federal Open Market Committee
14 lowered the Fed Funds Rate by 50 basis points to 6 percent. In a related action, the Board of
15 Governors approved a decrease in the discount rate to 5.75 percent. These actions were
16 taken in light of further weakening of sales and production, and in the context of lower
17 consumer confidence, tight conditions in some segments of financial markets, slowing of real
18 GDP and high energy prices sapping household and business purchasing power. On
19 January 31, 2001, the Federal Reserve again lowered the Fed Funds Rate by 50 basis points
20 to 5.5 percent in an attempt to provide lower rates for many business and consumer loans. At
21 the same time, the discount rate was also lowered by 50 basis points to 5 percent (see
22 attached Schedule 2-1). In cutting its benchmark rate by a full point in the first month of
23 2001, the Federal Reserve had taken its most aggressive action to boost the economy since

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1 December 1991. The Federal Reserve justified its actions by citing eroding consumer and
2 business confidence and rising energy costs.

3 The Federal Reserve cut the Fed Funds Rate a total of eleven times in 2001 with the
4 last rate cut occurring on December 11, 2001, when it lowered the Fed Funds Rate to
5 1.75 percent. The Federal Reserve again left the Fed Funds Rate unchanged at its March 19,
6 2002 meeting stating that “the economy is expanding at a significant pace.”
7 [Source: MSNBC, “Fed Holds Interest Rate Steady,” March 19, 2002,
8 <http://www.msnbc.com/news/725818?0dm=C2BHB>].

9 The Federal Reserve announced on May 7, 2002 that, “it would wait for stronger final
10 demand before raising interest rates.” The Federal Reserve also noted that inflationary
11 pressures remained subdued, in part because of excellent productivity gains. Therefore, as of
12 May 7, 2002, the Fed Funds Rate remained at 1.75 percent with the discount rate remaining
13 at 1.25 percent. However, on November 6, 2002, the Federal Reserve lowered the Fed Funds
14 Rate to 1.25 percent and kept it at this level until June 25, 2003, when it decided to lower the
15 rate to 1.00 percent, a quarter of a percentage point less than some analysts had expected.

16 On August 12, 2003, the Federal Reserve kept its interest rate target at a 45-year low
17 of 1 percent, while making an unprecedented prediction that it will stay near that level for
18 some time to come. The Fed also went on to say that the risks to growth in the next few
19 quarters are balanced, but the risk of “undesirably low” price inflation outweighed the risk of
20 inflation rising. The Fed indicated that the risk of falling inflation would be its “predominant
21 concern” (*Wall Street Journal*, p. A2, August 13, 2003). However, although the Fed has
22 made a commitment to keeping the Fed Funds Rate at its current level for some time to

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1 come, Thirty-Year U.S. Treasury Bonds have increased to 5.16 percent as of October 2003
2 from a low of 4.37 percent as of June 2003 (see attached Schedule 5-2).

3 In light of the above interest rate activity, it is important to reflect on the results of the
4 major stock market indexes in the past year. According to the January 2, 2004 issue of the
5 *Wall Street Journal*, page R1, for the calendar year 2003, the Dow Jones Industrial Average
6 rose 25.3 percent, the S&P 500 rose 26.4 percent and the Nasdaq Composite Index rose
7 50.0 percent.

8 These economic changes have resulted in cost of capital changes for utilities and are
9 closely reflected in the yields on public utility bonds and yields of Thirty-Year U.S. Treasury
10 Bonds (see attached Schedules 5-1 and 5-2). Schedule 5-3, attached to this direct testimony,
11 shows how closely the Mergent's "Public Utility Bond Yields" have followed the yields of
12 Thirty-Year U.S. Treasury Bonds during the period from 1988 to the present. The average
13 spread for this period between these two composite indices has been 139 basis points, with
14 the spread ranging from a low of 80 basis points to a high of 250 basis points (see attached
15 Schedule 5-4). These spread parameters can be utilized with numerous published forecasts
16 of Thirty-Year U.S. Treasury Bond yields to estimate future long-term debt costs for utility
17 companies.

18 **Economic Projections**

19 Q. What are the inflationary expectations for the remainder of 2003 through
20 2006?

21 A. The latest inflation rate, as measured by the *Consumer Price Index-All Urban*
22 *Consumers* (CPI), was 1.80 percent for the 12-months ended November 30, 2003. *The Value*
23 *Line Investment Survey: Selection & Opinion*, August 29, 2003, predicts inflation to be

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1 1.9 percent for 2003, 2.0 percent for 2004 and 2.1 percent for 2005. The Congressional
2 Budget Office, *The Budget and Economic Outlook: Fiscal Years 2003-2013*, issued
3 January 2003, states that inflation is expected to be 2.3 percent for 2003, 1.9 percent for 2004
4 and 2.4 percent for 2005 (see attached Schedule 6).

5 Q. What are interest rate forecasts for 2003, 2004 and 2005?

6 A. Short-term interest rates, those measured by Three-Month U.S. Treasury Bills,
7 are expected to be 1.1 percent in 2003, 1.6 percent in 2004 and 2.0 percent in 2005 according
8 to Value Line's predictions. Value Line expects long-term interest rates, those measured by
9 the Thirty-Year U.S. Treasury Bond, to average 5.1 percent in 2003, 5.6 percent in 2004 and
10 6.0 percent in 2005.

11 The current rate for the period ending November 30, 2003 is .95 percent for 3-month
12 T-Bills, as noted on the Federal Reserve website, <http://www.stls.frb.org/fred/data/rates.html>.
13 The rate for 30-Year U.S. Treasury Bonds was 4.98 percent as of December 23, 2003 as
14 quoted on CBSMarketWatch at: <http://cbs.marketwatch.com>.

15 Q. What are the growth expectations for real Gross Domestic Product (GDP) in
16 the future?

17 A. GDP is a benchmark utilized by the Commerce Department to measure
18 economic growth within the United States' borders. Real GDP is measured by the actual
19 Gross Domestic Product, adjusted for inflation. Value Line stated that real GDP growth is
20 expected to increase by 2.3 percent in 2003, 3.7 percent in 2004 and 3.7 percent in 2005.
21 The Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years*
22 *2003-2013*, stated that real GDP is expected to increase by 2.2 percent in 2003, 3.8 percent in
23 2004 and 3.5 percent in 2005 (see attached Schedule 6).

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1 Q. Please summarize the expectations of the economic conditions for the next
2 few years.

3 A. In summary, when combining the previously mentioned sources, inflation is
4 expected to be in the range of 1.9 to 2.4 percent, increase in real GDP in the range of 2.2 to
5 3.8 percent and long-term interest rates are expected to range from 5.1 to 6.0 percent.

6 *The Value Line Investment Survey: Selection & Opinion*, November 21, 2003, states
7 that:

8 **There are very few clouds on the economic horizon as we**
9 **approach the two-thirds mark of the fourth quarter.** Most of the
10 economy's key sectors are responding very well, with industrial
11 production, U.S. exports, retail spending (excluding autos), and
12 employment, for example, all posting anywhere from modest to solid
13 gains after selective weakness early in the year. Further, many
14 companies, upon issuing their recent quarterly earnings statements,
15 indicated that they had a strong book of new business going forward.
16 As such...

17 **We think the gross domestic product will rise by around 4% in the**
18 **current quarter and maintain that healthy pace in 2004.** True, that
19 would be a step back from the third quarter, when growth had topped
20 7%. But that eye-catching performance was helped by the effect of the
21 Bush Administration's retroactive tax cut, which was implemented
22 during the summer. Moreover, this projected rate of business growth
23 is materially greater than appeared likely just a few months ago, when
24 both capital spending and employment were still faltering.

25 **For now, we do not believe this solid rate of business activity will**
26 **fan the fires of inflation.** Although the rate of job growth is
27 increasing, the gains aren't sufficient to cause wages and benefits to
28 rise sharply. In addition, productivity is surging, which is also helping
29 to keep inflation at bay. Then, too, raw materials are still in plentiful
30 supply and there is enough industrial capacity around to avoid most
31 production bottlenecks, in our opinion.

32 **As such, we expect the Federal Reserve to proceed slowly on the**
33 **interest-rate front.** Overall, we think borrowing costs will move
34 higher in 2004, but we do not think this uptrend will commence until
35 the year is well under way and the jobless rate starts to decline. Rates
36 should then only edge modestly higher, unless there is an unexpected
37 jump in inflation.

1 **The stock market, though, has not been proceeding slowly**, with the
2 leading indexes having recently risen to their best levels in more than a
3 year. However, this showing, which has been interrupted by only brief
4 bouts of profit taking, has left equities a little overextended.

5 S&P's Chief Technical Analyst, Mark Arbeter, states the following in the November 19,
6 2003 issue of *The Outlook*:

7 For the 10 years ended 1999, the S&P 500 advanced more than 315%.
8 But from the end of 1999 through last year, the "500" tumbled more
9 than 40%. Even though 2003 appears likely to end with a gain, stock
10 investors could well experience a below-average decade.

11 In terms of performance, the 1990s were the best decade in modern
12 stock market history. On average, the S&P 500 gained 16.13% a year
13 during the boom period. Contrast that with what investors have seen
14 since 2000. The average annual loss for the first three complete years
15 of this decade has been 15.52%. Standard & Poor's estimates that the
16 "500" will end 2003 at 1085 for a gain of 23.32%. If the market hits
17 that target, the average annual loss for four years would still be 5.81%.

18 Could this turn out to be the worst decade for stocks in the history of
19 the S&P 500? That infamous record currently is held by the 1930s,
20 when stocks advanced a meager 0.04% a year. Assuming year end
21 2003 at 1085, the "500" would have to gain 3.94%, on average, for the
22 remaining six years of the decade to match the performance of the
23 1930s. We think that the market is likely to do significantly better and
24 that the Depression-era record for worst decade will probably stand.

25 The 1970s saw only a 3.2% annual gain in stocks. To simply match
26 that performance, the market will have to rise 9.2% annually for the
27 final six years of this decade if the index closes at 1085 this year.

28 Although that's possible, it is less probable, given our projections for
29 modest GDP growth and inflation over the next several years. The
30 upshot is that everyone, especially baby boomers set to begin retiring
31 soon, will have to save more.

32 Alternative investment choices in bonds and cash equivalents look
33 unappealing. We continue to recommend keeping 65% of your
34 investment nest egg in stocks.

1 **Business Operations of Aquila, Inc.**

2 Q. Please describe Aquila, Inc.'s (Aquila) business operations.

3 A. Aquila's 2002 Annual Report provides a good description of Aquila's
4 business operations:

5 Aquila, Inc. (the company, which may be referred to as "we", "us" or
6 "our") is a multinational energy provider headquartered in Kansas
7 City, Missouri. We began as Missouri Public Service Company in
8 1917 and reincorporated in Delaware as UtiliCorp United Inc. in 1985.
9 In March 2002, we changed our name to Aquila, Inc. We operate
10 regulated and non-regulated businesses in four countries. As of
11 December 31, 2002, we had 4,710 employees, with 3,496 of them in
12 the United States and the remaining 1,214 in Canada. Our business is
13 organized into two groups: Global Networks Group, which consists of
14 Domestic Networks and International Networks, and Merchant
15 Services, which consist of Capacity Services and Wholesale Services:

- 16 • **Global Networks Group-** Our Domestic Networks business
17 owns and operates regulated electric and natural gas operations
18 in the United States, where we provide natural gas and/or
19 electricity to approximately 1.3 million customers in Colorado,
20 Iowa, Kansas, Michigan, Minnesota, Missouri and Nebraska.
21 Domestic Networks also includes Everest Connections, our
22 96% owned domestic communications business. Our
23 International Networks business owns and manages interests in
24 electric, gas, and communications networks in Australia and
25 the United Kingdom serving approximately 4.0 million
26 customers. It also includes our wholly-owned electric
27 generation, transmission and distribution properties serving
28 approximately 483,000 customers in two Canadian provinces.
- 29 • **Merchant Services** – Merchant Services consists of Capacity
30 Services, which owns, operates, and contractually controls our
31 non-regulated electric power generation assets, and Wholesale
32 Services, our North American and European commodity client
33 and capital businesses.

34 Aquila currently operates two electric and natural gas utility divisions within the state
35 of Missouri, the St. Joseph Light & Power (L&P) division and the Missouri Public Service
36 (MPS) division. Both of these divisions are considered a part of Aquila's Domestic
37 Networks operations.

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1 Aquila's total operating revenues were \$2,575,014,000 for the 12 months ended
2 December 31, 2002. These total operating revenues resulted in an overall net loss of
3 \$2,075,086,000. These revenues and net incomes were generated from a total property, plant
4 and equipment of \$3,180,829,000 at December 31, 2002. These figures were taken from
5 Aquila's response to Staff Data Request No. MPSC-222 in Case Nos. ER-2004-0034 and
6 HR-2004-0024.

7 Q. How much of Aquila's operating revenues were from its domestic gas
8 network business for the years 2000 through 2002?

9 A. Total revenues from Aquila's domestic gas network business for the years
10 2002, 2001 and 2000 were \$762.2 million, \$964.3 million and \$826.5 million respectively.
11 This compares to total revenues from Aquila's domestic electric network business for the
12 years 2002, 2001 and 2000 of \$674.6 million, \$675.7 million and \$574.5 million respectively
13 (Aquila's 2002 Annual Report).

14 Q. What percentage of the combined domestic gas network and domestic electric
15 network revenues do the domestic gas network revenues represent for 2000 through 2002?

16 A. For they years 2002, 2001 and 2000, the domestic gas network revenues
17 represented 53.05 percent, 58.80 percent and 58.99 percent of the combined domestic gas
18 and electric network revenues, respectively.

19 Q. What were Aquila's total revenues for 2000 through 2002 according to
20 Aquila's 2002 Annual Report?

21 A. Aquila's total revenues for 2002, 2001 and 2000 were \$2,377.1 million,
22 \$3,711.0 million and \$3,194.5 million, respectively.

1 Q. What percentage of Aquila's total revenues do the domestic gas network
2 revenues represent for 2000 through 2002?

3 A. For the years 2002, 2001 and 2000 the domestic gas network revenues
4 represented 32.06 percent, 25.98 percent and 25.87 percent, respectively.

5 Q. Please describe the current credit ratings of Aquila.

6 A. Currently, Standard & Poor's Corporation rates the senior unsecured debt of
7 Aquila as "B." This rating is not considered to be of "investment grade."

8 Q. Please provide Standard & Poor's Corporation's most recent outlook
9 concerning the credit rating assigned to Aquila.

10 A. Standard & Poor's Corporation's *Ratings Direct*, September 2, 2003, provides
11 a summary explaining the outlook. Specifically the report states:

12 **OUTLOOK: NEGATIVE**
13 **RATIONALE**

14 The ratings on Aquila Inc. reflect the company's strained liquidity
15 position, execution risk associated with proposed asset sales, and
16 insufficient cash flow to offset a burdensome debt level, not quite
17 mitigated by management's efforts to restructure the company as a
18 traditional regulated utility business.

19 Aquila's restructuring plan is heavily dependent on continued asset
20 sales, prompting concern over the heavy execution risk involved with
21 an asset-sales strategy. Weak market conditions increase this risk, as
22 evidenced by the delay in the sale of Avon Energy Partners Holdings.
23 Due to weak cash flow generation from operations, asset sales are
24 necessary for Aquila to reduce its debt levels and shore up its balance
25 sheet. Still, cash flow generation relative to total debt is likely to
26 remain weak and not exceed 15% in the near term.

27 Cash flows from Aquila's regulated utilities will be stable; however,
28 depressed power prices and negative spark spreads will continue to be
29 a drag on cash flow from operations on the nonregulated side of the
30 business. Overall, cash flow will be strained as the company faces
31 continued restructuring charges in 2003 and debt maturities in 2004.
32 Expected cash flow from the company's reconstituted business plan is
33 insufficient to fully offset Aquila's massive amount of debt.

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1 Aquila has taken concerted steps toward returning to its traditional
2 regulated utility business model. The company has managed to sell
3 \$1.9 billion in assets over the past year and has achieved more than
4 \$100 million in cost reduction by curbing operational expenses and
5 rationalizing its trading and marketing business. In July 2003, Aquila
6 completed the sale of its Australian power and gas interests to
7 Australian-based companies, AMP Ltd. and AlintaGas Ltd., and used
8 net proceeds of \$477 million to retire its \$200 million 364-day secured
9 credit facility and enhance liquidity.

10 Furthermore, in May 2003, Aquila announced that it will terminate its
11 20-year tolling contract with Acadia Power Partners LLC for \$105.5
12 million. The termination agreement will return to Aquila \$45 million
13 in posted collateral and will eliminate \$843 million in payments due to
14 Acadia over the remaining term of the tolling agreement, thus
15 alleviating some of Aquila's liquidity concerns.

16 Aquila has also reduced capital investments in its noncore business
17 units, such as Everest Connections, a communications business.
18 Aquila's initiative to increase its focus on the regulated side of the
19 business is a positive step for Aquila's credit profile.

20 Q. Please provide some historical financial information for Aquila.

21 A. Schedules 7 and 8, attached to this testimony, present historical capital
22 structures and selected financial ratios from 1998 to 2002 for Aquila. Aquila and its
23 subsidiaries' consolidated common equity ratio has ranged from a high of 44.17 percent to a
24 low of 33.24 percent from 1998 through 2002. As of December 31, 2002, the capital
25 structure used for purposes of calculating the rate of return to be applied to the MPS and
26 L&P rate base, had a common equity ratio of 35.31 percent (attached Schedule 9). Aquila's
27 consolidated return on year-end common equity (ROE) has decreased dramatically to a
28 negative 129.06 percent in 2002 from a high of 13.46 percent in 2000. Aquila's 2002 ROE
29 of negative 129.06 percent is a result of its nonregulated activities. Aquila's market-to-book
30 ratio has varied in the past five years from a high of 1.73 times in 2000 to a low of .21 times
31 in 2002.

1 **Determination of the Cost of Capital**

2 Q. Please describe the approach for determining a utility company's cost of
3 capital.

4 A. The total dollars of capital for the utility company are determined as of a
5 specific point in time. This total dollar amount is then apportioned into each specific capital
6 component, i.e. common equity, long-term debt, preferred stock and short-term debt. A
7 weighted cost for each capital component is determined by multiplying each capital
8 component ratio by the appropriate embedded cost or by the estimated cost of common
9 equity component. The individual weighted costs are summed to arrive at a total weighted
10 cost of capital. This total weighted average cost of capital (WACC) is synonymous with the
11 fair rate of return for the utility company.

12 Q. Why is a total WACC synonymous with a fair rate of return?

13 A. From a financial viewpoint, a company employs different forms of capital to
14 support or fund the assets of the company. Each different form of capital has a cost and these
15 costs are weighted proportionately to fund each dollar invested in the assets.

16 Assuming that the various forms of capital are within a reasonable balance and are
17 costed correctly, the resulting total weighted cost of capital, when applied to rate base, will
18 provide the funds necessary to service the various forms of capital. Thus, the total weighted
19 cost of capital corresponds to a fair rate of return for the utility company.

20 **Capital Structure and Embedded Costs**

21 Q. What capital structure did you use for MPS and L&P?

22 A. The capital structure I have used for this case is Aquila's on a consolidated
23 basis as of December 31, 2002. Schedule 9 attached to this testimony, presents Aquila's

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1 capital structure and associated capital ratios. The resulting capital structure consists of
2 35.31 percent common stock equity, .38 percent short-term debt and 64.31 percent long-term
3 debt.

4 The amount of long-term debt outstanding on December 31, 2002 includes current
5 maturities due within one year. The amount of long-term debt in the capital structure is the
6 amount of long-term debt indicated on the December 31, 2002 Balance Sheet provided by
7 Aquila in response to Staff Data Request MPSC-222 in Case Nos. ER-2004-0034 and
8 HR-2004-0024.

9 As of December 31, 2002, Aquila had \$300,963,000 of short-term debt outstanding
10 with \$283,431,000 of Construction Work In Progress (CWIP) outstanding. Therefore, I
11 included a short-term debt balance of \$17,532,000 in the capital structure, which is the
12 difference between the amount of short-term debt outstanding and the CWIP outstanding.
13 The difference between actual short-term debt outstanding and CWIP was used for the short-
14 term debt balance because it is assumed that CWIP will eventually be funded by long-term
15 debt.

16 Q. Why did you use Aquila's capital structure as of the test year, December 31,
17 2002?

18 A. MPS and L&P are divisions of Aquila. Because the debt and equity are
19 generated from the parent company, Aquila, MPS and L&P rely on Aquila to finance their
20 investment in MPS and L&P assets. Because MPS and L&P do not issue their own debt or
21 equity, Aquila's actual capital structure as of December 31, 2002 was used for MPS and
22 L&P.

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1 Although Aquila's consolidated capital structure as of the test year has less equity
2 than the comparable group of natural gas utility companies, Aquila's common equity ratio as
3 of the test year is consistent with Aquila's historical common equity ratios when it was not in
4 financial distress. Therefore, it is appropriate to utilize Aquila's actual capital structure as of
5 the test year for purposes of ratemaking in this case.

6 Q. Did you make any adjustments to your comparable groups' cost of common
7 equity to take into consideration that there may be more risk associated with Aquila's more
8 leveraged capital structure?

9 A. Yes. I made an upwards adjustment of 32 basis points to take into
10 consideration Aquila's additional risk as it relates to the comparable group. I will explain the
11 specifics of this adjustment later in my testimony.

12 Q. Why didn't you update the capital structure through the update period of
13 September 30, 2003?

14 A. Because of Aquila's current situation, Staff used the capital structure as of the
15 test year because it is consistent with how Aquila was typically financed in the past. The
16 capital structure as of the update period is not consistent with how Aquila was financed in the
17 past. The common equity ratio as of September 30, 2003 was 30.77 percent.

18 Q. Why has Aquila's common equity ratio declined since December 31, 2002?

19 A. Because of losses associated with Aquila's ongoing nonregulated investments,
20 impairment charges and net losses on sales of assets, losses within discontinued operations
21 and margin losses incurred during the wind-down of the energy merchant trading portfolio.

22 Q. What was the embedded cost of long-term debt for Aquila on December 31,
23 2002?

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1 A. I determined the embedded cost of long-term debt on December 31, 2002, for
2 Aquila to be 7.633 percent (see attached Schedule 10). This embedded cost of debt excludes
3 a debt issuance that was issued after Aquila had its credit rating lowered. The interest rate on
4 this debt issuance was 14.875 percent. Therefore, the embedded cost of debt does not
5 contain any increased cost of capital that Aquila has incurred since S&P began to
6 consistently downgrade Aquila's credit rating to its current level of B. The embedded cost of
7 debt excludes the Australian debt because as of July 24, 2003, Aquila completed the sale of
8 its Australian energy investments

9 Q. Why was short-term debt included in the consolidated capital structure of
10 Aquila at December 31, 2002?

11 A. As of December 31, 2002, the short-term debt balance was \$300,963,000 and
12 the CWIP balance was \$283,431,000. Any time the short-term debt balance exceeds CWIP,
13 this amount of short-term debt is included in the capital structure. The philosophy behind
14 this is that because CWIP will eventually be funded by long-term debt, that at least this
15 amount of short-term debt should not be considered in the cost of capital because it is not
16 meant to be a permanent funding source.

17 **Cost of Equity**

18 Q. How do you propose to analyze those factors by which the cost of equity for
19 MPS and L&P may be determined?

20 A. In order to calculate the cost of equity for MPS and L&P, I performed a
21 comparable company analysis of eight companies. I have selected the discounted cash flow
22 (DCF) model as the primary tool to determine the cost of equity for MPS and L&P, but I also

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1 used the risk premium model and the Capital Asset Pricing Model to check the
2 reasonableness of the DCF results.

3 **The DCF Model**

4 Q. Please describe the DCF model.

5 A. The DCF model is a market-oriented approach for deriving the cost of equity.
6 The return on equity calculated from the DCF model is inherently capable of attracting
7 capital. This results from the theory that security prices adjust continually over time, so that
8 an equilibrium price exists and the stock is neither undervalued nor overvalued. It can also
9 be stated that stock prices continually fluctuate to reflect the required and expected return for
10 the investor.

11 The continuous growth form of the DCF model was used in this analysis. This model
12 relies upon the fact that a company's common stock price is dependent upon the expected
13 cash dividends and upon cash flows received through capital gains or losses that result from
14 stock price changes. The interest rate which discounts the sum of the future expected cash
15 flows to the current market price of the common stock is the calculated cost of equity. This
16 can be expressed algebraically as:

$$17 \quad \text{Present Price} = \frac{\text{Expected Dividends}}{\text{Discounted by } k} + \frac{\text{Expected Price in 1 year}}{\text{Discounted by } k} \quad (1)$$

19 where k equals the cost of equity. Since the expected price of a stock in one year is equal to
20 the present price multiplied by one plus the growth rate, equation (1) can be restated as:

$$21 \quad \text{Present Price} = \frac{\text{Expected Dividends}}{(1 + k)} + \frac{\text{Present Price } (1+g)}{(1 + k)} \quad (2)$$

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1 where g equals the growth rate and k equals the cost of equity. Letting the present price
2 equal P_0 and expected dividends equal D_1 , the equation appears as:

$$3 \quad P_0 = \frac{D_1}{(1+k)} + \frac{P_0(1+g)}{(1+k)} \quad (3)$$

6 The cost of equity equation may also be algebraically represented as:

$$7 \quad k = \frac{D_1}{P_0} + g \quad (4)$$

10 Thus, the cost of common stock equity, k , is equal to the expected dividend yield (D_1/P_0) plus
11 the expected growth in dividends (g) continuously summed into the future. The growth in
12 dividends and implied growth in earnings will be reflected in the current price. Therefore,
13 this model also recognizes the potential of capital gains or losses associated with owning a
14 share of common stock.

15 The discounted cash flow method is a continuous stock valuation model. The DCF
16 theory is based on the following assumptions:

- 17 1. Market equilibrium;
- 18 2. Perpetual life of the company;
- 19 3. Constant payout ratio;
- 20 4. Payout of less than 100% earnings;
- 21 5. Constant price/earnings ratio;
- 22 6. Constant growth in cash dividends;
- 23 7. Stability in interest rates over time;
- 24 8. Stability in required rates of return over time; and

1 9. Stability in earned returns over time.

2 Flowing from these, it is further assumed that an investor's growth horizon is
3 unlimited and that earnings, book values and market prices grow hand-in-hand. Although the
4 entire list of the above assumptions is rarely met, the DCF model is a reasonable working
5 model describing an actual investor's expectations and resulting behaviors.

6 Q. Can you directly analyze the cost of equity for MPS and L&P?

7 A. No. In order to directly determine the cost of equity for MPS and L&P, they
8 would have to be a stand-alone company that is publicly traded and pay a cash dividend. The
9 only way that an investor can invest in the operations of MPS and L&P is by investing in the
10 consolidated corporation of Aquila. When an investor purchases a share of Aquila, he is
11 purchasing an interest in the earnings of the entire company, which includes the financial
12 effects of the non-regulated, riskier operations that Aquila has been exiting over the last
13 couple of years.

14 Q. Please explain how you approached the determination of the cost of equity for
15 MPS and L&P.

16 A. I decided to do an analysis of the cost of equity for a comparable group of
17 natural gas utility companies.

18 Q. Why didn't you use Aquila's cost of equity as a proxy for the cost of equity
19 for MPS and L&P?

20 A. As explained above, Aquila's riskier, non-regulated operations have had a
21 dramatic effect on Aquila's cost of capital. Aquila's cost of capital is higher than it would be
22 for a utility company that did not get involved in riskier operations, such as energy marketing
23 and trading. The objective of this analysis is to approximate the cost of equity for MPS and

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1 L&P, which are regulated utilities. Therefore, it is appropriate to estimate MPS's and L&P's
2 cost of equity based on publicly traded companies that have operations that resemble the
3 operations of MPS and L&P.

4 Q. How did you determine which companies you would include to represent the
5 comparable natural gas utility companies?

6 A. Schedule 10 attached to this testimony, presents a list of market-traded natural
7 gas utility companies monitored by Value Line, which also monitors Aquila. The criteria
8 that I used to select the comparable companies are as follows:

- 9 1. Stock publicly traded: This criterion did not eliminate any companies;
- 10 2. Information printed in Value Line: This criterion did not eliminate
11 any companies;
- 12 3. Total capitalization less than \$5 billion: This criterion did not
13 eliminate any companies;
- 14 4. Distribution revenues to total revenues greater than or equal to
15 90 percent: This criterion did not eliminate any companies;
- 16 5. Ten years of data available: This criterion eliminated two companies;
- 17 6. At least investment grade credit rating: This criterion eliminated
18 three additional companies; and
- 19 7. No Missouri operations: This criterion eliminated three additional
20 companies.

21 This final group of eight publicly-traded natural gas utility companies serve as a proxy group
22 to determine the cost of equity for MPS and L&P. The comparables are listed on
23 Schedule 12 attached to this testimony.

24 Q. Please explain how you approached the determination of the cost of equity for
25 the comparables.

26 A. I have calculated a DCF cost of equity for each of the comparables. The first
27 step was to calculate a growth rate. I reviewed the actual dividends per share (DPS),
28 earnings per share (EPS), and book values per share (BVPS) as well as projected growth

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1 rates for the comparables. Schedule 13-1 attached to this testimony, lists the annual
2 compound growth rates for DPS, EPS, and BVPS for the periods 1992 through 2002.
3 Schedule 13-2 lists the annual compound growth rates for DPS, EPS, and BVPS for the
4 periods of 1997-2002. Schedule 13-3 presents the averages of the growth rates determined in
5 Schedules 13-1 and 13-2. Schedule 14 presents the average historical growth rates and the
6 projected growth rates for the comparables. The projected growth rates were obtained from
7 three outside sources; I/B/E/S Inc.'s Institutional Brokers Estimate System, Standard &
8 Poor's Corporation's Earnings Guide, and The Value Line Investment Survey: Ratings and
9 Reports. The three projected growth rates were averaged to develop an average projected
10 growth rate of 5.31 percent, which was averaged with the historical growth rates to produce
11 an average historical and projected growth rate of 4.04 percent. All the growth rates were
12 then analyzed to arrive at a growth rate range for the comparables of 4.00 percent to
13 5.00 percent.

14 The next step was to calculate an expected yield for each of the comparables. The
15 yield term of the DCF model is calculated by dividing the amount of common dividends per
16 share expected to be paid over the next twelve months by the market price per share of the
17 firm's stock. Even though a strict technical application of the model requires the use of a
18 current spot market price, I have chosen to use a monthly average market price for each of
19 the comparables. This averaging technique is an attempt to minimize the effects on the
20 dividend yield which can occur due to daily volatility in the stock market. Schedule 15
21 attached to this testimony, presents the average high / low stock price for the period of July 1,
22 2003 through October 31, 2003 for each comparable. Column 1 of the attached Schedule 16
23 indicates the expected dividend for each comparable over the next 12 months as projected by

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1 The Value Line Investment Survey: Ratings & Reports, September 19, 2003. Column 3 of
2 Schedule 16 shows the projected dividend yield for each of the comparables. The dividend
3 yield for each comparable was averaged to calculate the projected dividend yield for the
4 comparables of 4.41 percent.

5 As illustrated in column 5 of Schedule 16, the average cost of equity based on the
6 projected dividend yield added to the average of historical and projected growth is
7 8.45 percent.

8 Q. What analysis was performed to determine the reasonableness of your DCF
9 model derived return on common equity for the comparable company group?

10 A. I performed a risk premium and capital asset pricing model (CAPM) cost of
11 equity analysis for the comparables.

12 Q. Please describe the capital asset pricing model.

13 A. The CAPM describes the relationship between a security's investment risk
14 and its market rate of return. This relationship identifies the rate of return which investors
15 expect a security to earn so that its market return is comparable with the market returns
16 earned by other securities that have similar risk. The general form of the CAPM is as
17 follows:

18
$$k = R_f + \beta (R_m - R_f)$$

19 where:

20 k = the expected return on equity for a specific security;

21 R_f = the risk-free rate;

22 β = beta; and

23 $R_m - R_f$ = the market risk premium.

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1 The first term of the CAPM is the risk-free rate (R_f). The risk-free rate reflects the
2 level of return that can be achieved without accepting any risk. In reality, there is no such
3 risk-free asset, but it is generally represented by U.S. Treasury securities. For purposes of
4 this analysis, the risk-free rate was represented by the average yield on the 30-Year U.S.
5 Treasury Bond of 5.13 percent for the month of November 2003 calculated from
6 Yahoo!Finance's Investopedia web site.

7 The second term of the CAPM is beta (β). Beta is an indicator of a security's
8 investment risk. It represents the relative movement and relative risk between a particular
9 security and the market as a whole (where beta for the market equals 1.00). Securities with
10 betas greater than 1.00 exhibit greater volatility than do securities with betas less than 1.00.
11 This causes a higher beta security to be less desirable and therefore requires a higher return in
12 order to attract investor capital away from a lower beta security. Schedule 17 attached to this
13 testimony, contains the appropriate betas for the comparables.

14 The final term of the CAPM is the market risk premium ($R_m - R_f$). The market risk
15 premium represents the expected return from holding the entire market portfolio less the
16 expected return from holding a risk-free investment. For purposes of this analysis, I looked
17 at two time periods for risk premium estimates. The first risk premium used was based on
18 the long-term period of 1926 to 2002, which was 6.40 percent. The second risk premium
19 used was based on the short-term, recent period of 1993 to 2002, which was determined to be
20 -.34 percent. These risk premiums were taken from Ibbotson Associates, Inc.'s Stocks,
21 Bonds, Bills, and Inflation: 2003 Yearbook.

22 Schedule 17 presents the CAPM analysis with regard to the comparables. The CAPM
23 analysis produces an estimated cost of common equity of 9.33 percent for the comparables

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1 when using the long-term risk premium period. Using the short-term risk premium period
2 produces an estimated cost of common equity of 4.91 percent. Although the long-term risk
3 premium CAPM results support the upper part of my recommended cost of common equity
4 range based on my DCF analysis, the CAPM has not historically been relied upon by the
5 Financial Analysis Department in determining the cost of equity for a utility company. It is
6 strictly used as a test of reasonableness to provide some comfort with the results of the DCF,
7 and in this case the long-term risk premium CAPM supports the DCF results. Although the
8 short-term risk premium CAPM results are extremely low, it is interesting to observe that the
9 stock market returns over the last ten years have actually been less than the returns on long-
10 term government bonds over the last ten years.

11 The CAPM results appear to be coming in lower than in the past because interest
12 rates are at forty-year lows and because the market returns have decreased significantly in the
13 past few years. This would lend support to a lower recommended cost of common equity.

14 Q. Please describe the risk premium model.

15 A. The risk premium concept implies that the required return on equity is found
16 by adding an explicit premium for risk to a current interest rate. Schedules 18-1 through
17 18-8 attached to this testimony, show the average risk premium above the yield on the
18 Thirty-Year U.S. Treasury Bond for each of the comparables' actual returns on common
19 equity. Although the expected returns on equity are usually used by the Financial Analysis
20 Department for the risk premium analysis, this information was not available for the time
21 period of the analysis so I relied on actual returns on common equity. The use of actual
22 returns on equity to perform the risk premium analysis is a commonly accepted practice
23 when estimating the cost of common equity. This analysis shows, on average, that the actual

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1 returns on equity as reported by The Value Line Investment Survey: Ratings & Reports
2 ranges from 314 basis points to 774 basis points higher than the average yields on the Thirty-
3 Year U.S. Treasury Bonds for the period of January 1993 through December 2002 (see
4 Schedule 19 attached to this testimony). The risk premium is then added to the current yield
5 on the Thirty-Year U.S. Treasury Bond. Column 3 of Schedule 19 shows that the risk
6 premium cost of equity estimate for each of the comparables ranged from 8.27 percent to
7 12.87 percent, with an average of 10.59 percent.

8 Q. Please summarize your cost of equity analysis to this point.

9 A. I have performed a DCF, CAPM and risk premium cost of equity analysis on
10 a group of six comparable companies. The results are summarized below.

| | <u>DCF</u> | <u>CAPM</u> | <u>Risk Premium</u> |
|-------------------------|---------------|--------------|---------------------|
| 12 Comparable Companies | 8.40% - 9.40% | 9.33%; 4.91% | 10.59% |

13 Q. Do you have any adjustments that you need to make to your DCF
14 recommended cost of common equity?

15 A. Yes. As indicated on Schedule 16 attached to this testimony, the cost of
16 common equity range for the comparable companies is 8.40 percent to 9.40 percent.
17 However, I made an upward adjustment of 32 basis points in order to take into consideration
18 the fact that the historical credit rating of Aquila has been BBB when the company was
19 financially stable. Aquila maintained this credit rating at times when it had common equity
20 ratios below 35 percent as shown on the attached Schedule 7. Considering that the average
21 credit rating of the comparable companies is A (Schedule 20 attached to this testimony), it is
22 appropriate to make an adjustment to the estimated cost of common equity for the proxy
23 group to reflect the credit rating differential of MPS and L&P and the comparable group. In

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1 order to do this, I calculated the average spread of the bond rates for BBB-rated and A-rated
2 public utilities for the past eight years, as published in the Mergent Bond Record,
3 September 2001 and November 2003. This calculation showed a spread of 32 basis points
4 between A-rated bonds and BBB-rated bonds for the past eight years. I applied the full
5 32 basis point spread as an upwards adjustment to the DCF recommended cost of common
6 equity for MPS and L&P because the comparable group's average credit rating was an A and
7 Aquila's was BBB so the full amount of the spread should be reflected.

8 Q. Based on the analysis you performed, what is your recommended return on
9 common equity in this proceeding?

10 A. I am recommending a return on common equity in the range of 8.72 percent to
11 9.72 percent based on the results of the DCF analysis.

12 Q. Did you perform an analysis on Aquila's resulting pre-tax interest coverage
13 ratios?

14 A. Yes. However, many assumptions and hypothetical situations had to be used.
15 For example, all of the international debt was used for the interest expense because the
16 amount of debt on the December 31, 2002, Balance Sheet reflects all of this debt. I also had
17 to impute an interest expense for the \$500,000,000 of debt that was issued after Aquila's
18 credit rating deteriorated. I imputed the interest expense on this issuance by multiplying the
19 principal amount by the July 2002 BBB utility bond yield, which was the date this debt was
20 issued, as indicated in the Mergent Bond Record. Based on these assumptions, a pro forma
21 pre-tax interest coverage calculation was completed for Aquila (see attached Schedule 21). It
22 reveals that the return on equity range of 8.72 percent to 9.72 percent would yield a pre-tax
23 interest coverage ratio in the range of 2.12 times to 2.25 times. This range of pretax interest

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1 coverage ratios falls between the lower quartile and median quartile for a BBB rated natural
2 gas utility.

3 **Rate of Return for MPS and L&P**

4 Q. Please explain how the returns developed for each capital component are used
5 in the rate making approach you have adopted for MPS and L&P.

6 A. The cost of service rate making method was adopted in this case. This
7 approach develops the public utility's revenue requirement. The cost of service
8 (revenue requirement) is based on the following components: operating costs, rate base and
9 a return allowed on the rate base (see attached Schedule 22).

10 It is my responsibility to calculate and recommend a rate of return that should be
11 authorized on the Missouri jurisdictional electric utility rate base of MPS and L&P. Under
12 the cost of service rate making approach, a weighted cost of capital in the range of 8.00 to
13 8.35 percent was developed for MPS's and L&P's natural gas utility operations (see
14 Schedule 23 attached to this testimony). This rate was calculated by applying an embedded
15 cost of long-term debt of 7.633 percent, an average cost of short-term debt of 3.37 percent,
16 and a cost of common equity range of 8.72 percent to 9.72 percent to a capital structure
17 consisting of 64.31 percent long-term debt, .38 percent short-term debt and 35.31 percent
18 common equity. Therefore, from a financial risk / return prospective, as I suggested earlier, I
19 am recommending that MPS's and L&P's natural gas utility operations be allowed to earn a
20 return on its original cost rate base in the range of 8.00 to 8.35 percent.

21 Through my analysis, I believe that I have developed a fair and reasonable return and,
22 when applied to MPS's and L&P's jurisdictional rate base, will allow Aquila the opportunity
23 to earn the revenue requirement developed in this rate case.

Direct Testimony of
David Murray

1 Q. Does this conclude your prepared direct testimony?

2 A. Yes, it does.

AN ANALYSIS OF THE COST OF CAPITAL

FOR

**AQUILA, INC.
d/b/a AQUILA NETWORKS MPS AND
AQUILA NETWORKS L&P**

CASE NO. GR-2004-0072

SCHEDULES

BY

DAVID MURRAY

UTILITY SERVICES DIVISION

MISSOURI PUBLIC SERVICE COMMISSION

JANUARY 2004

AQUILA, INC.
CASE NO. GR-2004-0072

List of Schedules

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| 23 | Weighted Cost of Capital as of December 31, 2002 for Aquila, Inc. d/b/a Aquila Networks MPS and Aquila Networks L&P |

Federal Reserve Discount Rate Changes

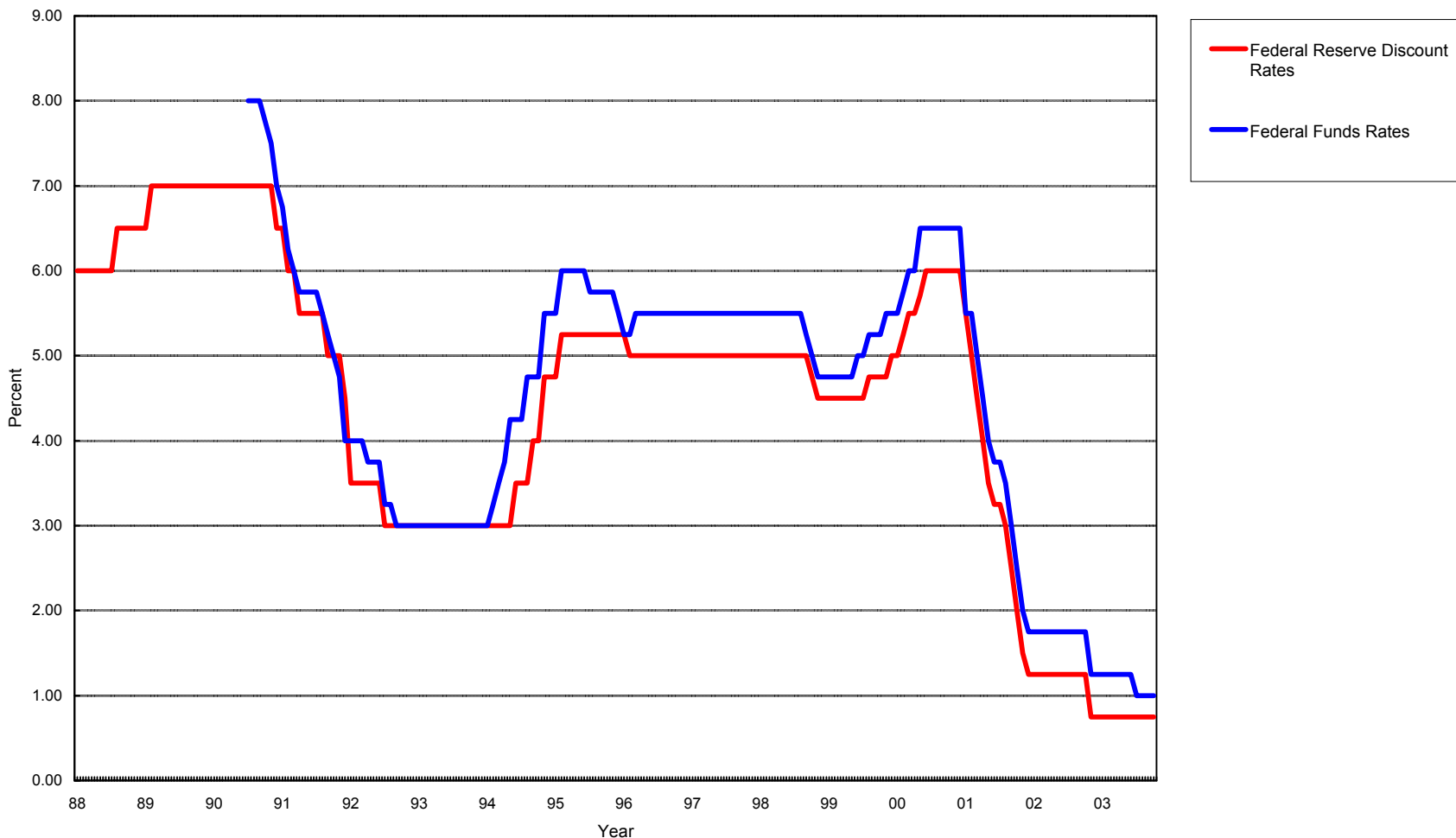
| Date | Discount Rate | Federal Funds Rate |
|----------|---------------|--------------------|
| 05/20/85 | 7.50% | |
| 03/07/86 | 7.00% | |
| 04/21/86 | 6.50% | |
| 07/11/86 | 6.00% | |
| 08/21/86 | 5.50% | |
| 09/04/87 | 6.00% | |
| 08/09/88 | 6.50% | |
| 02/24/89 | 7.00% | |
| 07/13/90 | | 8.00% * |
| 10/29/90 | | 7.75% |
| 11/13/90 | | 7.50% |
| 12/07/90 | | 7.25% |
| 12/18/90 | | 7.00% |
| 12/19/90 | 6.50% | |
| 01/09/91 | | 6.75% |
| 02/01/91 | 6.00% | 6.25% |
| 03/08/91 | | 6.00% |
| 04/30/91 | 5.50% | 5.75% |
| 08/06/91 | | 5.50% |
| 09/13/91 | 5.00% | 5.25% |
| 10/31/91 | | 5.00% |
| 11/06/91 | 4.50% | 4.75% |
| 12/06/91 | | 4.50% |
| 12/20/91 | 3.50% | 4.00% |
| 04/09/92 | | 3.75% |
| 07/02/92 | 3.00% | 3.25% |
| 09/04/92 | | 3.00% |
| 01/01/93 | | |
| 12/31/93 | No Changes | No Changes |
| 02/04/94 | | 3.25% |
| 03/22/94 | | 3.50% |
| 04/18/94 | | 3.75% |
| 05/17/94 | 3.50% | 4.25% |
| 08/16/94 | 4.00% | 4.75% |
| 11/15/94 | 4.75% | 5.50% |
| 02/01/95 | 5.25% | 6.00% |
| 07/06/95 | | 5.75% |
| 12/19/95 | | 5.50% |
| 01/31/96 | 5.00% | 5.25% |
| 03/25/97 | | 5.50% |
| 12/12/97 | 5.00% | |
| 01/09/98 | 5.00% | |
| 03/06/98 | 5.00% | |
| 09/29/98 | | 5.25% |
| 10/15/98 | 4.75% | 5.00% |
| 11/17/98 | 4.50% | 4.75% |
| 06/30/99 | 4.50% | 5.00% |
| 08/24/99 | 4.75% | 5.25% |
| 11/16/99 | 5.00% | 5.50% |
| 02/02/00 | 5.25% | 5.75% |
| 03/21/00 | 5.50% | 6.00% |
| 05/16/00 | 5.50% | 6.50% |
| 05/19/00 | 6.00% | |
| 01/03/01 | 5.75% | 6.00% |
| 01/04/01 | 5.50% | |
| 01/31/01 | 5.00% | 5.50% |
| 03/20/01 | 4.50% | 5.00% |
| 04/18/01 | 4.00% | 4.50% |
| 05/15/01 | 3.50% | 4.00% |
| 06/27/01 | 3.25% | 3.75% |
| 08/21/01 | 3.00% | 3.50% |
| 09/17/01 | 2.50% | 3.00% |
| 10/02/01 | 2.00% | 2.50% |
| 11/06/01 | 1.50% | 2.00% |
| 12/11/01 | 1.25% | 1.75% |
| 01/11/02 | 1.25% | |
| 02/01/02 | 1.25% | |
| 11/06/02 | 0.75% | 1.25% |
| 06/25/03 | | 1.00% |

* Began tracking the Federal Funds Rate.

Sources: Federal Reserve Bank of New York: <http://www.ny.frb.org/pihome/statistics/dlyrates/fedrate.html>
[Historical Changes of the Fed Fund and Discount Rate - Statistics - Federal Reserve Bank of New York](#)

Federal Reserve Discount Rates and Federal Funds Rates

1988 - 2003



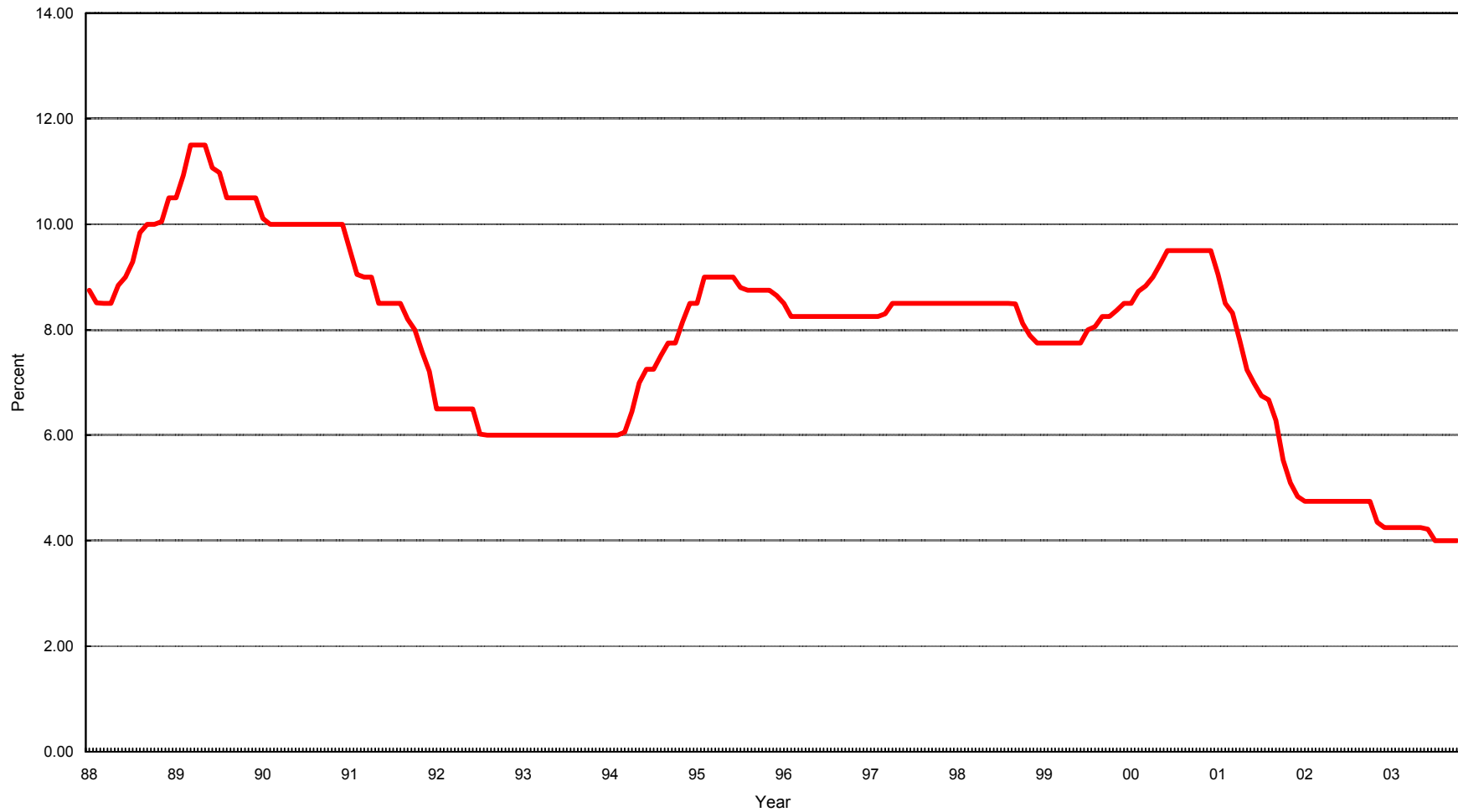
AQUILA, INC.
CASE NO. GR-2004-0072

Average Prime Interest Rates

| <u>Mo/Year</u> | <u>Rate (%)</u> | <u>Mo/Year</u> | <u>Rate (%)</u> | <u>Mo/Year</u> | <u>Rate (%)</u> | <u>Mo/Year</u> | <u>Rate (%)</u> |
|----------------|-----------------|----------------|-----------------|----------------|-----------------|----------------|-----------------|
| Jan 1988 | 8.75 | Jan 1992 | 6.50 | Jan 1996 | 8.50 | Jan 2000 | 8.50 |
| Feb | 8.51 | Feb | 6.50 | Feb | 8.25 | Feb | 8.73 |
| Mar | 8.50 | Mar | 6.50 | Mar | 8.25 | Mar | 8.83 |
| Apr | 8.50 | Apr | 6.50 | Apr | 8.25 | Apr | 9.00 |
| May | 8.84 | May | 6.50 | May | 8.25 | May | 9.24 |
| Jun | 9.00 | Jun | 6.50 | Jun | 8.25 | Jun | 9.50 |
| Jul | 9.29 | Jul | 6.02 | Jul | 8.25 | Jul | 9.50 |
| Aug | 9.84 | Aug | 6.00 | Aug | 8.25 | Aug | 9.50 |
| Sep | 10.00 | Sep | 6.00 | Sep | 8.25 | Sep | 9.50 |
| Oct | 10.00 | Oct | 6.00 | Oct | 8.25 | Oct | 9.50 |
| Nov | 10.05 | Nov | 6.00 | Nov | 8.25 | Nov | 9.50 |
| Dec | 10.50 | Dec | 6.00 | Dec | 8.25 | Dec | 9.50 |
| Jan 1989 | 10.50 | Jan 1993 | 6.00 | Jan 1997 | 8.26 | Jan 2001 | 9.05 |
| Feb | 10.93 | Feb | 6.00 | Feb | 8.25 | Feb | 8.50 |
| Mar | 11.50 | Mar | 6.00 | Mar | 8.30 | Mar | 8.32 |
| Apr | 11.50 | Apr | 6.00 | Apr | 8.50 | Apr | 7.80 |
| May | 11.50 | May | 6.00 | May | 8.50 | May | 7.24 |
| Jun | 11.07 | Jun | 6.00 | Jun | 8.50 | Jun | 6.98 |
| Jul | 10.98 | Jul | 6.00 | Jul | 8.50 | Jul | 6.75 |
| Aug | 10.50 | Aug | 6.00 | Aug | 8.50 | Aug | 6.67 |
| Sep | 10.50 | Sep | 6.00 | Sep | 8.50 | Sep | 6.28 |
| Oct | 10.50 | Oct | 6.00 | Oct | 8.50 | Oct | 5.53 |
| Nov | 10.50 | Nov | 6.00 | Nov | 8.50 | Nov | 5.10 |
| Dec | 10.50 | Dec | 6.00 | Dec | 8.50 | Dec | 4.84 |
| Jan 1990 | 10.11 | Jan 1994 | 6.00 | Jan 1998 | 8.50 | Jan 2002 | 4.75 |
| Feb | 10.00 | Feb | 6.00 | Feb | 8.50 | Feb | 4.75 |
| Mar | 10.00 | Mar | 6.06 | Mar | 8.50 | Mar | 4.75 |
| Apr | 10.00 | Apr | 6.45 | Apr | 8.50 | Apr | 4.75 |
| May | 10.00 | May | 6.99 | May | 8.50 | May | 4.75 |
| Jun | 10.00 | Jun | 7.25 | Jun | 8.50 | Jun | 4.75 |
| Jul | 10.00 | Jul | 7.25 | Jul | 8.50 | Jul | 4.75 |
| Aug | 10.00 | Aug | 7.51 | Aug | 8.50 | Aug | 4.75 |
| Sep | 10.00 | Sep | 7.75 | Sep | 8.49 | Sep | 4.75 |
| Oct | 10.00 | Oct | 7.75 | Oct | 8.12 | Oct | 4.75 |
| Nov | 10.00 | Nov | 8.15 | Nov | 7.89 | Nov | 4.35 |
| Dec | 10.00 | Dec | 8.50 | Dec | 7.75 | Dec | 4.25 |
| Jan 1991 | 9.52 | Jan 1995 | 8.50 | Jan 1999 | 7.75 | Jan 2003 | 4.25 |
| Feb | 9.05 | Feb | 9.00 | Feb | 7.75 | Feb | 4.25 |
| Mar | 9.00 | Mar | 9.00 | Mar | 7.75 | Mar | 4.25 |
| Apr | 9.00 | Apr | 9.00 | Apr | 7.75 | Apr | 4.25 |
| May | 8.50 | May | 9.00 | May | 7.75 | May | 4.25 |
| Jun | 8.50 | Jun | 9.00 | Jun | 7.75 | Jun | 4.22 |
| Jul | 8.50 | Jul | 8.80 | Jul | 8.00 | Jul | 4.00 |
| Aug | 8.50 | Aug | 8.75 | Aug | 8.06 | Aug | 4.00 |
| Sep | 8.20 | Sep | 8.75 | Sep | 8.25 | Sep | 4.00 |
| Oct | 8.00 | Oct | 8.75 | Oct | 8.25 | Oct | 4.00 |
| Nov | 7.58 | Nov | 8.75 | Nov | 8.37 | | |
| Dec | 7.21 | Dec | 8.65 | Dec | 8.50 | | |

Sources: <http://research.stlouisfed.org/fred2/data/MPRIME.txt>

Average Prime Interest Rate
1988 - 2003



AQUILA, INC.
CASE NO. GR-2004-0072

Rate of Inflation

| <u>Mo/Year</u> | <u>Rate (%)</u> | <u>Mo/Year</u> | <u>Rate (%)</u> | <u>Mo/Year</u> | <u>Rate (%)</u> | <u>Mo/Year</u> | <u>Rate (%)</u> |
|----------------|-----------------|----------------|-----------------|----------------|-----------------|----------------|-----------------|
| Jan 1988 | 4.00 | Jan 1992 | 2.60 | Jan 1996 | 2.70 | Jan 2000 | 2.70 |
| Feb | 3.90 | Feb | 2.80 | Feb | 2.70 | Feb | 3.20 |
| Mar | 3.90 | Mar | 3.20 | Mar | 2.80 | Mar | 3.70 |
| Apr | 3.90 | Apr | 3.20 | Apr | 2.90 | Apr | 3.00 |
| May | 3.90 | May | 3.00 | May | 2.90 | May | 3.20 |
| Jun | 4.00 | Jun | 3.10 | Jun | 2.80 | Jun | 3.70 |
| Jul | 4.10 | Jul | 3.20 | Jul | 3.00 | Jul | 3.70 |
| Aug | 4.00 | Aug | 3.10 | Aug | 2.90 | Aug | 3.40 |
| Sep | 4.20 | Sep | 3.00 | Sep | 3.00 | Sep | 3.50 |
| Oct | 4.20 | Oct | 3.20 | Oct | 3.00 | Oct | 3.40 |
| Nov | 4.20 | Nov | 3.00 | Nov | 3.30 | Nov | 3.40 |
| Dec | 4.40 | Dec | 2.90 | Dec | 3.30 | Dec | 3.40 |
| Jan 1989 | 4.70 | Jan 1993 | 3.30 | Jan 1997 | 3.00 | Jan 2001 | 3.70 |
| Feb | 4.80 | Feb | 3.20 | Feb | 3.00 | Feb | 3.50 |
| Mar | 5.00 | Mar | 3.10 | Mar | 2.80 | Mar | 2.90 |
| Apr | 5.10 | Apr | 3.20 | Apr | 2.50 | Apr | 3.30 |
| May | 5.40 | May | 3.20 | May | 2.20 | May | 3.60 |
| Jun | 5.20 | Jun | 3.00 | Jun | 2.30 | Jun | 3.20 |
| Jul | 5.00 | Jul | 2.80 | Jul | 2.20 | Jul | 2.70 |
| Aug | 4.70 | Aug | 2.80 | Aug | 2.20 | Aug | 2.70 |
| Sep | 4.30 | Sep | 2.70 | Sep | 2.20 | Sep | 2.60 |
| Oct | 4.50 | Oct | 2.80 | Oct | 2.10 | Oct | 2.10 |
| Nov | 4.70 | Nov | 2.70 | Nov | 1.80 | Nov | 1.90 |
| Dec | 4.60 | Dec | 2.70 | Dec | 1.70 | Dec | 1.60 |
| Jan 1990 | 5.20 | Jan 1994 | 2.50 | Jan 1998 | 1.60 | Jan 2002 | 1.10 |
| Feb | 5.30 | Feb | 2.50 | Feb | 1.40 | Feb | 1.10 |
| Mar | 5.20 | Mar | 2.50 | Mar | 1.40 | Mar | 1.50 |
| Apr | 4.70 | Apr | 2.40 | Apr | 1.40 | Apr | 1.60 |
| May | 4.40 | May | 2.30 | May | 1.70 | May | 1.20 |
| Jun | 4.70 | Jun | 2.50 | Jun | 1.70 | Jun | 1.10 |
| Jul | 4.80 | Jul | 2.90 | Jul | 1.70 | Jul | 1.50 |
| Aug | 5.60 | Aug | 3.00 | Aug | 1.60 | Aug | 1.80 |
| Sep | 6.20 | Sep | 2.60 | Sep | 1.50 | Sep | 1.50 |
| Oct | 6.30 | Oct | 2.70 | Oct | 1.50 | Oct | 2.00 |
| Nov | 6.30 | Nov | 2.70 | Nov | 1.50 | Nov | 2.20 |
| Dec | 6.10 | Dec | 2.80 | Dec | 1.60 | Dec | 2.40 |
| Jan 1991 | 5.70 | Jan 1995 | 2.90 | Jan 1999 | 1.70 | Jan 2003 | 2.60 |
| Feb | 5.30 | Feb | 2.90 | Feb | 1.60 | Feb | 3.00 |
| Mar | 4.90 | Mar | 3.10 | Mar | 1.70 | Mar | 3.00 |
| Apr | 4.90 | Apr | 2.40 | Apr | 2.30 | Apr | 2.20 |
| May | 5.00 | May | 3.20 | May | 2.10 | May | 2.10 |
| Jun | 4.70 | Jun | 3.00 | Jun | 2.00 | Jun | 2.10 |
| Jul | 4.40 | Jul | 2.80 | Jul | 2.10 | Jul | 2.10 |
| Aug | 3.80 | Aug | 2.60 | Aug | 2.30 | Aug | 2.20 |
| Sep | 3.40 | Sep | 2.50 | Sep | 2.60 | Sep | 2.30 |
| Oct | 2.90 | Oct | 2.80 | Oct | 2.60 | Oct | 2.30 |
| Nov | 3.00 | Nov | 2.60 | Nov | 2.60 | | |
| Dec | 3.10 | Dec | 2.50 | Dec | 2.70 | | |

Source: U.S. Department of Labor, Bureau of Labor Statistics, Consumer Price Index
All Urban Consumers, Change for 12-Month Period, Bureau of Labor Statistics,
<ftp://ftp.bls.gov/pub/special.requests/cpi/cpia1.txt>

Rate of Inflation
1988 - 2003



AQUILA, INC.
CASE NO. GR-2004-0072

Average Yields on Mergent's Public Utility Bonds

| <u>Mo/Year</u> | <u>Rate (%)</u> | <u>Mo/Year</u> | <u>Rate (%)</u> | <u>Mo/Year</u> | <u>Rate (%)</u> | <u>Mo/Year</u> | <u>Rate (%)</u> |
|----------------|-----------------|----------------|-----------------|----------------|-----------------|----------------|-----------------|
| Jan 1988 | 10.75 | Jan 1992 | 8.67 | Jan 1996 | 7.20 | Jan 2000 | 8.22 |
| Feb | 10.11 | Feb | 8.77 | Feb | 7.37 | Feb | 8.10 |
| Mar | 10.11 | Mar | 8.84 | Mar | 7.72 | Mar | 8.14 |
| Apr | 10.53 | Apr | 8.79 | Apr | 7.88 | Apr | 8.14 |
| May | 10.75 | May | 8.72 | May | 7.99 | May | 8.55 |
| Jun | 10.71 | Jun | 8.64 | Jun | 8.07 | Jun | 8.22 |
| Jul | 10.96 | Jul | 8.46 | Jul | 8.02 | Jul | 8.17 |
| Aug | 11.09 | Aug | 8.34 | Aug | 7.84 | Aug | 8.05 |
| Sep | 10.56 | Sep | 8.32 | Sep | 8.01 | Sep | 8.16 |
| Oct | 9.92 | Oct | 8.44 | Oct | 7.76 | Oct | 8.08 |
| Nov | 9.89 | Nov | 8.53 | Nov | 7.48 | Nov | 8.03 |
| Dec | 10.02 | Dec | 8.36 | Dec | 7.58 | Dec | 7.79 |
| Jan 1989 | 10.02 | Jan 1993 | 8.23 | Jan 1997 | 7.79 | Jan 2001 | 7.76 |
| Feb | 10.02 | Feb | 8.00 | Feb | 7.68 | Feb | 7.69 |
| Mar | 10.16 | Mar | 7.85 | Mar | 7.92 | Mar | 7.59 |
| Apr | 10.14 | Apr | 7.76 | Apr | 8.08 | Apr | 7.81 |
| May | 9.92 | May | 7.78 | May | 7.94 | May | 7.88 |
| Jun | 9.49 | Jun | 7.68 | Jun | 7.77 | Jun | 7.75 |
| Jul | 9.34 | Jul | 7.53 | Jul | 7.52 | Jul | 7.71 |
| Aug | 9.37 | Aug | 7.21 | Aug | 7.57 | Aug | 7.57 |
| Sep | 9.43 | Sep | 7.01 | Sep | 7.50 | Sep | 7.73 |
| Oct | 9.37 | Oct | 6.99 | Oct | 7.37 | Oct | 7.64 |
| Nov | 9.33 | Nov | 7.30 | Nov | 7.24 | Nov | 7.61 |
| Dec | 9.31 | Dec | 7.33 | Dec | 7.16 | Dec | 7.86 |
| Jan 1990 | 9.44 | Jan 1994 | 7.31 | Jan 1998 | 7.03 | Jan 2002 | 7.69 |
| Feb | 9.66 | Feb | 7.44 | Feb | 7.09 | Feb | 7.62 |
| Mar | 9.75 | Mar | 7.83 | Mar | 7.13 | Mar | 7.83 |
| Apr | 9.87 | Apr | 8.20 | Apr | 7.12 | Apr | 7.74 |
| May | 9.89 | May | 8.32 | May | 7.11 | May | 7.76 |
| Jun | 9.69 | Jun | 8.31 | Jun | 6.99 | Jun | 7.67 |
| Jul | 9.66 | Jul | 8.47 | Jul | 6.99 | Jul | 7.54 |
| Aug | 9.84 | Aug | 8.41 | Aug | 6.96 | Aug | 7.34 |
| Sep | 10.01 | Sep | 8.65 | Sep | 6.88 | Sep | 7.23 |
| Oct | 9.94 | Oct | 8.88 | Oct | 6.88 | Oct | 7.43 |
| Nov | 9.76 | Nov | 9.00 | Nov | 6.96 | Nov | 7.31 |
| Dec | 9.57 | Dec | 8.79 | Dec | 6.84 | Dec | 7.20 |
| Jan 1991 | 9.56 | Jan 1995 | 8.77 | Jan 1999 | 6.87 | Jan 2003 | 7.13 |
| Feb | 9.31 | Feb | 8.56 | Feb | 7.00 | Feb | 6.92 |
| Mar | 9.39 | Mar | 8.41 | Mar | 7.18 | Mar | 6.80 |
| Apr | 9.30 | Apr | 8.30 | Apr | 7.16 | Apr | 6.68 |
| May | 9.29 | May | 7.93 | May | 7.42 | May | 6.35 |
| Jun | 9.44 | Jun | 7.62 | Jun | 7.70 | Jun | 6.21 |
| Jul | 9.40 | Jul | 7.73 | Jul | 7.66 | Jul | 6.54 |
| Aug | 9.16 | Aug | 7.86 | Aug | 7.86 | Aug | 6.78 |
| Sep | 9.03 | Sep | 7.62 | Sep | 7.87 | Sep | 6.58 |
| Oct | 8.99 | Oct | 7.46 | Oct | 8.02 | | |
| Nov | 8.93 | Nov | 7.40 | Nov | 7.86 | | |
| Dec | 8.76 | Dec | 7.21 | Dec | 8.04 | | |

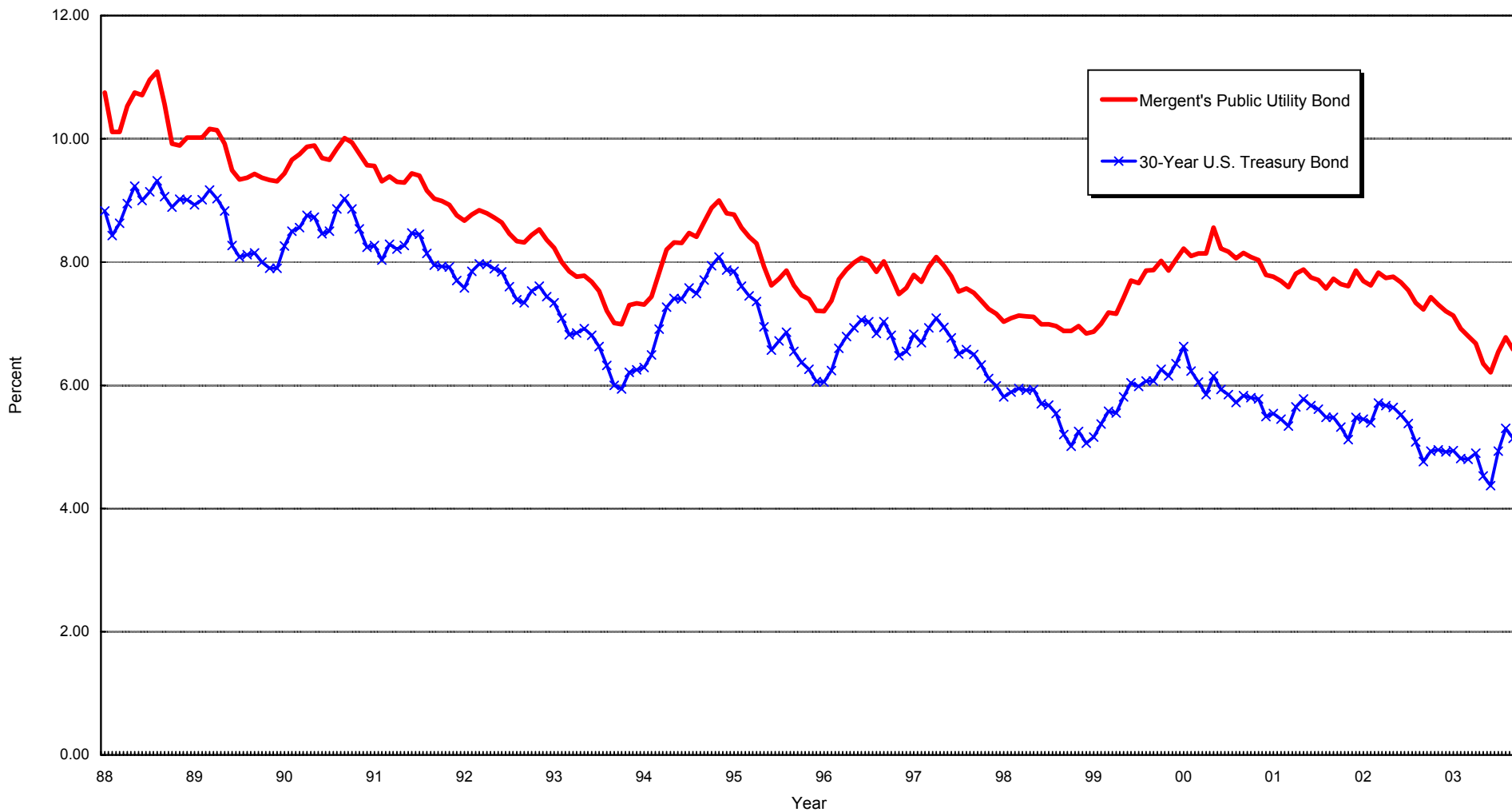
Source: Mergent Bond Record

Average Yields on Thirty-Year U.S. Treasury Bonds

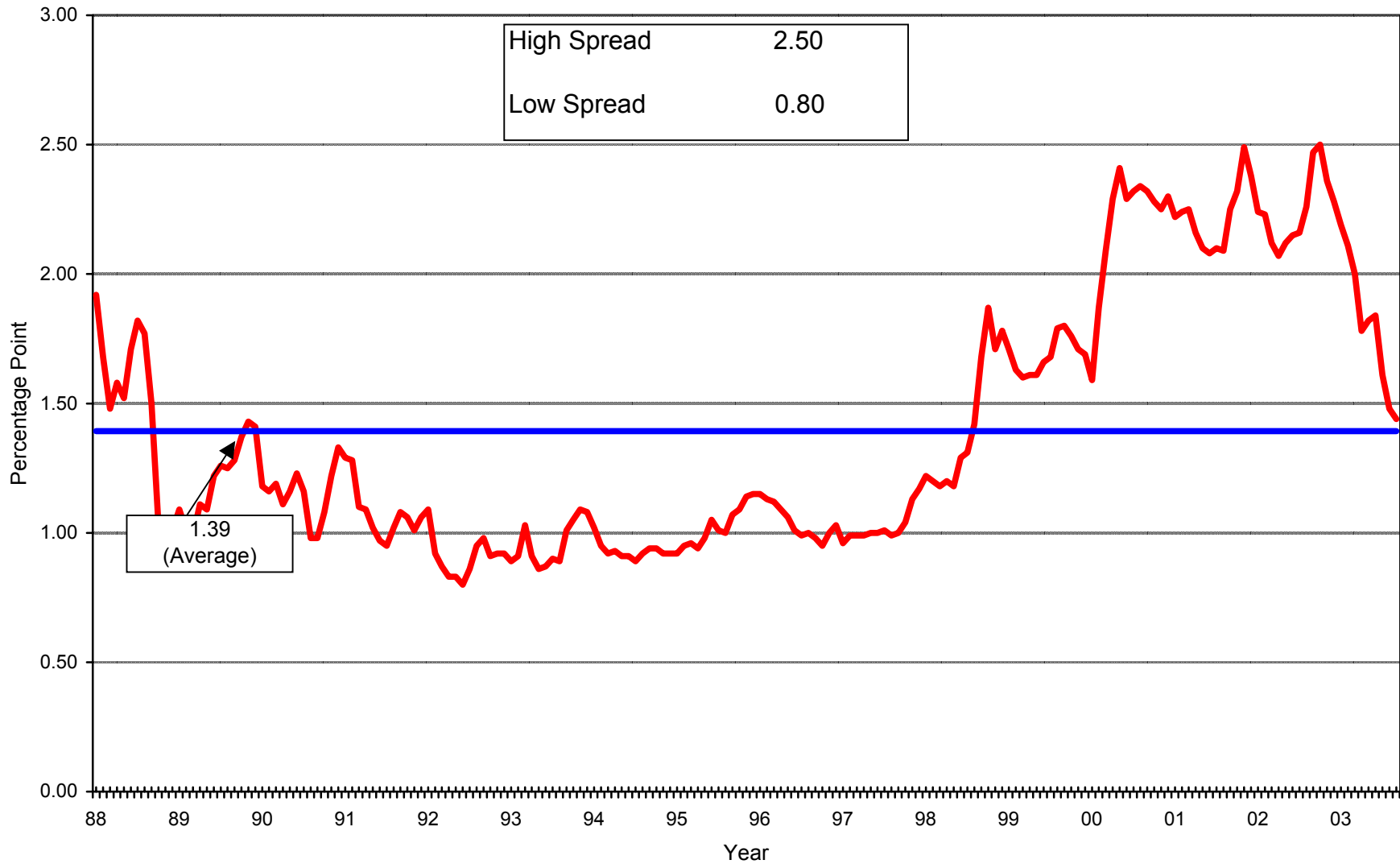
| <u>Mo/Year</u> | <u>Rate (%)</u> | <u>Mo/Year</u> | <u>Rate (%)</u> | <u>Mo/Year</u> | <u>Rate (%)</u> | <u>Mo/Year</u> | <u>Rate (%)</u> |
|----------------|-----------------|----------------|-----------------|----------------|-----------------|----------------|-----------------|
| Jan 1988 | 8.83 | Jan 1992 | 7.58 | Jan 1996 | 6.05 | Jan 2000 | 6.63 |
| Feb | 8.43 | Feb | 7.85 | Feb | 6.24 | Feb | 6.23 |
| Mar | 8.63 | Mar | 7.97 | Mar | 6.60 | Mar | 6.05 |
| Apr | 8.95 | Apr | 7.96 | Apr | 6.79 | Apr | 5.85 |
| May | 9.23 | May | 7.89 | May | 6.93 | May | 6.15 |
| Jun | 9.00 | Jun | 7.84 | Jun | 7.06 | Jun | 5.93 |
| Jul | 9.14 | Jul | 7.60 | Jul | 7.03 | Jul | 5.85 |
| Aug | 9.32 | Aug | 7.39 | Aug | 6.84 | Aug | 5.72 |
| Sep | 9.06 | Sep | 7.34 | Sep | 7.03 | Sep | 5.83 |
| Oct | 8.89 | Oct | 7.53 | Oct | 6.81 | Oct | 5.80 |
| Nov | 9.02 | Nov | 7.61 | Nov | 6.48 | Nov | 5.78 |
| Dec | 9.01 | Dec | 7.44 | Dec | 6.55 | Dec | 5.49 |
| Jan 1989 | 8.93 | Jan 1993 | 7.34 | Jan 1997 | 6.83 | Jan 2001 | 5.54 |
| Feb | 9.01 | Feb | 7.09 | Feb | 6.69 | Feb | 5.45 |
| Mar | 9.17 | Mar | 6.82 | Mar | 6.93 | Mar | 5.34 |
| Apr | 9.03 | Apr | 6.85 | Apr | 7.09 | Apr | 5.65 |
| May | 8.83 | May | 6.92 | May | 6.94 | May | 5.78 |
| Jun | 8.27 | Jun | 6.81 | Jun | 6.77 | Jun | 5.67 |
| Jul | 8.08 | Jul | 6.63 | Jul | 6.51 | Jul | 5.61 |
| Aug | 8.12 | Aug | 6.32 | Aug | 6.58 | Aug | 5.48 |
| Sep | 8.15 | Sep | 6.00 | Sep | 6.50 | Sep | 5.48 |
| Oct | 8.00 | Oct | 5.94 | Oct | 6.33 | Oct | 5.32 |
| Nov | 7.90 | Nov | 6.21 | Nov | 6.11 | Nov | 5.12 |
| Dec | 7.90 | Dec | 6.25 | Dec | 5.99 | Dec | 5.48 |
| Jan 1990 | 8.26 | Jan 1994 | 6.29 | Jan 1998 | 5.81 | Jan 2002 | 5.45 |
| Feb | 8.50 | Feb | 6.49 | Feb | 5.89 | Feb | 5.39 |
| Mar | 8.56 | Mar | 6.91 | Mar | 5.95 | Mar | 5.71 |
| Apr | 8.76 | Apr | 7.27 | Apr | 5.92 | Apr | 5.67 |
| May | 8.73 | May | 7.41 | May | 5.93 | May | 5.64 |
| Jun | 8.46 | Jun | 7.40 | Jun | 5.70 | Jun | 5.52 |
| Jul | 8.50 | Jul | 7.58 | Jul | 5.68 | Jul | 5.38 |
| Aug | 8.86 | Aug | 7.49 | Aug | 5.54 | Aug | 5.08 |
| Sep | 9.03 | Sep | 7.71 | Sep | 5.20 | Sep | 4.76 |
| Oct | 8.86 | Oct | 7.94 | Oct | 5.01 | Oct | 4.93 |
| Nov | 8.54 | Nov | 8.08 | Nov | 5.25 | Nov | 4.95 |
| Dec | 8.24 | Dec | 7.87 | Dec | 5.06 | Dec | 4.92 |
| Jan 1991 | 8.27 | Jan 1995 | 7.85 | Jan 1999 | 5.16 | Jan 2003 | 4.94 |
| Feb | 8.03 | Feb | 7.61 | Feb | 5.37 | Feb | 4.81 |
| Mar | 8.29 | Mar | 7.45 | Mar | 5.58 | Mar | 4.80 |
| Apr | 8.21 | Apr | 7.36 | Apr | 5.55 | Apr | 4.90 |
| May | 8.27 | May | 6.95 | May | 5.81 | May | 4.53 |
| Jun | 8.47 | Jun | 6.57 | Jun | 6.04 | Jun | 4.37 |
| Jul | 8.45 | Jul | 6.72 | Jul | 5.98 | Jul | 4.93 |
| Aug | 8.14 | Aug | 6.86 | Aug | 6.07 | Aug | 5.30 |
| Sep | 7.95 | Sep | 6.55 | Sep | 6.07 | Sep | 5.14 |
| Oct | 7.93 | Oct | 6.37 | Oct | 6.26 | Oct | 5.16 |
| Nov | 7.92 | Nov | 6.26 | Nov | 6.15 | | |
| Dec | 7.70 | Dec | 6.06 | Dec | 6.35 | | |

Source: <http://www.investopedia.com/offsite.asp?URL=http://quote.yahoo.com/q?s=%5EETYX&d=1y>

**Average Yields on Mergent's Public Utility Bonds and
Thirty-Year U.S. Treasury Bonds (1988 - 2003)**



**Monthly Spreads Between Yields on Mergent's
Public Utility Bonds
and Thirty-Year U.S. Treasury Bonds (1988 - 2003)**



Economic Estimates and Projections, 2003 - 2005

| Source | Inflation Rate | | | Real GDP | | | Unemployment | | | 3-Mo. T-Bill Rate | | | 30-Yr. T-Bond Rate | | |
|---|----------------|-------|-------|----------|-------|-------|--------------|-------|-------|-------------------|-------|-------|--------------------|-------|-------|
| | 2003 | 2004 | 2005 | 2003 | 2004 | 2005 | 2003 | 2004 | 2005 | 2003 | 2004 | 2005 | 2003 | 2004 | 2005 |
| Value Line Investment Survey (08/29/03) | 1.90% | 2.00% | 2.10% | 2.30% | 3.70% | 3.70% | 6.10% | 6.00% | 5.70% | 1.10% | 1.60% | 2.00% | 5.10% | 5.60% | 6.00% |
| The Budget and Economic Outlook FY2003-2013 | 2.30% | 1.90% | 2.40% | 2.20% | 3.80% | 3.50% | 6.20% | 6.20% | 5.70% | 1.00% | 1.70% | 3.20% | N.A. | N.A. | N.A. |
| Current rate | 1.80% | | | 8.20% | | | 5.90% | | | 0.95% | | | 4.98% | | |

Notes: N.A. = Not Available.

Sources of Current Rates:

The Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers, 12-Month Period Ending November 30, 2003.
<http://cbs.marketwatch.com/tools/marketsummary/default.asp?siteid=mktw> on December 23, 2003
 The Federal Reserve Bank of St. Louis, 3-Month Treasury Bill Rate, <http://research.stlouisfed.org/fred2/data/GS3M.txt> as of November 01, 2003.
 The Bureau of Labor Statistics, Economy at a Glance - Unemployment Rate as of November 2003.
 Real GDP located at: http://cbs.marketwatch.com/news/print_story.asp?print=1&guid={96C69AEF-81EC-412...

Other Sources:

The Congressional Budget Office, The Budget and Economic Outlook: Fiscal Years 2003-2013
<http://www.cbo.gov/showdoc.cfm?index=2727&sequence=11>.

AQUILA, INC.
CASE NO. GR-2004-0072

Historical Capital Structures for Aquila, Inc.
Consolidated Basis
(Dollars in Millions)

| Capital Components | 1998 | 1999 | 2000 | 2001 | 2002 |
|--------------------|----------------|----------------|----------------|----------------|----------------|
| Common Equity | \$1,446 | \$1,525 | \$1,800 | \$2,552 | \$1,608 |
| Preferred Stock | \$100 | \$350 | \$450 | \$250 | \$0 |
| Long-Term Debt * | \$1,625 | \$2,245 | \$2,398 | \$2,427 | \$2,929 |
| Short-Term Debt | \$236 | \$249 | \$501 | \$549 | \$301 |
| Total | <u>\$3,407</u> | <u>\$4,369</u> | <u>\$5,148</u> | <u>\$5,778</u> | <u>\$4,838</u> |

| Capital Structure | 1998 | 1999 | 2000 | 2001 | 2002 |
|-------------------|----------------|----------------|----------------|----------------|----------------|
| Common Equity | 42.46% | 34.91% | 34.96% | 44.17% | 33.24% |
| Preferred Stock | 2.95% | 8.01% | 8.74% | 4.33% | 0.00% |
| Long-Term Debt * | 47.69% | 51.38% | 46.57% | 42.00% | 60.54% |
| Short-Term Debt | 6.90% | 5.70% | 9.73% | 9.50% | 6.22% |
| Total | <u>100.00%</u> | <u>100.00%</u> | <u>100.00%</u> | <u>100.00%</u> | <u>100.00%</u> |

Notes: *The amount of Long-Term Debt includes Current Maturities.

Source: Aquila, Inc.'s Stockholders Annual Reports.

AQUILA, INC.
CASE NO. GR-2004-0072

Selected Financial Ratios for Aquila, Inc.
Consolidated Basis

| Financial Ratios | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---------|---------|---------|---------|------------|
| Return on Ending Common Equity | 11.43% | 10.80% | 13.46% | 11.70% | -129.06% * |
| Earnings Per Common Share | \$1.63 | \$1.75 | \$1.91 | \$2.01 | -\$2.35 |
| Cash Dividends Per Common Share | \$1.20 | \$1.20 | \$1.20 | \$1.20 | \$0.78 |
| Common Dividend Payout Ratio | 73.62% | 68.57% | 62.83% | 59.70% | N.M. |
| Year-End Market Price Per Common Share | \$24.46 | \$19.44 | \$31.00 | \$17.10 | \$1.77 |
| Year-End Book Value Per Common Share | \$15.83 | \$16.34 | \$17.94 | \$22.01 | \$8.30 |
| Year-End Market to Book Ratio | 1.55 x | 1.19 x | 1.73 x | 0.78 x | 0.21 x |
| Pre-Tax Interest Coverage Ratio | 2.65 x | 2.23 x | 2.51 x | 3.16 x | Negative x |
| Senior Debt Rating | BBB | BBB | BBB | BBB | BB |

* Because the financial data was not directly provided in Aquila, Inc.'s 2002 Annual Report, the following formula was used to calculate Return on Ending Common Equity:
Return on Ending Common Equity = Net Income Available for Common Stock / Ending Common Shareholders' Equity.

Year-End Market to Book Ratio = Year-End Market Price Per Common Share / Year-End Book Value Per Common Share

Year-End Market Price Per Common Share has been adjusted for stock splits and stock dividends.

Pre-Tax Interest Coverage Ratio = (Net Income + Income Taxes + Total Interest Expense) / Total Interest Expense.

Sources: Aquila, Inc.'s Stockholders Annual Reports.
The Value Line Investment Survey: Ratings & Reports July 04, 2003.
S&P's Stock Guides, January 2002 and January 2003.
S&P's Ratings Direct at: <http://www.ratingsdirect.com/Apps/RD>

Notes: N.M. = Not Meaningful

AQUILA, INC
CASE NO. GR-2004-0072

Capital Structure as of December 31, 2002
for Aquila, Inc.

| Capital Component | Amount in Dollars | Percentage of Capital |
|-----------------------------|--------------------------------------|------------------------------|
| Common Stock Equity | \$1,607,879,000 | 35.31% |
| Preferred Stock | 0 | 0.00% |
| Long-Term Debt | 2,928,635,000 * | 64.31% |
| Short-Term Debt | 17,532,000 ** | 0.38% |
| Total Capitalization | <u><u>\$4,554,046,000</u></u> | <u><u>100.00%</u></u> |

Gas Utility Financial Medians
Total Debt / Total Capital - Including Preferred Stock

| Standard & Poor's Corporation's Utility Rating Service, Financial Statistics as of July 7, 2000 (median) | Lower Quartile | Median | Upper Quartile |
|---|----------------|------------|----------------|
| | BBB | BBB | BBB |
| | 52% | 56% | 61% |

Note: * As indicated in Aquila, Inc.'s balance sheet as of December 31, 2002.

** Short-term debt balance equals \$17,532,000 as of December 31, 2002 because short-term debt of \$300,963,000 exceeds CWIP of \$283,431,000 by this amount.

Source: Aquila, Inc.'s response to Staff's Data Request No. MPSC-222 and MPSC-223 in Case Nos. ER-2004-0034 and HR-2004-0024.

AQUILA, INC.
CASE NO. GR-2004-0072

**Aquila, Inc. Weighted Average Cost of Debt
as of December 31, 2002**

| | ISSUE DATE | DUE DATE | INTEREST | A | B | C | D=B/A*C | B-D | ANNUAL | COST OF |
|--|-------------------|-------------------|----------|----------------------|----------------------|--------------------|-------------------|----------------------|--------------------|---------------|
| | YR/MO/DAY | YR/MO/DAY | RATE | ORIGINAL | AMOUNT | DISCOUNT/PREMIUM & | RELATIVE | NET | INTEREST | MONEY |
| LONG-TERM DEBT | YR/MO/DAY | YR/MO/DAY | RATE | ISSUE | OUTSTANDING | ISSUE COSTS | COSTS | PROCEEDS | | |
| PNG Office Building (Fountain, CO) | December 1, 1999 | December 1, 2003 | 11.500% | 1,353,899 | 316,355 | 15,000 | 3,505 | 312,850 | 36,381 | 11.629% |
| SJLP FMB | November 25, 1991 | February 1, 2021 | 9.440% | 22,500,000 | 21,375,000 | 393,036 | 373,384 | 21,001,616 | 2,017,800 | 9.608% |
| Senior Notes | November 15, 1999 | November 15, 2009 | 7.625% | 200,000,000 | 200,000,000 | 3,160,966 | 3,160,966 | 196,839,034 | 15,250,000 | 7.747% |
| Senior Notes | July 14, 1999 | July 15, 2004 | 7.000% | 250,000,000 | 250,000,000 | 2,263,275 | 2,263,275 | 247,736,725 | 17,500,000 | 7.064% |
| Senior Notes | March 31, 1999 | December 1, 2005 | 9.030% | 20,232,000 | 20,232,000 | 613,622 | 613,622 | 19,618,378 | 1,826,950 | 9.312% |
| Senior Notes | March 31, 1999 | November 15, 2021 | 8.270% | 131,750,000 | 80,850,000 | 3,591,143 | 2,203,749 | 78,646,251 | 6,686,295 | 8.502% |
| Senior Notes | October 7, 1997 | October 1, 2004 | 6.875% | 150,000,000 | 150,000,000 | 1,168,368 | 1,168,368 | 148,831,632 | 10,312,500 | 6.929% |
| Senior Notes | October 17, 1996 | October 15, 2006 | 6.700% | 100,000,000 | 85,900,000 | 666,537 | 572,555 | 85,327,445 | 5,755,300 | 6.745% |
| Wamego Ser.1996 | March 1, 1996 | March 1, 2026 | 1.600% | 7,300,000 | 7,300,000 | 422,982 | 422,982 | 6,877,018 | 116,800 | 1.698% |
| Sanwa Bus CC | December 9, 1995 | December 9, 2009 | 6.990% | 8,190,000 | 5,069,162 | 35,000 | 21,663 | 5,047,499 | 354,334 | 7.020% |
| SJLP Unsecured Pollution Control Bonds | June 4, 1995 | February 1, 2013 | 5.850% | 5,600,000 | 5,600,000 | 534,263 | 534,263 | 5,065,737 | 327,600 | 6.467% |
| SJLP Unsecured MTN | March 15, 1995 | March 15, 2005 | 8.360% | 20,000,000 | 20,000,000 | 144,144 | 144,144 | 19,855,856 | 1,672,000 | 8.421% |
| SJLP Unsecured MTN | December 6, 1993 | December 1, 2023 | 7.170% | 7,000,000 | 7,000,000 | 230,365 | 230,365 | 6,769,635 | 501,900 | 7.414% |
| SJLP Unsecured MTN | November 30, 1993 | November 30, 2023 | 7.330% | 3,000,000 | 3,000,000 | 98,728 | 98,728 | 2,901,272 | 219,900 | 7.579% |
| SJLP Unsecured MTN | November 30, 1993 | November 29, 2013 | 7.160% | 9,000,000 | 9,000,000 | 296,184 | 296,184 | 8,703,816 | 644,400 | 7.404% |
| SJLP Unsecured MTN | November 30, 1993 | November 29, 2013 | 7.130% | 1,000,000 | 1,000,000 | 32,909 | 32,909 | 967,091 | 71,300 | 7.373% |
| State Envi.1993 | May 26, 1993 | May 1, 2028 | 1.650% | 5,000,000 | 5,000,000 | 111,563 | 111,563 | 4,888,437 | 82,500 | 1.688% |
| Senior Notes | March 3, 1993 | March 1, 2023 | 8.000% | 125,000,000 | 51,500,000 | 1,982,502 | 816,791 | 50,683,209 | 4,120,000 | 8.129% |
| Senior Notes | January 29, 1992 | January 15, 2007 | 8.200% | 130,000,000 | 36,905,000 | 1,314,709 | 373,226 | 36,531,774 | 3,026,210 | 8.284% |
| Senior Notes | November 25, 1991 | November 15, 2021 | 9.000% | 150,000,000 | 5,000,000 | 5,017,642 | 167,255 | 4,832,745 | 450,000 | 9.311% |
| Senior Notes | February 1, 2001 | February 1, 2011 | 9.950% | 250,000,000 | 250,000,000 | 1,880,959 | 1,880,959 | 248,119,041 | 24,875,000 | 10.025% |
| QUIBS | February 28, 2002 | March 1, 2032 | 7.875% | 287,500,000 | 287,500,000 | 9,432,634 | 9,432,634 | 278,067,366 | 22,640,625 | 8.142% |
| Debentures | July 24, 1986 | July 1, 2011 | 6.625% | 50,000,000 | 3,543,000 | 2,626,347 | 186,103 | 3,356,897 | 234,724 | 6.992% |
| Canada | | | | | | | | | | |
| UNCL Bank Facility | June 5, 2001 | June 5, 2003 | 4.960% | 167,975,550 | 78,599,880 | 535,275 | 250,468 | 78,349,412 | 3,898,554 | 4.976% |
| Farmer Electric Services Ltd | January 1, 2000 | December 31, 2003 | 6.500% | 4,630,368 | 4,399,111 | 0 | 0 | 4,399,111 | 285,942 | 6.500% |
| ANCA Securitization | August 15, 2002 | February 15, 2004 | 3.460% | 163,429,500 | 107,645,833 | 759,138 | 500,020 | 107,145,813 | 3,724,546 | 3.476% |
| ANCBC CS20m Evergreen Facility | May 30, 2002 | May 29, 2005 | 3.700% | 12,970,820 | 12,671,061 | 41,493 | 40,534 | 12,630,527 | 468,829 | 3.712% |
| WKP Series J | July 19, 2002 | July 31, 2009 | 6.750% | 32,393,910 | 31,693,500 | 287,873 | 281,649 | 31,411,851 | 2,139,311 | 6.811% |
| WKP Series E | January 9, 1990 | December 1, 2009 | 11.000% | 10,008,000 | 5,229,428 | 40,833 | 21,336 | 5,208,092 | 575,237 | 11.045% |
| UCFC 7.75% Senior Notes | June 20, 2001 | June 15, 2011 | 7.750% | 200,000,000 | 200,000,000 | 1,126,813 | 1,126,813 | 198,873,187 | 15,500,000 | 7.794% |
| WKP Series F | October 19, 1992 | October 16, 2012 | 9.650% | 10,008,000 | 9,508,050 | 103,416 | 98,250 | 9,409,800 | 917,527 | 9.751% |
| Walden Mortgage Loan | December 1, 1994 | August 31, 2013 | 9.440% | 6,794,098 | 4,969,823 | 0 | 0 | 4,969,823 | 469,151 | 9.440% |
| WKP Series H | March 1, 1996 | February 1, 2016 | 8.770% | 16,680,000 | 15,846,750 | 116,760 | 110,927 | 15,735,823 | 1,389,760 | 8.832% |
| WKP Series I | April 1, 1997 | December 1, 2021 | 7.810% | 16,680,000 | 15,846,750 | 116,760 | 110,927 | 15,735,823 | 1,237,631 | 7.865% |
| WKP Series G | August 25, 1993 | August 28, 2023 | 8.800% | 16,680,000 | 15,846,750 | 116,760 | 110,927 | 15,735,823 | 1,394,514 | 8.862% |
| United Kingdom | | | | | | | | | | |
| Aquila Europe Inc | May 8, 2002 | May 8, 2008 | 8.15% | 84,466,419.45 | 87,436,516 | - | - | 87,436,516 | 7,126,076 | 8.150% |
| Total Aquila Long-Term Debt Excluding Australia | | | | 2,677,142,564 | 2,095,783,969 | 39,277,998 | 27,761,044 | 2,068,022,925 | 157,849,598 | 7.633% |

Source: Response to Staff's Data Information Request No. MPSC 223 and MPSC 532 in Case Nos. ER-2004-0034 and HR-2004-0024.

AQUILA, INC.
CASE NO. GR-2004-0072

Criteria for Selecting Comparable Gas Utility Companies

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|-----------------------------|-----------------------------------|---------------------------------|---|----------------------------|---|------------------------|-------------------------------------|
| Gas Utility Companies | Gas Utility Publicly Traded | Information Printed In Value Line | Total Capitalization <5 Billion | Distribution Revenues to Total Revenues > 90% | 10 Years of Data Available | At Least Investment Grade Credit Rating | No Missouri Operations | Comparable Company Met All Criteria |
| AGL Resources, Inc. | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Atmos Energy Corporation | Yes | Yes | Yes | Yes | Yes | Yes | No | |
| Cascade Natural Gas Corporation | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Delta Natural Gas Company, Inc. | Yes | Yes | Yes | Yes | Yes | N/R | | |
| Energy West Inc. | Yes | Yes | Yes | Yes | No | | | |
| EnergySouth, Inc. | Yes | Yes | Yes | Yes | Yes | N/R | | |
| Laclede Gas Company | Yes | Yes | Yes | Yes | Yes | Yes | No | |
| New Jersey Resources Corporation | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Northwest Natural Gas Company | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Peoples Energy Corporation | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Piedmont Natural Gas Company, Inc. | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| RGC Resources, Inc. | Yes | Yes | Yes | Yes | No | N/R | | |
| South Jersey Industries, Inc. | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Southern Union Company | Yes | Yes | Yes | Yes | Yes | Yes | No | |
| Washington Gas Light Company | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

Sources: Columns 1, 2, 5, and 7 = The Value Line Investment Survey: Ratings & Reports, September 19, 2003.

Column 3, 4, = Edward Jones Natural Gas Industry Summary, September 30, 2003.

Column 6 = Standard & Poor's Ratings Direct.

Notes: N/R = Not Rated by Standard & Poor's Ratings Direct.

AQUILA, INC.
CASE NO. GR-2004-0072

Comparable Gas Utility Companies
For Aquila, Inc. d/b/a Aquila Networks MPS And
Aquila Networks L&P

| Number | Ticker Symbol | Company Name |
|--------|------------------|-----------------------------------|
| 1 | ATG | AGL Resources |
| 2 | CGC | Cascade Natural Gas |
| 3 | NJR | New Jersey Resources Corporation |
| 4 | NWN | Northwest Natural Gas Corporation |
| 5 | PGL | Peoples Energy Corporation |
| 6 | PNY | Piedmont Natural Gas Company |
| 7 | SJI | South Jersey Industries, Inc. |
| 8 | WGL | WGL Holdings, Inc. |

AQUILA, INC.
CASE NO. GR-2004-0072

**Ten-Year Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates
for Comparable Gas Utility Companies**

| Company Name | Dividends Per Share | | Earnings Per Share | | Book Value Per Share | |
|-----------------------------------|---------------------|--------|--------------------|--------|----------------------|---------|
| | 1992 | 2002 | 1992 | 2002 | 1992 | 2002 |
| AGL Resources | \$1.03 | \$1.08 | \$1.13 | \$1.82 | \$9.70 | \$12.52 |
| Cascade Natural Gas | \$0.93 | \$0.96 | \$0.63 | \$1.13 | \$9.09 | \$10.34 |
| New Jersey Resources Corporation | \$1.01 | \$1.20 | \$1.09 | \$2.09 | \$9.44 | \$13.06 |
| Northwest Natural Gas Corporation | \$1.15 | \$1.26 | \$0.74 | \$1.62 | \$12.41 | \$18.88 |
| Peoples Energy Corporation | \$1.76 | \$2.07 | \$2.06 | \$2.80 | \$17.72 | \$22.74 |
| Piedmont Natural Gas Company | \$0.91 | \$1.60 | \$1.40 | \$1.89 | \$10.27 | \$17.82 |
| South Jersey Industries, Inc. | \$1.41 | \$1.51 | \$1.61 | \$2.43 | \$13.90 | \$19.34 |
| WGL Holdings, Inc. | \$1.07 | \$1.27 | \$1.27 | \$1.14 | \$10.66 | \$15.78 |

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

| Company Name | Dividends Per Share | | Earnings Per Share | | Book Value Per Share | | Average |
|-----------------------------------|---------------------|--------------|--------------------|-------------|----------------------|--|---------|
| | 1992 - 2002 | 1992 - 2002 | 1992 - 2002 | 1992 - 2002 | 1992 - 2002 | | |
| AGL Resources | 0.48% | 4.88% | 2.58% | 2.65% | | | |
| Cascade Natural Gas | 0.32% | 6.02% | 1.30% | 2.54% | | | |
| New Jersey Resources Corporation | 1.74% | 6.73% | 3.30% | 3.92% | | | |
| Northwest Natural Gas Corporation | 0.92% | 8.15% | 4.29% | 4.45% | | | |
| Peoples Energy Corporation | 1.64% | 3.12% | 2.53% | 2.43% | | | |
| Piedmont Natural Gas Company | 5.81% | 3.05% | 5.67% | 4.84% | | | |
| South Jersey Industries, Inc. | 0.69% | 4.20% | 3.36% | 2.75% | | | |
| WGL Holdings, Inc. | 1.73% | -1.07% | 4.00% | 1.55% | | | |
| | <u>1.66%</u> | <u>4.38%</u> | <u>3.38%</u> | | | | |
| Standard Deviation | 1.65% | 2.64% | 1.23% | | | | |

Source: The Value Line Investment Survey: Ratings & Reports, September 19, 2003.

AQUILA, INC.
CASE NO. GR-2004-0072

**Five-Year Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates
for the Comparable Gas Utility Companies**

| Company Name | Dividends Per Share | | Earnings Per Share | | Book Value Per Share | |
|-----------------------------------|---------------------|--------|--------------------|--------|----------------------|---------|
| | 1997 | 2002 | 1997 | 2002 | 1997 | 2002 |
| AGL Resources | \$1.08 | \$1.08 | \$1.37 | \$1.82 | \$10.99 | \$12.52 |
| Cascade Natural Gas | \$0.96 | \$0.96 | \$0.93 | \$1.13 | \$10.16 | \$10.34 |
| New Jersey Resources Corporation | \$1.07 | \$1.20 | \$1.48 | \$2.09 | \$10.38 | \$13.06 |
| Northwest Natural Gas Corporation | \$1.21 | \$1.26 | \$1.76 | \$1.62 | \$16.02 | \$18.88 |
| Peoples Energy Corporation | \$1.87 | \$2.07 | \$2.81 | \$2.80 | \$20.43 | \$22.74 |
| Piedmont Natural Gas Company | \$1.21 | \$1.60 | \$1.85 | \$1.89 | \$13.90 | \$17.82 |
| South Jersey Industries, Inc. | \$1.44 | \$1.51 | \$1.71 | \$2.43 | \$12.86 | \$19.34 |
| WGL Holdings, Inc. | \$1.17 | \$1.27 | \$1.85 | \$1.14 | \$13.48 | \$15.78 |

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

| Company Name | Dividends Per Share | Earnings Per Share | Book Value Per Share | Average |
|-----------------------------------|---------------------|---------------------|----------------------|---------|
| | 1997 - 2002 | 1997 - 2002 | 1997 - 2002 | |
| AGL Resources | 0.00% | 5.84% | 2.64% | 2.83% |
| Cascade Natural Gas | 0.00% | 3.97% | 0.35% | 1.44% |
| New Jersey Resources Corporation | 2.32% | 7.15% | 4.70% | 4.72% |
| Northwest Natural Gas Corporation | 0.81% | -1.64% | 3.34% | 0.84% |
| Peoples Energy Corporation | 2.05% | -0.07% | 2.17% | 1.38% |
| Piedmont Natural Gas Company | 5.75% | 0.43% | 5.09% | 3.76% |
| South Jersey Industries, Inc. | 0.95% | 7.28% | 8.50% | 5.58% |
| WGL Holdings, Inc. | 1.65% | -9.23% | 3.20% | -1.46% |
| Average | <u>1.69%</u> | <u>1.72%</u> | <u>3.75%</u> | |
| Standard Deviation | 1.73% | 5.23% | 2.27% | |

Source: The Value Line Investment Survey: Ratings & Reports, September 19, 2003.

AQUILA, INC.
CASE NO. GR-2004-0072

**Average of Ten and Five-Year Dividends Per Share, Earnings Per Share &
Book Value Per Share Growth Rates for the Comparable Gas Utility Companies**

| Company Name | 10-Year Average DPS, EPS & BVPS | 5-Year Average DPS, EPS & BVPS | Average of 5-Year & 10-Year Averages |
|-----------------------------------|--|---|---|
| AGL Resources | 2.65% | 2.83% | 2.74% |
| Cascade Natural Gas | 2.54% | 1.44% | 1.99% |
| New Jersey Resources Corporation | 3.92% | 4.72% | 4.32% |
| Northwest Natural Gas Corporation | 4.45% | 0.84% | 2.64% |
| Peoples Energy Corporation | 2.43% | 1.38% | 1.90% |
| Piedmont Natural Gas Company | 4.84% | 3.76% | 4.30% |
| South Jersey Industries, Inc. | 2.75% | 5.58% | 4.16% |
| WGL Holdings, Inc. | 1.55% | -1.46% | 0.05% |
| Average | <u>3.14%</u> | <u>2.39%</u> | <u>2.76%</u> |

AQUILA, INC.
CASE NO. GR-2004-0072

**Historical and Projected Growth Rates
for the Comparable Gas Utility Companies**

| | (1) | (2) | (3) | (4) | (5) | (6) |
|-----------------------------------|---|---|--|---|--------------------------------|---|
| Company Name | Historical Growth Rate (DPS, EPS and BVPS) | Projected 5 Year Growth IBES (Median) | Projected 5-Year EPS Growth S&P | Projected 3-5 Year EPS Growth Value Line | Average Projected Growth | Average of Historical & Projected Growth |
| AGL Resources | 2.74% | 5.00% | 5.00% | 8.00% | 6.00% | 4.37% |
| Cascade Natural Gas | 1.99% | 4.00% | 4.00% | 4.50% | 4.17% | 3.08% |
| New Jersey Resources Corporation | 4.32% | 6.50% | 7.00% | 8.50% | 7.33% | 5.83% |
| Northwest Natural Gas Corporation | 2.64% | 4.00% | 5.00% | 5.00% | 4.67% | 3.66% |
| Peoples Energy Corporation | 1.90% | 5.00% | 5.00% | 4.00% | 4.67% | 3.29% |
| Piedmont Natural Gas Company | 4.30% | 5.00% | 5.00% | 7.50% | 5.83% | 5.07% |
| South Jersey Industries, Inc. | 4.16% | 4.00% | 4.00% | 5.50% | 4.50% | 4.33% |
| WGL Holdings, Inc. | 0.05% | 4.00% | 5.00% | 7.00% | 5.33% | 2.69% |
| Average | <u>2.76%</u> | <u>4.69%</u> | <u>5.00%</u> | <u>6.25%</u> | <u>5.31%</u> | <u>4.04%</u> |

Proposed Range of Growth: 4.00%-5.00%

Column 5 = [(Column 2 + Column 3 + Column 4) / 3]

Column 6 = [(Column 1 + Column 5) / 2]

Sources: Column 1 = Average of 10-Year and 5-Year Annual Compound Growth Rates from Schedule 13-3.

Column 2 = I/B/E/S Inc.'s Institutional Brokers Estimate System, November 20, 2003.

Column 3 = Standard & Poor's Earnings Guide, November 2003.

Column 4 = The Value Line Investment Survey: Ratings and Reports, September 19, 2003.

AQUILA, INC.
CASE NO. GR-2004-0072

**Average High / Low Stock Price for July 2003 through October 2003
for the Comparable Gas Utility Companies**

| Company Name | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|-----------------------------------|------------------------|-----------------------|------------------------|-----------------------|------------------------|-----------------------|------------------------|-----------------------|--|
| | -- July 2003 -- | | -- August 2003 -- | | -- September 2003 -- | | -- October 2003 -- | | Average High/Low Stock Price (7/03 - 10/03) |
| | High Stock Price | Low Stock Price | High Stock Price | Low Stock Price | High Stock Price | Low Stock Price | High Stock Price | Low Stock Price | |
| AGL Resources | 27.670 | 25.350 | 27.920 | 26.820 | 28.490 | 27.770 | 29.040 | 27.240 | 27.538 |
| Cascade Natural Gas | 20.240 | 19.020 | 19.260 | 18.000 | 20.050 | 18.950 | 20.370 | 19.410 | 19.413 |
| New Jersey Resources Corporation | 36.870 | 34.500 | 36.390 | 33.700 | 37.360 | 35.810 | 38.000 | 35.760 | 36.049 |
| Northwest Natural Gas Corporation | 28.650 | 27.030 | 29.010 | 27.020 | 30.110 | 28.400 | 30.500 | 28.510 | 28.654 |
| Peoples Energy Corporation | 44.300 | 40.890 | 41.360 | 39.530 | 42.560 | 40.060 | 42.720 | 40.030 | 41.431 |
| Piedmont Natural Gas Company | 39.740 | 37.380 | 39.320 | 37.230 | 39.960 | 38.690 | 40.000 | 38.850 | 38.896 |
| South Jersey Industries, Inc. | 39.200 | 36.600 | 38.350 | 36.860 | 39.250 | 37.730 | 39.610 | 37.770 | 38.171 |
| WGL Holdings, Inc. | 27.620 | 25.210 | 26.900 | 25.280 | 27.970 | 26.900 | 28.500 | 27.370 | 26.969 |

Notes:

Column 9 = [(Column 1 + Column 2 + Column 3 + Column 4 + Column 5 + Column 6 + Column 7 + Column 8) / 8].

Sources: S & P Stock Guides: August 2003, September 2003, October 2003 and November 2003.

AQUILA, INC.
CASE NO. GR-2004-0072

**DCF Estimated Costs of Common Equity
for the Comparable Gas Utility Companies**

| | (1) | (2) | (3) | (4) | (5) |
|-----------------------------------|--------------------------------|---------------------------------------|--------------------------------|---|--|
| Company Name | Expected Annual Dividend | Average High/Low Stock Price | Projected Dividend Yield | Average of Historical & Projected Growth | Estimated Cost of Common Equity |
| AGL Resources | \$1.12 | \$27.538 | 4.05% | 4.37% | 8.42% |
| Cascade Natural Gas | \$0.96 | \$19.413 | 4.95% | 3.08% | 8.02% |
| New Jersey Resources Corporation | \$1.26 | \$36.049 | 3.50% | 5.83% | 9.32% |
| Northwest Natural Gas Corporation | \$1.28 | \$28.654 | 4.45% | 3.66% | 8.10% |
| Peoples Energy Corporation | \$2.14 | \$41.431 | 5.17% | 3.29% | 8.45% |
| Piedmont Natural Gas Company | \$1.69 | \$38.896 | 4.34% | 5.07% | 9.41% |
| South Jersey Industries, Inc. | \$1.56 | \$38.171 | 4.09% | 4.33% | 8.42% |
| WGL Holdings, Inc. | \$1.29 | \$26.969 | 4.76% | 2.69% | 7.45% |
| Average | | | <u>4.41%</u> | <u>4.04%</u> | <u>8.45%</u> |

Proposed Dividend Yield: 4.40%

Proposed Range of Growth: 4.00% - 5.00%

Estimated Cost of Common Equity: 8.40% - 9.40%

Notes: Column 1 = Estimated Dividends Declared per share represents the average projected dividends for 2003 and 2004.

Column 3 = (Column 1 / Column 2).

Column 5 = (Column 3 + Column 4).

Sources: Column 1 = The Value Line Investment Survey: Ratings & Reports, September 19, 2003.

Column 2 = Schedule 15.

Column 4 = Schedule 14.

AQUILA, INC.
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**Capital Asset Pricing Model (CAPM) Costs of Common Equity Estimates
for the Comparable Gas Utility Companies**

| | (1) | (2) | (3) | (4) | (5) | (6) |
|-----------------------------------|----------------|---------------------------|---------------------------------|---------------------------------|--|--|
| | Risk Free Rate | Company's Value Line Beta | Market Risk Premium (1926-2002) | Market Risk Premium (1993-2002) | CAPM Cost of Common Equity (1926-2002) | CAPM Cost of Common Equity (1993-2002) |
| Company Name | | | | | | |
| AGL Resources | 5.13% | 0.75 | 6.40% | -0.34% | 9.93% | 4.88% |
| Cascade Natural Gas | 5.13% | 0.65 | 6.40% | -0.34% | 9.29% | 4.91% |
| New Jersey Resources Corporation | 5.13% | 0.65 | 6.40% | -0.34% | 9.29% | 4.91% |
| Northwest Natural Gas Corporation | 5.13% | 0.60 | 6.40% | -0.34% | 8.97% | 4.93% |
| Peoples Energy Corporation | 5.13% | 0.75 | 6.40% | -0.34% | 9.93% | 4.88% |
| Piedmont Natural Gas Company | 5.13% | 0.70 | 6.40% | -0.34% | 9.61% | 4.89% |
| South Jersey Industries, Inc. | 5.13% | 0.50 | 6.40% | -0.34% | 8.33% | 4.96% |
| WGL Holdings, Inc. | 5.13% | 0.65 | 6.40% | -0.34% | 9.29% | 4.91% |
| Average | | <u>0.66</u> | | | <u>9.33%</u> | <u>4.91%</u> |

Sources:

Column 1 = The appropriate yield is equal to the average 30-year U.S. Treasury Bond yield for November 2003 which was obtained from Investopedia at: <http://www.investopedia.com>

Column 2 = Beta is a measure of the movement and relative risk of an individual stock to the market as a whole as reported by the Value Line Investment Survey: Ratings & Reports, September 19, 2003.

Column 3 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. The appropriate Market Risk Premium for the period 1926 - 2002 was determined to be 6.40% as calculated in Ibbotson Associates, Inc.'s Stocks, Bonds, Bills, and Inflation: 2003 Yearbook.

Column 4 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. The appropriate Market Risk Premium for the period 1993 - 2002 was determined to be -0.34% as calculated in Ibbotson Associates, Inc.'s Stocks, Bonds, Bills, and Inflation: 2003 Yearbook.

Column 5 = (Column 1 + (Column 2 * Column 3)).

Column 6 = (Column 1 + (Column 2 * Column 4)).

Average Risk Premium above the Yields of 30-Year U.S. Treasury Bonds
for AGL Resource's Actual Returns on Common Equity

| Mo/Year | 30-Year | | | Mo/Year | 30-Year | | |
|----------|---------------------------------|---------------------------------|-----------------------------------|----------|---------------------------------|---------------------------------|-----------------------------------|
| | AGL Resource's Actual ROE | U.S. Treasury Bond Yields | AGL Resource's Risk Premium | | AGL Resource's Actual ROE | U.S. Treasury Bond Yields | AGL Resource's Risk Premium |
| Jan 1993 | 10.80% | 7.34% | 3.46% | Jan 1998 | 12.30% | 5.81% | 6.49% |
| Feb | 10.80% | 7.09% | 3.71% | Feb | 12.30% | 5.89% | 6.41% |
| Mar | 10.80% | 6.82% | 3.98% | Mar | 12.30% | 5.95% | 6.35% |
| Apr | 10.80% | 6.85% | 3.95% | Apr | 12.30% | 5.92% | 6.38% |
| May | 10.80% | 6.92% | 3.88% | May | 12.30% | 5.93% | 6.37% |
| Jun | 10.80% | 6.81% | 3.99% | Jun | 12.30% | 5.70% | 6.60% |
| Jul | 10.80% | 6.63% | 4.17% | Jul | 12.30% | 5.68% | 6.62% |
| Aug | 10.80% | 6.32% | 4.48% | Aug | 12.30% | 5.54% | 6.76% |
| Sep | 10.80% | 6.00% | 4.80% | Sep | 12.30% | 5.20% | 7.10% |
| Oct | 10.80% | 5.94% | 4.86% | Oct | 12.30% | 5.01% | 7.29% |
| Nov | 10.80% | 6.21% | 4.59% | Nov | 12.30% | 5.25% | 7.05% |
| Dec | 10.80% | 6.25% | 4.55% | Dec | 12.30% | 5.06% | 7.24% |
| Jan 1994 | 11.30% | 6.29% | 5.01% | Jan 1999 | 7.90% | 5.16% | 2.74% |
| Feb | 11.30% | 6.49% | 4.81% | Feb | 7.90% | 5.37% | 2.53% |
| Mar | 11.30% | 6.91% | 4.39% | Mar | 7.90% | 5.58% | 2.32% |
| Apr | 11.30% | 7.27% | 4.03% | Apr | 7.90% | 5.55% | 2.35% |
| May | 11.30% | 7.41% | 3.89% | May | 7.90% | 5.81% | 2.09% |
| Jun | 11.30% | 7.40% | 3.90% | Jun | 7.90% | 6.04% | 1.86% |
| Jul | 11.30% | 7.58% | 3.72% | Jul | 7.90% | 5.98% | 1.92% |
| Aug | 11.30% | 7.49% | 3.81% | Aug | 7.90% | 6.07% | 1.83% |
| Sep | 11.30% | 7.71% | 3.59% | Sep | 7.90% | 6.07% | 1.83% |
| Oct | 11.30% | 7.94% | 3.36% | Oct | 7.90% | 6.26% | 1.64% |
| Nov | 11.30% | 8.08% | 3.22% | Nov | 7.90% | 6.15% | 1.75% |
| Dec | 11.30% | 7.87% | 3.43% | Dec | 7.90% | 6.35% | 1.55% |
| Jan 1995 | 12.50% | 7.85% | 4.65% | Jan 2000 | 11.50% | 6.63% | 4.87% |
| Feb | 12.50% | 7.61% | 4.89% | Feb | 11.50% | 6.23% | 5.27% |
| Mar | 12.50% | 7.45% | 5.05% | Mar | 11.50% | 6.05% | 5.45% |
| Apr | 12.50% | 7.36% | 5.14% | Apr | 11.50% | 5.85% | 5.65% |
| May | 12.50% | 6.95% | 5.55% | May | 11.50% | 6.15% | 5.35% |
| Jun | 12.50% | 6.57% | 5.93% | Jun | 11.50% | 5.93% | 5.57% |
| Jul | 12.50% | 6.72% | 5.78% | Jul | 11.50% | 5.85% | 5.65% |
| Aug | 12.50% | 6.86% | 5.64% | Aug | 11.50% | 5.72% | 5.78% |
| Sep | 12.50% | 6.55% | 5.95% | Sep | 11.50% | 5.83% | 5.67% |
| Oct | 12.50% | 6.37% | 6.13% | Oct | 11.50% | 5.80% | 5.70% |
| Nov | 12.50% | 6.26% | 6.24% | Nov | 11.50% | 5.78% | 5.72% |
| Dec | 12.50% | 6.06% | 6.44% | Dec | 11.50% | 5.49% | 6.01% |
| Jan 1996 | 12.10% | 6.05% | 6.05% | Jan 2001 | 12.30% | 5.54% | 6.76% |
| Feb | 12.10% | 6.24% | 5.86% | Feb | 12.30% | 5.45% | 6.85% |
| Mar | 12.10% | 6.60% | 5.50% | Mar | 12.30% | 5.33% | 6.97% |
| Apr | 12.10% | 6.79% | 5.31% | Apr | 12.30% | 5.64% | 6.66% |
| May | 12.10% | 6.93% | 5.17% | May | 12.30% | 5.78% | 6.52% |
| Jun | 12.10% | 7.06% | 5.04% | Jun | 12.30% | 5.66% | 6.64% |
| Jul | 12.10% | 7.03% | 5.07% | Jul | 12.30% | 5.61% | 6.69% |
| Aug | 12.10% | 6.84% | 5.26% | Aug | 12.30% | 5.53% | 6.77% |
| Sep | 12.10% | 7.03% | 5.07% | Sep | 12.30% | 5.49% | 6.81% |
| Oct | 12.10% | 6.81% | 5.29% | Oct | 12.30% | 5.31% | 6.99% |
| Nov | 12.10% | 6.48% | 5.62% | Nov | 12.30% | 5.10% | 7.20% |
| Dec | 12.10% | 6.55% | 5.55% | Dec | 12.30% | 5.48% | 6.82% |
| Jan 1997 | 11.30% | 6.83% | 4.47% | Jan 2002 | 14.50% | 5.44% | 9.06% |
| Feb | 11.30% | 6.69% | 4.61% | Feb | 14.50% | 5.39% | 9.11% |
| Mar | 11.30% | 6.93% | 4.37% | Mar | 14.50% | 5.71% | 8.79% |
| Apr | 11.30% | 7.09% | 4.21% | Apr | 14.50% | 5.67% | 8.83% |
| May | 11.30% | 6.94% | 4.36% | May | 14.50% | 5.64% | 8.86% |
| Jun | 11.30% | 6.77% | 4.53% | Jun | 14.50% | 5.52% | 8.98% |
| Jul | 11.30% | 6.51% | 4.79% | Jul | 14.50% | 5.38% | 9.12% |
| Aug | 11.30% | 6.58% | 4.72% | Aug | 14.50% | 5.08% | 9.42% |
| Sep | 11.30% | 6.50% | 4.80% | Sep | 14.50% | 4.76% | 9.74% |
| Oct | 11.30% | 6.33% | 4.97% | Oct | 14.50% | 4.93% | 9.57% |
| Nov | 11.30% | 6.11% | 5.19% | Nov | 14.50% | 4.95% | 9.55% |
| Dec | 11.30% | 5.99% | 5.31% | Dec | 14.50% | 4.92% | 9.58% |

Summary Information (1993 - 2002)

Average Risk Premium: 5.42%
(Jan 1993 - Dec 2002)

High Risk Premium: 9.74%
(September 2002)

Low Risk Premium: 1.55%
(December 1999)

Sources: The Value Line Investment Survey: Ratings & Reports September 19, 2003.
Investopedia: <http://www.investopedia.com>

**Average Risk Premium above the Yields of 30-Year U.S. Treasury Bonds
for Cascade Natural Gas' Actual Returns on Common Equity**

| Mo/Year | 30-Year | | | Mo/Year | 30-Year | | |
|----------|---------------------------------------|---------------------------------|---|----------|---------------------------------------|---------------------------------|---|
| | Cascade Natural Gas' Actual ROE | U.S. Treasury Bond Yields | Cascade Natural Gas' Risk Premium | | Cascade Natural Gas' Actual ROE | U.S. Treasury Bond Yields | Cascade Natural Gas' Risk Premium |
| Jan 1993 | 9.70% | 7.34% | 2.36% | Jan 1998 | 8.30% | 5.81% | 2.49% |
| Feb | 9.70% | 7.09% | 2.61% | Feb | 8.30% | 5.89% | 2.41% |
| Mar | 9.70% | 6.82% | 2.88% | Mar | 8.30% | 5.95% | 2.35% |
| Apr | 9.70% | 6.85% | 2.85% | Apr | 8.30% | 5.92% | 2.38% |
| May | 9.70% | 6.92% | 2.78% | May | 8.30% | 5.93% | 2.37% |
| Jun | 9.70% | 6.81% | 2.89% | Jun | 8.30% | 5.70% | 2.60% |
| Jul | 9.70% | 6.63% | 3.07% | Jul | 8.30% | 5.68% | 2.62% |
| Aug | 9.70% | 6.32% | 3.38% | Aug | 8.30% | 5.54% | 2.76% |
| Sep | 9.70% | 6.00% | 3.70% | Sep | 8.30% | 5.20% | 3.10% |
| Oct | 9.70% | 5.94% | 3.76% | Oct | 8.30% | 5.01% | 3.29% |
| Nov | 9.70% | 6.21% | 3.49% | Nov | 8.30% | 5.25% | 3.05% |
| Dec | 9.70% | 6.25% | 3.45% | Dec | 8.30% | 5.06% | 3.24% |
| Jan 1994 | 5.90% | 6.29% | -0.39% | Jan 1999 | 12.00% | 5.16% | 6.84% |
| Feb | 5.90% | 6.49% | -0.59% | Feb | 12.00% | 5.37% | 6.63% |
| Mar | 5.90% | 6.91% | -1.01% | Mar | 12.00% | 5.58% | 6.42% |
| Apr | 5.90% | 7.27% | -1.37% | Apr | 12.00% | 5.55% | 6.45% |
| May | 5.90% | 7.41% | -1.51% | May | 12.00% | 5.81% | 6.19% |
| Jun | 5.90% | 7.40% | -1.50% | Jun | 12.00% | 6.04% | 5.96% |
| Jul | 5.90% | 7.58% | -1.68% | Jul | 12.00% | 5.98% | 6.02% |
| Aug | 5.90% | 7.49% | -1.59% | Aug | 12.00% | 6.07% | 5.93% |
| Sep | 5.90% | 7.71% | -1.81% | Sep | 12.00% | 6.07% | 5.93% |
| Oct | 5.90% | 7.94% | -2.04% | Oct | 12.00% | 6.26% | 5.74% |
| Nov | 5.90% | 8.08% | -2.18% | Nov | 12.00% | 6.15% | 5.85% |
| Dec | 5.90% | 7.87% | -1.97% | Dec | 12.00% | 6.35% | 5.65% |
| Jan 1995 | 8.10% | 7.85% | 0.25% | Jan 2000 | 12.90% | 6.63% | 6.27% |
| Feb | 8.10% | 7.61% | 0.49% | Feb | 12.90% | 6.23% | 6.67% |
| Mar | 8.10% | 7.45% | 0.65% | Mar | 12.90% | 6.05% | 6.85% |
| Apr | 8.10% | 7.36% | 0.74% | Apr | 12.90% | 5.85% | 7.05% |
| May | 8.10% | 6.95% | 1.15% | May | 12.90% | 6.15% | 6.75% |
| Jun | 8.10% | 6.57% | 1.53% | Jun | 12.90% | 5.93% | 6.97% |
| Jul | 8.10% | 6.72% | 1.38% | Jul | 12.90% | 5.85% | 7.05% |
| Aug | 8.10% | 6.86% | 1.24% | Aug | 12.90% | 5.72% | 7.18% |
| Sep | 8.10% | 6.55% | 1.55% | Sep | 12.90% | 5.83% | 7.07% |
| Oct | 8.10% | 6.37% | 1.73% | Oct | 12.90% | 5.80% | 7.10% |
| Nov | 8.10% | 6.26% | 1.84% | Nov | 12.90% | 5.78% | 7.12% |
| Dec | 8.10% | 6.06% | 2.04% | Dec | 12.90% | 5.49% | 7.41% |
| Jan 1996 | 3.50% | 6.05% | -2.55% | Jan 2001 | 13.30% | 5.54% | 7.76% |
| Feb | 3.50% | 6.24% | -2.74% | Feb | 13.30% | 5.45% | 7.85% |
| Mar | 3.50% | 6.60% | -3.10% | Mar | 13.30% | 5.33% | 7.97% |
| Apr | 3.50% | 6.79% | -3.29% | Apr | 13.30% | 5.64% | 7.66% |
| May | 3.50% | 6.93% | -3.43% | May | 13.30% | 5.78% | 7.52% |
| Jun | 3.50% | 7.06% | -3.56% | Jun | 13.30% | 5.66% | 7.64% |
| Jul | 3.50% | 7.03% | -3.53% | Jul | 13.30% | 5.61% | 7.69% |
| Aug | 3.50% | 6.84% | -3.34% | Aug | 13.30% | 5.53% | 7.77% |
| Sep | 3.50% | 7.03% | -3.53% | Sep | 13.30% | 5.49% | 7.81% |
| Oct | 3.50% | 6.81% | -3.31% | Oct | 13.30% | 5.31% | 7.99% |
| Nov | 3.50% | 6.48% | -2.98% | Nov | 13.30% | 5.10% | 8.20% |
| Dec | 3.50% | 6.55% | -3.05% | Dec | 13.30% | 5.48% | 7.82% |
| Jan 1997 | 9.10% | 6.83% | 2.27% | Jan 2002 | 10.90% | 5.44% | 5.46% |
| Feb | 9.10% | 6.69% | 2.41% | Feb | 10.90% | 5.39% | 5.51% |
| Mar | 9.10% | 6.93% | 2.17% | Mar | 10.90% | 5.71% | 5.19% |
| Apr | 9.10% | 7.09% | 2.01% | Apr | 10.90% | 5.67% | 5.23% |
| May | 9.10% | 6.94% | 2.16% | May | 10.90% | 5.64% | 5.26% |
| Jun | 9.10% | 6.77% | 2.33% | Jun | 10.90% | 5.52% | 5.38% |
| Jul | 9.10% | 6.51% | 2.59% | Jul | 10.90% | 5.38% | 5.52% |
| Aug | 9.10% | 6.58% | 2.52% | Aug | 10.90% | 5.08% | 5.82% |
| Sep | 9.10% | 6.50% | 2.60% | Sep | 10.90% | 4.76% | 6.14% |
| Oct | 9.10% | 6.33% | 2.77% | Oct | 10.90% | 4.93% | 5.97% |
| Nov | 9.10% | 6.11% | 2.99% | Nov | 10.90% | 4.95% | 5.95% |
| Dec | 9.10% | 5.99% | 3.11% | Dec | 10.90% | 4.92% | 5.98% |

Summary Information (1993 - 2002)

Average Risk Premium: 3.14%
(Jan 1993 - Dec 2002)

High Risk Premium: 8.20%
(November 2001)

Low Risk Premium: -3.56%
(June 1996)

Sources: The Value Line Investment Survey; Ratings & Reports September 19, 2003.
Investopedia: <http://www.investopedia.com>

**Average Risk Premium above the Yields of 30-Year U.S. Treasury Bonds
for New Jersey Resources Corporation's Actual Returns on Common Equity**

| Mo/Year | 30-Year | | | Mo/Year | 30-Year | | |
|----------|---------------------------------------|---------------------------|---|----------|---------------------------------------|---------------------------|---|
| | New Jersey Resources Corp. Actual ROE | U.S. Treasury Bond Yields | New Jersey Resources Corp. Risk Premium | | New Jersey Resources Corp. Actual ROE | U.S. Treasury Bond Yields | New Jersey Resources Corp. Risk Premium |
| Jan 1993 | 11.50% | 7.34% | 4.16% | Jan 1998 | 14.40% | 5.81% | 8.59% |
| Feb | 11.50% | 7.09% | 4.41% | Feb | 14.40% | 5.89% | 8.51% |
| Mar | 11.50% | 6.82% | 4.68% | Mar | 14.40% | 5.95% | 8.45% |
| Apr | 11.50% | 6.85% | 4.65% | Apr | 14.40% | 5.92% | 8.48% |
| May | 11.50% | 6.92% | 4.58% | May | 14.40% | 5.93% | 8.47% |
| Jun | 11.50% | 6.81% | 4.69% | Jun | 14.40% | 5.70% | 8.70% |
| Jul | 11.50% | 6.63% | 4.87% | Jul | 14.40% | 5.68% | 8.72% |
| Aug | 11.50% | 6.32% | 5.18% | Aug | 14.40% | 5.54% | 8.86% |
| Sep | 11.50% | 6.00% | 5.50% | Sep | 14.40% | 5.20% | 9.20% |
| Oct | 11.50% | 5.94% | 5.56% | Oct | 14.40% | 5.01% | 9.39% |
| Nov | 11.50% | 6.21% | 5.29% | Nov | 14.40% | 5.25% | 9.15% |
| Dec | 11.50% | 6.25% | 5.25% | Dec | 14.40% | 5.06% | 9.34% |
| Jan 1994 | 12.90% | 6.29% | 6.61% | Jan 1999 | 14.80% | 5.16% | 9.64% |
| Feb | 12.90% | 6.49% | 6.41% | Feb | 14.80% | 5.37% | 9.43% |
| Mar | 12.90% | 6.91% | 5.99% | Mar | 14.80% | 5.58% | 9.22% |
| Apr | 12.90% | 7.27% | 5.63% | Apr | 14.80% | 5.55% | 9.25% |
| May | 12.90% | 7.41% | 5.49% | May | 14.80% | 5.81% | 8.99% |
| Jun | 12.90% | 7.40% | 5.50% | Jun | 14.80% | 6.04% | 8.76% |
| Jul | 12.90% | 7.58% | 5.32% | Jul | 14.80% | 5.98% | 8.82% |
| Aug | 12.90% | 7.49% | 5.41% | Aug | 14.80% | 6.07% | 8.73% |
| Sep | 12.90% | 7.71% | 5.19% | Sep | 14.80% | 6.07% | 8.73% |
| Oct | 12.90% | 7.94% | 4.96% | Oct | 14.80% | 6.26% | 8.54% |
| Nov | 12.90% | 8.08% | 4.82% | Nov | 14.80% | 6.15% | 8.65% |
| Dec | 12.90% | 7.87% | 5.03% | Dec | 14.80% | 6.35% | 8.45% |
| Jan 1995 | 13.10% | 7.85% | 5.25% | Jan 2000 | 14.60% | 6.63% | 7.97% |
| Feb | 13.10% | 7.61% | 5.49% | Feb | 14.60% | 6.23% | 8.37% |
| Mar | 13.10% | 7.45% | 5.65% | Mar | 14.60% | 6.05% | 8.55% |
| Apr | 13.10% | 7.36% | 5.74% | Apr | 14.60% | 5.85% | 8.75% |
| May | 13.10% | 6.95% | 6.15% | May | 14.60% | 6.15% | 8.45% |
| Jun | 13.10% | 6.57% | 6.53% | Jun | 14.60% | 5.93% | 8.67% |
| Jul | 13.10% | 6.72% | 6.38% | Jul | 14.60% | 5.85% | 8.75% |
| Aug | 13.10% | 6.86% | 6.24% | Aug | 14.60% | 5.72% | 8.88% |
| Sep | 13.10% | 6.55% | 6.55% | Sep | 14.60% | 5.83% | 8.77% |
| Oct | 13.10% | 6.37% | 6.73% | Oct | 14.60% | 5.80% | 8.80% |
| Nov | 13.10% | 6.26% | 6.84% | Nov | 14.60% | 5.78% | 8.82% |
| Dec | 13.10% | 6.06% | 7.04% | Dec | 14.60% | 5.49% | 9.11% |
| Jan 1996 | 13.50% | 6.05% | 7.45% | Jan 2001 | 14.90% | 5.54% | 9.36% |
| Feb | 13.50% | 6.24% | 7.26% | Feb | 14.90% | 5.45% | 9.45% |
| Mar | 13.50% | 6.60% | 6.90% | Mar | 14.90% | 5.33% | 9.57% |
| Apr | 13.50% | 6.79% | 6.71% | Apr | 14.90% | 5.64% | 9.26% |
| May | 13.50% | 6.93% | 6.57% | May | 14.90% | 5.78% | 9.12% |
| Jun | 13.50% | 7.06% | 6.44% | Jun | 14.90% | 5.66% | 9.24% |
| Jul | 13.50% | 7.03% | 6.47% | Jul | 14.90% | 5.61% | 9.29% |
| Aug | 13.50% | 6.84% | 6.66% | Aug | 14.90% | 5.53% | 9.37% |
| Sep | 13.50% | 7.03% | 6.47% | Sep | 14.90% | 5.49% | 9.41% |
| Oct | 13.50% | 6.81% | 6.69% | Oct | 14.90% | 5.31% | 9.59% |
| Nov | 13.50% | 6.48% | 7.02% | Nov | 14.90% | 5.10% | 9.80% |
| Dec | 13.50% | 6.55% | 6.95% | Dec | 14.90% | 5.48% | 9.42% |
| Jan 1997 | 14.30% | 6.83% | 7.47% | Jan 2002 | 15.70% | 5.44% | 10.26% |
| Feb | 14.30% | 6.69% | 7.61% | Feb | 15.70% | 5.39% | 10.31% |
| Mar | 14.30% | 6.93% | 7.37% | Mar | 15.70% | 5.71% | 9.99% |
| Apr | 14.30% | 7.09% | 7.21% | Apr | 15.70% | 5.67% | 10.03% |
| May | 14.30% | 6.94% | 7.36% | May | 15.70% | 5.64% | 10.06% |
| Jun | 14.30% | 6.77% | 7.53% | Jun | 15.70% | 5.52% | 10.18% |
| Jul | 14.30% | 6.51% | 7.79% | Jul | 15.70% | 5.38% | 10.32% |
| Aug | 14.30% | 6.58% | 7.72% | Aug | 15.70% | 5.08% | 10.62% |
| Sep | 14.30% | 6.50% | 7.80% | Sep | 15.70% | 4.76% | 10.94% |
| Oct | 14.30% | 6.33% | 7.97% | Oct | 15.70% | 4.93% | 10.77% |
| Nov | 14.30% | 6.11% | 8.19% | Nov | 15.70% | 4.95% | 10.75% |
| Dec | 14.30% | 5.99% | 8.31% | Dec | 15.70% | 4.92% | 10.78% |

Summary Information (1993 - 2002)

Average Risk Premium: 7.74%
(Jan 1993 - Dec 2002)

High Risk Premium: 10.94%
(September 2002)

Low Risk Premium: 4.16%
(January 1993)

Sources: The Value Line Investment Survey; Ratings & Reports September 19, 2003.
Investopedia: <http://www.investopedia.com>

AQUILA, INC.
CASE NO. GR-2004-0072

**Average Risk Premium above the Yields of 30-Year U.S. Treasury Bonds
for Northwest Natural Gas' Actual Returns on Common Equity**

| Mo/Year | 30-Year | | | Mo/Year | 30-Year | | |
|----------|---|---------------------------------|---|----------|---|---------------------------------|--------------------------------------|
| | Northwest Natural Gas' Actual ROE | U.S. Treasury Bond Yields | Northwest Natural Gas' Risk Premium | | Northwest Natural Gas' Actual ROE | U.S. Treasury Bond Yields | Northwest Natural Risk Premium |
| Jan 1993 | 13.20% | 7.34% | 5.86% | Jan 1998 | 6.00% | 5.81% | 0.19% |
| Feb | 13.20% | 7.09% | 6.11% | Feb | 6.00% | 5.89% | 0.11% |
| Mar | 13.20% | 6.82% | 6.38% | Mar | 6.00% | 5.95% | 0.05% |
| Apr | 13.20% | 6.85% | 6.35% | Apr | 6.00% | 5.92% | 0.08% |
| May | 13.20% | 6.92% | 6.28% | May | 6.00% | 5.93% | 0.07% |
| Jun | 13.20% | 6.81% | 6.39% | Jun | 6.00% | 5.70% | 0.30% |
| Jul | 13.20% | 6.63% | 6.57% | Jul | 6.00% | 5.68% | 0.32% |
| Aug | 13.20% | 6.32% | 6.88% | Aug | 6.00% | 5.54% | 0.46% |
| Sep | 13.20% | 6.00% | 7.20% | Sep | 6.00% | 5.20% | 0.80% |
| Oct | 13.20% | 5.94% | 7.26% | Oct | 6.00% | 5.01% | 0.99% |
| Nov | 13.20% | 6.21% | 6.99% | Nov | 6.00% | 5.25% | 0.75% |
| Dec | 13.20% | 6.25% | 6.95% | Dec | 6.00% | 5.06% | 0.94% |
| Jan 1994 | 11.80% | 6.29% | 5.51% | Jan 1999 | 9.90% | 5.16% | 4.74% |
| Feb | 11.80% | 6.49% | 5.31% | Feb | 9.90% | 5.37% | 4.53% |
| Mar | 11.80% | 6.91% | 4.89% | Mar | 9.90% | 5.58% | 4.32% |
| Apr | 11.80% | 7.27% | 4.53% | Apr | 9.90% | 5.55% | 4.35% |
| May | 11.80% | 7.41% | 4.39% | May | 9.90% | 5.81% | 4.09% |
| Jun | 11.80% | 7.40% | 4.40% | Jun | 9.90% | 6.04% | 3.86% |
| Jul | 11.80% | 7.58% | 4.22% | Jul | 9.90% | 5.98% | 3.92% |
| Aug | 11.80% | 7.49% | 4.31% | Aug | 9.90% | 6.07% | 3.83% |
| Sep | 11.80% | 7.71% | 4.09% | Sep | 9.90% | 6.07% | 3.83% |
| Oct | 11.80% | 7.94% | 3.86% | Oct | 9.90% | 6.26% | 3.64% |
| Nov | 11.80% | 8.08% | 3.72% | Nov | 9.90% | 6.15% | 3.75% |
| Dec | 11.80% | 7.87% | 3.93% | Dec | 9.90% | 6.35% | 3.55% |
| Jan 1995 | 10.90% | 7.85% | 3.05% | Jan 2000 | 10.00% | 6.63% | 3.37% |
| Feb | 10.90% | 7.61% | 3.29% | Feb | 10.00% | 6.23% | 3.77% |
| Mar | 10.90% | 7.45% | 3.45% | Mar | 10.00% | 6.05% | 3.95% |
| Apr | 10.90% | 7.36% | 3.54% | Apr | 10.00% | 5.85% | 4.15% |
| May | 10.90% | 6.95% | 3.95% | May | 10.00% | 6.15% | 3.85% |
| Jun | 10.90% | 6.57% | 4.33% | Jun | 10.00% | 5.93% | 4.07% |
| Jul | 10.90% | 6.72% | 4.18% | Jul | 10.00% | 5.85% | 4.15% |
| Aug | 10.90% | 6.86% | 4.04% | Aug | 10.00% | 5.72% | 4.28% |
| Sep | 10.90% | 6.55% | 4.35% | Sep | 10.00% | 5.83% | 4.17% |
| Oct | 10.90% | 6.37% | 4.53% | Oct | 10.00% | 5.80% | 4.20% |
| Nov | 10.90% | 6.26% | 4.64% | Nov | 10.00% | 5.78% | 4.22% |
| Dec | 10.90% | 6.06% | 4.84% | Dec | 10.00% | 5.49% | 4.51% |
| Jan 1996 | 12.70% | 6.05% | 6.65% | Jan 2001 | 10.20% | 5.54% | 4.66% |
| Feb | 12.70% | 6.24% | 6.46% | Feb | 10.20% | 5.45% | 4.75% |
| Mar | 12.70% | 6.60% | 6.10% | Mar | 10.20% | 5.33% | 4.87% |
| Apr | 12.70% | 6.79% | 5.91% | Apr | 10.20% | 5.64% | 4.56% |
| May | 12.70% | 6.93% | 5.77% | May | 10.20% | 5.78% | 4.42% |
| Jun | 12.70% | 7.06% | 5.64% | Jun | 10.20% | 5.66% | 4.54% |
| Jul | 12.70% | 7.03% | 5.67% | Jul | 10.20% | 5.61% | 4.59% |
| Aug | 12.70% | 6.84% | 5.86% | Aug | 10.20% | 5.53% | 4.67% |
| Sep | 12.70% | 7.03% | 5.67% | Sep | 10.20% | 5.49% | 4.71% |
| Oct | 12.70% | 6.81% | 5.89% | Oct | 10.20% | 5.31% | 4.89% |
| Nov | 12.70% | 6.48% | 6.22% | Nov | 10.20% | 5.10% | 5.10% |
| Dec | 12.70% | 6.55% | 6.15% | Dec | 10.20% | 5.48% | 4.72% |
| Jan 1997 | 11.00% | 6.83% | 4.17% | Jan 2002 | 8.50% | 5.44% | 3.06% |
| Feb | 11.00% | 6.69% | 4.31% | Feb | 8.50% | 5.39% | 3.11% |
| Mar | 11.00% | 6.93% | 4.07% | Mar | 8.50% | 5.71% | 2.79% |
| Apr | 11.00% | 7.09% | 3.91% | Apr | 8.50% | 5.67% | 2.83% |
| May | 11.00% | 6.94% | 4.06% | May | 8.50% | 5.64% | 2.86% |
| Jun | 11.00% | 6.77% | 4.23% | Jun | 8.50% | 5.52% | 2.98% |
| Jul | 11.00% | 6.51% | 4.49% | Jul | 8.50% | 5.38% | 3.12% |
| Aug | 11.00% | 6.58% | 4.42% | Aug | 8.50% | 5.08% | 3.42% |
| Sep | 11.00% | 6.50% | 4.50% | Sep | 8.50% | 4.76% | 3.74% |
| Oct | 11.00% | 6.33% | 4.67% | Oct | 8.50% | 4.93% | 3.57% |
| Nov | 11.00% | 6.11% | 4.89% | Nov | 8.50% | 4.95% | 3.55% |
| Dec | 11.00% | 5.99% | 5.01% | Dec | 8.50% | 4.92% | 3.58% |

Summary Information (1993 - 2002)

Average Risk Premium: 4.61%
(Jan 1993 - Dec 2002)

High Risk Premium: 7.26%
(October 1993)

Low Risk Premium: 0.05%
(March 1998)

Sources: The Value Line Investment Survey: Ratings & Reports September 19, 2003.
Investopedia: <http://www.investopedia.com>

**Average Risk Premium above the Yields of 30-Year U.S. Treasury Bonds
for Peoples Energy's Actual Returns on Common Equity**

| Mo/Year | Peoples Energy's | 30-Year | Peoples Energy's | Mo/Year | Peoples Energy's | 30-Year | Peoples Energy's |
|----------|------------------|---------------------------------|------------------|----------|------------------|---------------------------------|------------------|
| | Actual ROE | U.S. Treasury Bond Yields | Risk Premium | | Actual ROE | U.S. Treasury Bond Yields | Risk Premium |
| Jan 1993 | 11.70% | 7.34% | 4.36% | Jan 1998 | 10.70% | 5.81% | 4.89% |
| Feb | 11.70% | 7.09% | 4.61% | Feb | 10.70% | 5.89% | 4.81% |
| Mar | 11.70% | 6.82% | 4.88% | Mar | 10.70% | 5.95% | 4.75% |
| Apr | 11.70% | 6.85% | 4.85% | Apr | 10.70% | 5.92% | 4.78% |
| May | 11.70% | 6.92% | 4.78% | May | 10.70% | 5.93% | 4.77% |
| Jun | 11.70% | 6.81% | 4.89% | Jun | 10.70% | 5.70% | 5.00% |
| Jul | 11.70% | 6.63% | 5.07% | Jul | 10.70% | 5.68% | 5.02% |
| Aug | 11.70% | 6.32% | 5.38% | Aug | 10.70% | 5.54% | 5.16% |
| Sep | 11.70% | 6.00% | 5.70% | Sep | 10.70% | 5.20% | 5.50% |
| Oct | 11.70% | 5.94% | 5.76% | Oct | 10.70% | 5.01% | 5.69% |
| Nov | 11.70% | 6.21% | 5.49% | Nov | 10.70% | 5.25% | 5.45% |
| Dec | 11.70% | 6.25% | 5.45% | Dec | 10.70% | 5.06% | 5.64% |
| Jan 1994 | 11.60% | 6.29% | 5.31% | Jan 1999 | 11.00% | 5.16% | 5.84% |
| Feb | 11.60% | 6.49% | 5.11% | Feb | 11.00% | 5.37% | 5.63% |
| Mar | 11.60% | 6.91% | 4.69% | Mar | 11.00% | 5.58% | 5.42% |
| Apr | 11.60% | 7.27% | 4.33% | Apr | 11.00% | 5.55% | 5.45% |
| May | 11.60% | 7.41% | 4.19% | May | 11.00% | 5.81% | 5.19% |
| Jun | 11.60% | 7.40% | 4.20% | Jun | 11.00% | 6.04% | 4.96% |
| Jul | 11.60% | 7.58% | 4.02% | Jul | 11.00% | 5.98% | 5.02% |
| Aug | 11.60% | 7.49% | 4.11% | Aug | 11.00% | 6.07% | 4.93% |
| Sep | 11.60% | 7.71% | 3.89% | Sep | 11.00% | 6.07% | 4.93% |
| Oct | 11.60% | 7.94% | 3.66% | Oct | 11.00% | 6.26% | 4.74% |
| Nov | 11.60% | 8.08% | 3.52% | Nov | 11.00% | 6.15% | 4.85% |
| Dec | 11.60% | 7.87% | 3.73% | Dec | 11.00% | 6.35% | 4.65% |
| Jan 1995 | 9.70% | 7.85% | 1.85% | Jan 2000 | 12.40% | 6.63% | 5.77% |
| Feb | 9.70% | 7.61% | 2.09% | Feb | 12.40% | 6.23% | 6.17% |
| Mar | 9.70% | 7.45% | 2.25% | Mar | 12.40% | 6.05% | 6.35% |
| Apr | 9.70% | 7.36% | 2.34% | Apr | 12.40% | 5.85% | 6.55% |
| May | 9.70% | 6.95% | 2.75% | May | 12.40% | 6.15% | 6.25% |
| Jun | 9.70% | 6.57% | 3.13% | Jun | 12.40% | 5.93% | 6.47% |
| Jul | 9.70% | 6.72% | 2.98% | Jul | 12.40% | 5.85% | 6.55% |
| Aug | 9.70% | 6.86% | 2.84% | Aug | 12.40% | 5.72% | 6.68% |
| Sep | 9.70% | 6.55% | 3.15% | Sep | 12.40% | 5.83% | 6.57% |
| Oct | 9.70% | 6.37% | 3.33% | Oct | 12.40% | 5.80% | 6.60% |
| Nov | 9.70% | 6.26% | 3.44% | Nov | 12.40% | 5.78% | 6.62% |
| Dec | 9.70% | 6.06% | 3.64% | Dec | 12.40% | 5.49% | 6.91% |
| Jan 1996 | 15.20% | 6.05% | 9.15% | Jan 2001 | 13.90% | 5.54% | 8.36% |
| Feb | 15.20% | 6.24% | 8.96% | Feb | 13.90% | 5.45% | 8.45% |
| Mar | 15.20% | 6.60% | 8.60% | Mar | 13.90% | 5.33% | 8.57% |
| Apr | 15.20% | 6.79% | 8.41% | Apr | 13.90% | 5.64% | 8.26% |
| May | 15.20% | 6.93% | 8.27% | May | 13.90% | 5.78% | 8.12% |
| Jun | 15.20% | 7.06% | 8.14% | Jun | 13.90% | 5.66% | 8.24% |
| Jul | 15.20% | 7.03% | 8.17% | Jul | 13.90% | 5.61% | 8.29% |
| Aug | 15.20% | 6.84% | 8.36% | Aug | 13.90% | 5.53% | 8.37% |
| Sep | 15.20% | 7.03% | 8.17% | Sep | 13.90% | 5.49% | 8.41% |
| Oct | 15.20% | 6.81% | 8.39% | Oct | 13.90% | 5.31% | 8.59% |
| Nov | 15.20% | 6.48% | 8.72% | Nov | 13.90% | 5.10% | 8.80% |
| Dec | 15.20% | 6.55% | 8.65% | Dec | 13.90% | 5.48% | 8.42% |
| Jan 1997 | 13.70% | 6.83% | 6.87% | Jan 2002 | 12.30% | 5.44% | 6.86% |
| Feb | 13.70% | 6.69% | 7.01% | Feb | 12.30% | 5.39% | 6.91% |
| Mar | 13.70% | 6.93% | 6.77% | Mar | 12.30% | 5.71% | 6.59% |
| Apr | 13.70% | 7.09% | 6.61% | Apr | 12.30% | 5.67% | 6.63% |
| May | 13.70% | 6.94% | 6.76% | May | 12.30% | 5.64% | 6.66% |
| Jun | 13.70% | 6.77% | 6.93% | Jun | 12.30% | 5.52% | 6.78% |
| Jul | 13.70% | 6.51% | 7.19% | Jul | 12.30% | 5.38% | 6.92% |
| Aug | 13.70% | 6.58% | 7.12% | Aug | 12.30% | 5.08% | 7.22% |
| Sep | 13.70% | 6.50% | 7.20% | Sep | 12.30% | 4.76% | 7.54% |
| Oct | 13.70% | 6.33% | 7.37% | Oct | 12.30% | 4.93% | 7.37% |
| Nov | 13.70% | 6.11% | 7.59% | Nov | 12.30% | 4.95% | 7.35% |
| Dec | 13.70% | 5.99% | 7.71% | Dec | 12.30% | 4.92% | 7.38% |

Summary Information (1993 - 2002)

Average Risk Premium: 5.99%
(Jan 1993 - Dec 2002)

High Risk Premium: 9.15%
(January 1996)

Low Risk Premium 1.85%
(January 1995)

Sources: The Value Line Investment Survey: Ratings & Reports September 19, 2003.
Investopedia: <http://www.investopedia.com>

**Average Risk Premium above the Yields of 30-Year U.S. Treasury Bonds
for Piedmont National's Actual Returns on Common Equity**

| Mo/Year | 30-Year | | | Mo/Year | 30-Year | | |
|----------|--------------------------------------|---------------------------------|--|----------|--------------------------------------|---------------------------------|--|
| | Piedmont National's Actual ROE | U.S. Treasury Bond Yields | Piedmont National's Risk Premium | | Piedmont National's Actual ROE | U.S. Treasury Bond Yields | Piedmont National's Risk Premium |
| Jan 1993 | 13.20% | 7.34% | 5.86% | Jan 1998 | 13.20% | 5.81% | 7.39% |
| Feb | 13.20% | 7.09% | 6.11% | Feb | 13.20% | 5.89% | 7.31% |
| Mar | 13.20% | 6.82% | 6.38% | Mar | 13.20% | 5.95% | 7.25% |
| Apr | 13.20% | 6.85% | 6.35% | Apr | 13.20% | 5.92% | 7.28% |
| May | 13.20% | 6.92% | 6.28% | May | 13.20% | 5.93% | 7.27% |
| Jun | 13.20% | 6.81% | 6.39% | Jun | 13.20% | 5.70% | 7.50% |
| Jul | 13.20% | 6.63% | 6.57% | Jul | 13.20% | 5.68% | 7.52% |
| Aug | 13.20% | 6.32% | 6.88% | Aug | 13.20% | 5.54% | 7.66% |
| Sep | 13.20% | 6.00% | 7.20% | Sep | 13.20% | 5.20% | 8.00% |
| Oct | 13.20% | 5.94% | 7.26% | Oct | 13.20% | 5.01% | 8.19% |
| Nov | 13.20% | 6.21% | 6.99% | Nov | 13.20% | 5.25% | 7.95% |
| Dec | 13.20% | 6.25% | 6.95% | Dec | 13.20% | 5.06% | 8.14% |
| Jan 1994 | 11.80% | 6.29% | 5.51% | Jan 1999 | 11.80% | 5.16% | 6.64% |
| Feb | 11.80% | 6.49% | 5.31% | Feb | 11.80% | 5.37% | 6.43% |
| Mar | 11.80% | 6.91% | 4.89% | Mar | 11.80% | 5.58% | 6.22% |
| Apr | 11.80% | 7.27% | 4.53% | Apr | 11.80% | 5.55% | 6.25% |
| May | 11.80% | 7.41% | 4.39% | May | 11.80% | 5.81% | 5.99% |
| Jun | 11.80% | 7.40% | 4.40% | Jun | 11.80% | 6.04% | 5.76% |
| Jul | 11.80% | 7.58% | 4.22% | Jul | 11.80% | 5.98% | 5.82% |
| Aug | 11.80% | 7.49% | 4.31% | Aug | 11.80% | 6.07% | 5.73% |
| Sep | 11.80% | 7.71% | 4.09% | Sep | 11.80% | 6.07% | 5.73% |
| Oct | 11.80% | 7.94% | 3.86% | Oct | 11.80% | 6.26% | 5.54% |
| Nov | 11.80% | 8.08% | 3.72% | Nov | 11.80% | 6.15% | 5.65% |
| Dec | 11.80% | 7.87% | 3.93% | Dec | 11.80% | 6.35% | 5.45% |
| Jan 1995 | 11.40% | 7.85% | 3.55% | Jan 2000 | 12.10% | 6.63% | 5.47% |
| Feb | 11.40% | 7.61% | 3.79% | Feb | 12.10% | 6.23% | 5.87% |
| Mar | 11.40% | 7.45% | 3.95% | Mar | 12.10% | 6.05% | 6.05% |
| Apr | 11.40% | 7.36% | 4.04% | Apr | 12.10% | 5.85% | 6.25% |
| May | 11.40% | 6.95% | 4.45% | May | 12.10% | 6.15% | 5.95% |
| Jun | 11.40% | 6.57% | 4.83% | Jun | 12.10% | 5.93% | 6.17% |
| Jul | 11.40% | 6.72% | 4.68% | Jul | 12.10% | 5.85% | 6.25% |
| Aug | 11.40% | 6.86% | 4.54% | Aug | 12.10% | 5.72% | 6.38% |
| Sep | 11.40% | 6.55% | 4.85% | Sep | 12.10% | 5.83% | 6.27% |
| Oct | 11.40% | 6.37% | 5.03% | Oct | 12.10% | 5.80% | 6.30% |
| Nov | 11.40% | 6.26% | 5.14% | Nov | 12.10% | 5.78% | 6.32% |
| Dec | 11.40% | 6.06% | 5.34% | Dec | 12.10% | 5.49% | 6.61% |
| Jan 1996 | 12.60% | 6.05% | 6.55% | Jan 2001 | 11.70% | 5.54% | 6.16% |
| Feb | 12.60% | 6.24% | 6.36% | Feb | 11.70% | 5.45% | 6.25% |
| Mar | 12.60% | 6.60% | 6.00% | Mar | 11.70% | 5.33% | 6.37% |
| Apr | 12.60% | 6.79% | 5.81% | Apr | 11.70% | 5.64% | 6.06% |
| May | 12.60% | 6.93% | 5.67% | May | 11.70% | 5.78% | 5.92% |
| Jun | 12.60% | 7.06% | 5.54% | Jun | 11.70% | 5.66% | 6.04% |
| Jul | 12.60% | 7.03% | 5.57% | Jul | 11.70% | 5.61% | 6.09% |
| Aug | 12.60% | 6.84% | 5.76% | Aug | 11.70% | 5.53% | 6.17% |
| Sep | 12.60% | 7.03% | 5.57% | Sep | 11.70% | 5.49% | 6.21% |
| Oct | 12.60% | 6.81% | 5.79% | Oct | 11.70% | 5.31% | 6.39% |
| Nov | 12.60% | 6.48% | 6.12% | Nov | 11.70% | 5.10% | 6.60% |
| Dec | 12.60% | 6.55% | 6.05% | Dec | 11.70% | 5.48% | 6.22% |
| Jan 1997 | 13.10% | 6.83% | 6.27% | Jan 2002 | 10.60% | 5.44% | 5.16% |
| Feb | 13.10% | 6.69% | 6.41% | Feb | 10.60% | 5.39% | 5.21% |
| Mar | 13.10% | 6.93% | 6.17% | Mar | 10.60% | 5.71% | 4.89% |
| Apr | 13.10% | 7.09% | 6.01% | Apr | 10.60% | 5.67% | 4.93% |
| May | 13.10% | 6.94% | 6.16% | May | 10.60% | 5.64% | 4.96% |
| Jun | 13.10% | 6.77% | 6.33% | Jun | 10.60% | 5.52% | 5.08% |
| Jul | 13.10% | 6.51% | 6.59% | Jul | 10.60% | 5.38% | 5.22% |
| Aug | 13.10% | 6.58% | 6.52% | Aug | 10.60% | 5.08% | 5.52% |
| Sep | 13.10% | 6.50% | 6.60% | Sep | 10.60% | 4.76% | 5.84% |
| Oct | 13.10% | 6.33% | 6.77% | Oct | 10.60% | 4.93% | 5.67% |
| Nov | 13.10% | 6.11% | 6.99% | Nov | 10.60% | 4.95% | 5.65% |
| Dec | 13.10% | 5.99% | 7.11% | Dec | 10.60% | 4.92% | 5.68% |

Summary Information (1993 - 2002)

Average Risk Premium: 5.92%
(Jan 1993 - Dec 2002)

High Risk Premium: 8.19%
(October 1998)

Low Risk Premium: 3.55%
(January 1995)

Sources: The Value Line Investment Survey: Ratings & Reports September 19, 2003.
Investopedia: <http://www.investopedia.com>

**Average Risk Premium above the Yields of 30-Year U.S. Treasury Bonds
for South Jersey Industry's Actual Returns on Common Equity**

| Mo/Year | 30-Year | | | Mo/Year | 30-Year | | |
|----------|--|---------------------------------|--|----------|--|---------------------------------|--|
| | South Jersey Industry's Actual ROE | U.S. Treasury Bond Yields | South Jersey Industry's Risk Premium | | South Jersey Industry's Actual ROE | U.S. Treasury Bond Yields | South Jersey Industry's Risk Premium |
| Jan 1993 | 10.50% | 7.34% | 3.16% | Jan 1998 | 10.30% | 5.81% | 4.49% |
| Feb | 10.50% | 7.09% | 3.41% | Feb | 10.30% | 5.89% | 4.41% |
| Mar | 10.50% | 6.82% | 3.68% | Mar | 10.30% | 5.95% | 4.35% |
| Apr | 10.50% | 6.85% | 3.65% | Apr | 10.30% | 5.92% | 4.38% |
| May | 10.50% | 6.92% | 3.58% | May | 10.30% | 5.93% | 4.37% |
| Jun | 10.50% | 6.81% | 3.69% | Jun | 10.30% | 5.70% | 4.60% |
| Jul | 10.50% | 6.63% | 3.87% | Jul | 10.30% | 5.68% | 4.62% |
| Aug | 10.50% | 6.32% | 4.18% | Aug | 10.30% | 5.54% | 4.76% |
| Sep | 10.50% | 6.00% | 4.50% | Sep | 10.30% | 5.20% | 5.10% |
| Oct | 10.50% | 5.94% | 4.56% | Oct | 10.30% | 5.01% | 5.29% |
| Nov | 10.50% | 6.21% | 4.29% | Nov | 10.30% | 5.25% | 5.05% |
| Dec | 10.50% | 6.25% | 4.25% | Dec | 10.30% | 5.06% | 5.24% |
| Jan 1994 | 8.00% | 6.29% | 1.71% | Jan 1999 | 14.60% | 5.16% | 9.44% |
| Feb | 8.00% | 6.49% | 1.51% | Feb | 14.60% | 5.37% | 9.23% |
| Mar | 8.00% | 6.91% | 1.09% | Mar | 14.60% | 5.58% | 9.02% |
| Apr | 8.00% | 7.27% | 0.73% | Apr | 14.60% | 5.55% | 9.05% |
| May | 8.00% | 7.41% | 0.59% | May | 14.60% | 5.81% | 8.79% |
| Jun | 8.00% | 7.40% | 0.60% | Jun | 14.60% | 6.04% | 8.56% |
| Jul | 8.00% | 7.58% | 0.42% | Jul | 14.60% | 5.98% | 8.62% |
| Aug | 8.00% | 7.49% | 0.51% | Aug | 14.60% | 6.07% | 8.53% |
| Sep | 8.00% | 7.71% | 0.29% | Sep | 14.60% | 6.07% | 8.53% |
| Oct | 8.00% | 7.94% | 0.06% | Oct | 14.60% | 6.26% | 8.34% |
| Nov | 8.00% | 8.08% | -0.08% | Nov | 14.60% | 6.15% | 8.45% |
| Dec | 8.00% | 7.87% | 0.13% | Dec | 14.60% | 6.35% | 8.25% |
| Jan 1995 | 11.20% | 7.85% | 3.35% | Jan 2000 | 14.80% | 6.63% | 8.17% |
| Feb | 11.20% | 7.61% | 3.59% | Feb | 14.80% | 6.23% | 8.57% |
| Mar | 11.20% | 7.45% | 3.75% | Mar | 14.80% | 6.05% | 8.75% |
| Apr | 11.20% | 7.36% | 3.84% | Apr | 14.80% | 5.85% | 8.95% |
| May | 11.20% | 6.95% | 4.25% | May | 14.80% | 6.15% | 8.65% |
| Jun | 11.20% | 6.57% | 4.63% | Jun | 14.80% | 5.93% | 8.87% |
| Jul | 11.20% | 6.72% | 4.48% | Jul | 14.80% | 5.85% | 8.95% |
| Aug | 11.20% | 6.86% | 4.34% | Aug | 14.80% | 5.72% | 9.08% |
| Sep | 11.20% | 6.55% | 4.65% | Sep | 14.80% | 5.83% | 8.97% |
| Oct | 11.20% | 6.37% | 4.83% | Oct | 14.80% | 5.80% | 9.00% |
| Nov | 11.20% | 6.26% | 4.94% | Nov | 14.80% | 5.78% | 9.02% |
| Dec | 11.20% | 6.06% | 5.14% | Dec | 14.80% | 5.49% | 9.31% |
| Jan 1996 | 10.60% | 6.05% | 4.55% | Jan 2001 | 12.80% | 5.54% | 7.26% |
| Feb | 10.60% | 6.24% | 4.36% | Feb | 12.80% | 5.45% | 7.35% |
| Mar | 10.60% | 6.60% | 4.00% | Mar | 12.80% | 5.33% | 7.47% |
| Apr | 10.60% | 6.79% | 3.81% | Apr | 12.80% | 5.64% | 7.16% |
| May | 10.60% | 6.93% | 3.67% | May | 12.80% | 5.78% | 7.02% |
| Jun | 10.60% | 7.06% | 3.54% | Jun | 12.80% | 5.66% | 7.14% |
| Jul | 10.60% | 7.03% | 3.57% | Jul | 12.80% | 5.61% | 7.19% |
| Aug | 10.60% | 6.84% | 3.76% | Aug | 12.80% | 5.53% | 7.27% |
| Sep | 10.60% | 7.03% | 3.57% | Sep | 12.80% | 5.49% | 7.31% |
| Oct | 10.60% | 6.81% | 3.79% | Oct | 12.80% | 5.31% | 7.49% |
| Nov | 10.60% | 6.48% | 4.12% | Nov | 12.80% | 5.10% | 7.70% |
| Dec | 10.60% | 6.55% | 4.05% | Dec | 12.80% | 5.48% | 7.32% |
| Jan 1997 | 13.30% | 6.83% | 6.47% | Jan 2002 | 12.50% | 5.44% | 7.06% |
| Feb | 13.30% | 6.69% | 6.61% | Feb | 12.50% | 5.39% | 7.11% |
| Mar | 13.30% | 6.93% | 6.37% | Mar | 12.50% | 5.71% | 6.79% |
| Apr | 13.30% | 7.09% | 6.21% | Apr | 12.50% | 5.67% | 6.83% |
| May | 13.30% | 6.94% | 6.36% | May | 12.50% | 5.64% | 6.86% |
| Jun | 13.30% | 6.77% | 6.53% | Jun | 12.50% | 5.52% | 6.98% |
| Jul | 13.30% | 6.51% | 6.79% | Jul | 12.50% | 5.38% | 7.12% |
| Aug | 13.30% | 6.58% | 6.72% | Aug | 12.50% | 5.08% | 7.42% |
| Sep | 13.30% | 6.50% | 6.80% | Sep | 12.50% | 4.76% | 7.74% |
| Oct | 13.30% | 6.33% | 6.97% | Oct | 12.50% | 4.93% | 7.57% |
| Nov | 13.30% | 6.11% | 7.19% | Nov | 12.50% | 4.95% | 7.55% |
| Dec | 13.30% | 5.99% | 7.31% | Dec | 12.50% | 4.92% | 7.58% |

Summary Information (1993 - 2002)

Average Risk Premium: 5.63%
(Jan 1993 - Dec 2002)

High Risk Premium: 9.44%
(January 1999)

Low Risk Premium: -0.08%
(November 1994)

Sources: The Value Line Investment Survey: Ratings & Reports September 19, 2003.
Investopedia: <http://www.investopedia.com>

Average Risk Premium above the Yields of 30-Year U.S. Treasury Bonds
for WGL Holding's Actual Returns on Common Equity

| Mo/Year | WGL Holding's | 30-Year | WGL Holding's | Mo/Year | WGL Holding's | 30-Year | WGL Holding's |
|----------|---------------|---------------------------------|-----------------|----------|---------------|---------------------------------|-----------------|
| | Actual ROE | U.S. Treasury Bond Yields | Risk Premium | | Actual ROE | U.S. Treasury Bond Yields | Risk Premium |
| Jan 1993 | 11.70% | 7.34% | 4.36% | Jan 1998 | 11.10% | 5.81% | 5.29% |
| Feb | 11.70% | 7.09% | 4.61% | Feb | 11.10% | 5.89% | 5.21% |
| Mar | 11.70% | 6.82% | 4.88% | Mar | 11.10% | 5.95% | 5.15% |
| Apr | 11.70% | 6.85% | 4.85% | Apr | 11.10% | 5.92% | 5.18% |
| May | 11.70% | 6.92% | 4.78% | May | 11.10% | 5.93% | 5.17% |
| Jun | 11.70% | 6.81% | 4.89% | Jun | 11.10% | 5.70% | 5.40% |
| Jul | 11.70% | 6.63% | 5.07% | Jul | 11.10% | 5.68% | 5.42% |
| Aug | 11.70% | 6.32% | 5.38% | Aug | 11.10% | 5.54% | 5.56% |
| Sep | 11.70% | 6.00% | 5.70% | Sep | 11.10% | 5.20% | 5.90% |
| Oct | 11.70% | 5.94% | 5.76% | Oct | 11.10% | 5.01% | 6.09% |
| Nov | 11.70% | 6.21% | 5.49% | Nov | 11.10% | 5.25% | 5.85% |
| Dec | 11.70% | 6.25% | 5.45% | Dec | 11.10% | 5.06% | 6.04% |
| Jan 1994 | 12.20% | 6.29% | 5.91% | Jan 1999 | 9.90% | 5.16% | 4.74% |
| Feb | 12.20% | 6.49% | 5.71% | Feb | 9.90% | 5.37% | 4.53% |
| Mar | 12.20% | 6.91% | 5.29% | Mar | 9.90% | 5.58% | 4.32% |
| Apr | 12.20% | 7.27% | 4.93% | Apr | 9.90% | 5.55% | 4.35% |
| May | 12.20% | 7.41% | 4.79% | May | 9.90% | 5.81% | 4.09% |
| Jun | 12.20% | 7.40% | 4.80% | Jun | 9.90% | 6.04% | 3.86% |
| Jul | 12.20% | 7.58% | 4.62% | Jul | 9.90% | 5.98% | 3.92% |
| Aug | 12.20% | 7.49% | 4.71% | Aug | 9.90% | 6.07% | 3.83% |
| Sep | 12.20% | 7.71% | 4.49% | Sep | 9.90% | 6.07% | 3.83% |
| Oct | 12.20% | 7.94% | 4.26% | Oct | 9.90% | 6.26% | 3.64% |
| Nov | 12.20% | 8.08% | 4.12% | Nov | 9.90% | 6.15% | 3.75% |
| Dec | 12.20% | 7.87% | 4.33% | Dec | 9.90% | 6.35% | 3.55% |
| Jan 1995 | 12.00% | 7.85% | 4.15% | Jan 2000 | 11.70% | 6.63% | 5.07% |
| Feb | 12.00% | 7.61% | 4.39% | Feb | 11.70% | 6.23% | 5.47% |
| Mar | 12.00% | 7.45% | 4.55% | Mar | 11.70% | 6.05% | 5.65% |
| Apr | 12.00% | 7.36% | 4.64% | Apr | 11.70% | 5.85% | 5.85% |
| May | 12.00% | 6.95% | 5.05% | May | 11.70% | 6.15% | 5.55% |
| Jun | 12.00% | 6.57% | 5.43% | Jun | 11.70% | 5.93% | 5.77% |
| Jul | 12.00% | 6.72% | 5.28% | Jul | 11.70% | 5.85% | 5.85% |
| Aug | 12.00% | 6.86% | 5.14% | Aug | 11.70% | 5.72% | 5.98% |
| Sep | 12.00% | 6.55% | 5.45% | Sep | 11.70% | 5.83% | 5.87% |
| Oct | 12.00% | 6.37% | 5.63% | Oct | 11.70% | 5.80% | 5.90% |
| Nov | 12.00% | 6.26% | 5.74% | Nov | 11.70% | 5.78% | 5.92% |
| Dec | 12.00% | 6.06% | 5.94% | Dec | 11.70% | 5.49% | 6.21% |
| Jan 1996 | 14.40% | 6.05% | 8.35% | Jan 2001 | 11.20% | 5.54% | 5.66% |
| Feb | 14.40% | 6.24% | 8.16% | Feb | 11.20% | 5.45% | 5.75% |
| Mar | 14.40% | 6.60% | 7.80% | Mar | 11.20% | 5.33% | 5.87% |
| Apr | 14.40% | 6.79% | 7.61% | Apr | 11.20% | 5.64% | 5.56% |
| May | 14.40% | 6.93% | 7.47% | May | 11.20% | 5.78% | 5.42% |
| Jun | 14.40% | 7.06% | 7.34% | Jun | 11.20% | 5.66% | 5.54% |
| Jul | 14.40% | 7.03% | 7.37% | Jul | 11.20% | 5.61% | 5.59% |
| Aug | 14.40% | 6.84% | 7.56% | Aug | 11.20% | 5.53% | 5.67% |
| Sep | 14.40% | 7.03% | 7.37% | Sep | 11.20% | 5.49% | 5.71% |
| Oct | 14.40% | 6.81% | 7.59% | Oct | 11.20% | 5.31% | 5.89% |
| Nov | 14.40% | 6.48% | 7.92% | Nov | 11.20% | 5.10% | 6.10% |
| Dec | 14.40% | 6.55% | 7.85% | Dec | 11.20% | 5.48% | 5.72% |
| Jan 1997 | 13.70% | 6.83% | 6.87% | Jan 2002 | 7.20% | 5.44% | 1.76% |
| Feb | 13.70% | 6.69% | 7.01% | Feb | 7.20% | 5.39% | 1.81% |
| Mar | 13.70% | 6.93% | 6.77% | Mar | 7.20% | 5.71% | 1.49% |
| Apr | 13.70% | 7.09% | 6.61% | Apr | 7.20% | 5.67% | 1.53% |
| May | 13.70% | 6.94% | 6.76% | May | 7.20% | 5.64% | 1.56% |
| Jun | 13.70% | 6.77% | 6.93% | Jun | 7.20% | 5.52% | 1.68% |
| Jul | 13.70% | 6.51% | 7.19% | Jul | 7.20% | 5.38% | 1.82% |
| Aug | 13.70% | 6.58% | 7.12% | Aug | 7.20% | 5.08% | 2.12% |
| Sep | 13.70% | 6.50% | 7.20% | Sep | 7.20% | 4.76% | 2.44% |
| Oct | 13.70% | 6.33% | 7.37% | Oct | 7.20% | 4.93% | 2.27% |
| Nov | 13.70% | 6.11% | 7.59% | Nov | 7.20% | 4.95% | 2.25% |
| Dec | 13.70% | 5.99% | 7.71% | Dec | 7.20% | 4.92% | 2.28% |

Summary Information (1993 - 2002)

Average Risk Premium: 5.28%
(Jan 1993 - Dec 2002)

High Risk Premium: 8.35%
(January 1996)

Low Risk Premium: 1.49%
(March 2002)

Sources: The Value Line Investment Survey: Ratings & Reports September 19, 2003.
Investopedia: <http://www.investopedia.com>

AQUILA, INC.
CASE NO. GR-2004-0072

**Risk Premium Cost of Equity Estimates
for the Comparable Gas Utility Companies**

| Company Name | (1) | (2) | (3) |
|-----------------------------------|------------------------------|---------------------------|--------------------------------------|
| Company Name | Appropriate Yield | Equity Premium | Cost of Common Equity |
| AGL Resources | 5.13% | 5.42% | 10.55% |
| Cascade Natural Gas | 5.13% | 3.14% | 8.27% |
| New Jersey Resources Corporation | 5.13% | 7.74% | 12.87% |
| Northwest Natural Gas Corporation | 5.13% | 4.61% | 9.74% |
| Peoples Energy Corporation | 5.13% | 5.99% | 11.12% |
| Piedmont Natural Gas Company | 5.13% | 5.92% | 11.05% |
| South Jersey Industries, Inc. | 5.13% | 5.63% | 10.76% |
| WGL Holdings, Inc. | 5.13% | 5.28% | 10.41% |
| Average | | | <u>10.59%</u> |

NOTES:

Column 1 = The appropriate yield is equal to the average 30-year U.S. Treasury Bond yield for November 2003 which was obtained from Investopedia: <http://www.investopedia.com>.

Column 2 = The equity premium represents the average difference between the Company's actual return on common equity as reported in The Value Investment Survey: Ratings & Report for September 19, 2003, and the yield on 30-year U.S. Treasury Bonds January 1993 through December 2002. See Schedules 18-1 through 18-8.

Column 3 = Column 1 + Column 2.

AQUILA, INC.
CASE NO. GR-2004-0072

Selected Financial Ratios for the Comparable Gas Utility Companies

| | (1) | (2) | (3) | (4) | (5) | (6) |
|-------------------------|--|---|--|-----------------------------|--|----------------|
| Company Name | Year 2002 Common Equity to Total Capital Ratio | Year 2002 Long-Term Debt Ratio | Pre-Tax Interest Coverage Ratio | Market- to-Book Value | 2003 Projected Return on Common Equity | Bond Rating |
| AGL Resources | 41.70% | 58.30% | 2.90 x | 1.94 x | 13.50% | A- |
| Cascade Natural Gas | 40.90% | 59.10% | 2.60 x | 1.87 x | 7.50% | BBB+ |
| New Jersey Resources | 49.40% | 50.60% | 6.10 x | 2.33 x | 15.00% | A+ |
| Northwest Natural Gas | 51.50% | 47.60% | 3.10 x | 1.54 x | 9.00% | A |
| Peoples Energy | 59.30% | 40.70% | 4.70 x | 1.69 x | 12.00% | A- |
| Piedmont Natural Gas | 56.10% | 43.90% | 3.70 x | 2.07 x | 10.50% | A |
| South Jersey Industries | 46.10% | 53.60% | 3.40 x | 1.87 x | 12.50% | BBB+ |
| WGL Holdings | 52.40% | 45.70% | 2.80 x | 1.57 x | 12.00% | AA- |
| Average | 49.68% | 49.94% | 3.66 x | 1.86 x | 11.50% | A |

Sources: The Value Line Investment Survey: Ratings and Reports, September 19, 2003 for columns (1), (2), (3), and (5).
C.A. Turner Utility Reports, December 2003 for column (4).
Standard & Poor's Ratings Direct for column (6).

AQUILA, INC.
CASE NO. GR-2004-0072

**Pro Forma Pre-Tax Interest Coverage Ratios
for Aquila, Inc.**

| | <u>8.72%</u> | <u>9.22%</u> | <u>9.72%</u> |
|--|-----------------|-----------------|-----------------|
| 1. Common Equity (Schedule 10) | \$1,607,879,000 | \$1,607,879,000 | \$1,607,879,000 |
| 2. Earnings Allowed (ROE * [1]) | \$140,207,049 | \$148,246,444 | \$156,285,839 |
| 3. Tax Multiplier (1 / { 1 - Tax Rate }) | 1.6231 | 1.6231 | 1.6231 |
| 4. Pre-Tax Earnings ([2] * [3]) | \$227,570,061 | \$240,618,803 | \$253,667,545 |
| 5. Preferred Dividends | \$0 | \$0 | \$0 |
| 6. Annual Interest Costs (Schedule 10)* | \$203,508,326 | \$203,508,326 | \$203,508,326 |
| 7. Avail. for Coverage ([4] + [5] + [6]) | \$431,078,387 | \$444,127,129 | \$457,175,871 |
| 8. Pro Forma Pre-Tax Interest Coverage ([7] / [6]) | 2.12 x | 2.18 x | 2.25 x |

Gas Distribution Financial Medians - Pretax Interest Coverage (x)

| | Lower Quartile | Median | Upper Quartile |
|--|---------------------------|---------------------------|---------------------------|
| Standard & Poor's Corporation's Utility Rating Service as of July 7, 2000 | <u>BBB</u> 1.98 | <u>BBB</u> 2.85 | <u>BBB</u> 3.01 |

Note: * Long-term debt interest expense from Aquila's response to MPSC-223 and MPSC-532 in Case Nos. ER-2004-0034 and HR-2004-0024, which includes all international debt, but not the interest expense associated with the 14.875% debt issuance. The assumed interest expense for this issuance is as follows:

\$500,000,000 x 8.07% Yield as reported by Mergent's Public Utility Bond for July 2002 = \$40,350,000.

Total: \$40,350,000 + \$163,158,326 = \$203,508,326 Annual Interest Cost.

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 |

AQUILA, INC.
CASE NO. GR-2004-0072

Weighted Cost of Capital as of December 31, 2002
For Aquila, Inc. d/b/a Aquila Networks MPS And
Aquila Networks L&P

| Capital Component | Percentage of Capital | Embedded Cost | Weighted Cost of Capital Using Common Equity Return of: | | |
|---------------------|--------------------------|------------------|--|---------------------|---------------------|
| | | | 8.72% | 9.22% | 9.72% |
| Common Stock Equity | 35.31% | ----- | 3.08% | 3.26% | 3.43% |
| Long-Term Debt | 64.31% | 7.633% | 4.91% | 4.91% | 4.91% |
| Short-Term Debt | 0.38% | 3.37% | 0.01% | 0.01% | 0.01% |
| | <u>100.00%</u> | | <u>8.00%</u> | <u>8.18%</u> | <u>8.35%</u> |

Notes:

See Schedule 9 for the Capital Structure Ratios.

See Schedule 10 for the Embedded Cost of Long-Term Debt.

See Aquila, Inc.'s response to Staff Data Request No. MPSC-224 in Case Nos. ER-2004-0034 and HR-2004-0024 for the cost of short-term debt.