

City of Jackson



Water Rate Analysis

Test Period

May 1, 2010 to April 30, 2011



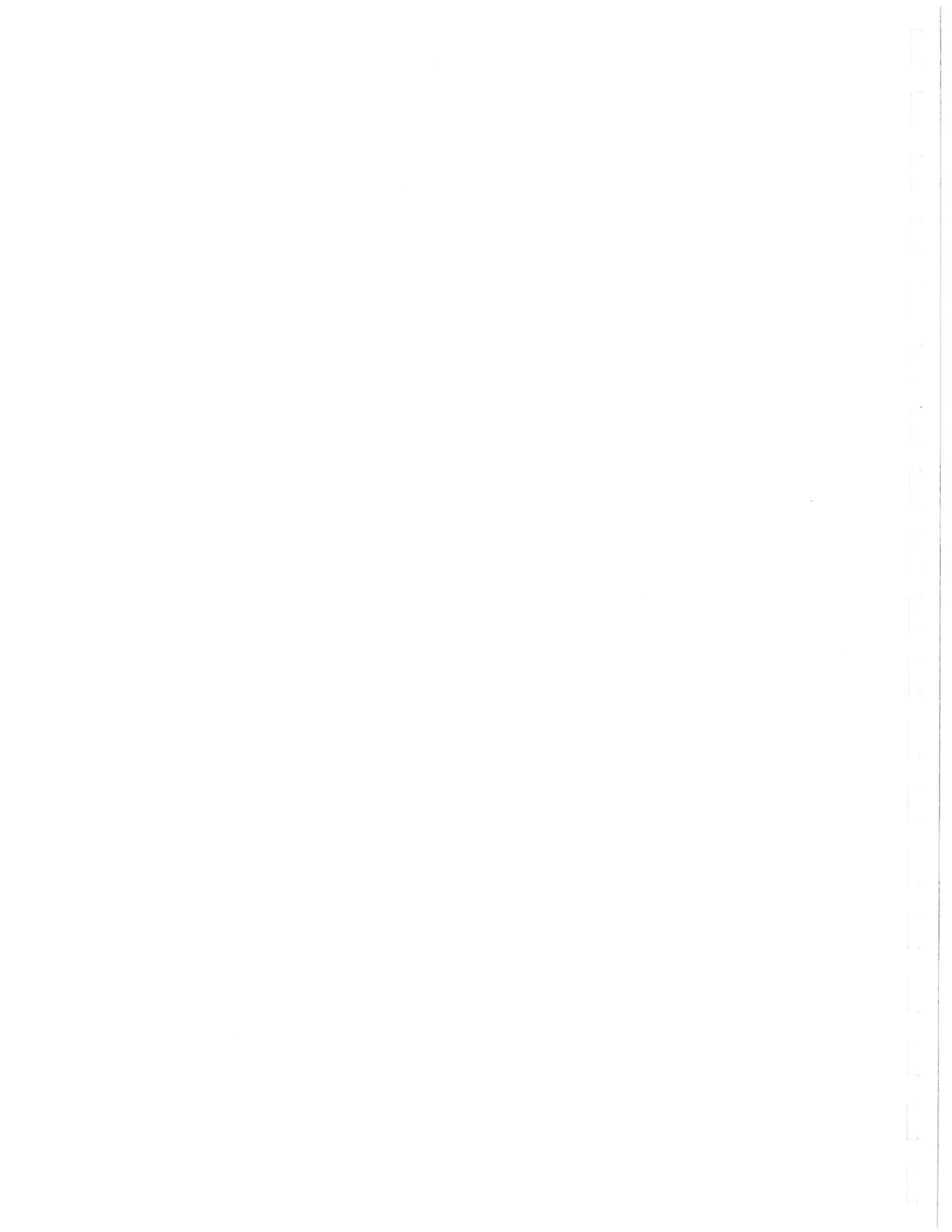
Prepared by

Kentucky Rural Community Assistance Program

Fall 2011

Table of Contents

| | | |
|------|--|----|
| I. | Introduction | 1 |
| | a. Rate Analysis Process | 2 |
| | b. Statement of Accountability | 4 |
| | c. Current Condition | 5 |
| II. | Financial Analysis | |
| | a. Audit Review | 7 |
| | b. Financial Analysis | 8 |
| | c. Adjustments | 9 |
| | d. Expense Breakdown | 11 |
| III. | Production Analysis | 13 |
| IV. | Usage Analysis | |
| | a. Customer Distribution | 15 |
| | b. Equity Test | 17 |
| V. | Recommendations | |
| | a. Short-Term | 21 |
| | i. Rate Structure | 22 |
| | ii. Rate Increase Scenarios | 23 |
| | iii. Affordability Standards | 28 |
| | iv. Defending Your Rate Increase | 29 |
| | v. Short-Term Continued | 31 |
| | b. Long-Term | 32 |
| VI. | Summary | 33 |
| VII. | Contact Information | 34 |



Introduction

The Rural Community Assistance Partnership (RCAP) is a national network of nonprofit organizations working to ensure that rural and small communities throughout the United States have access to safe drinking water and sanitary wastewater disposal. Established through a grant in 1969, more than 150 RCAP Technical Assistance Providers (TAPs) based in the field provide on-site assistance to more than 2,000 communities in all 50 states, Puerto Rico, and the U.S. Virgin Islands. Our two primary funders are USDA-Rural Development and U.S. Health and Human Services (who also fund local health department's environmental services). In this and past program years, RCAP has also been funded through the Clean Water Act and the Safe Drinking Water Act by the U.S. Environmental Protection Agency. Communities serving less than 10,000 in population with an emphasis on those communities serving less than 3,300 in population may qualify to receive selected services from Kentucky RCAP free of charge. Kentucky RCAP provides technical, managerial, and financial services to rural communities throughout the Commonwealth.

The City of Jackson requested RCAP to perform a water rate analysis in the summer of 2011 as follows:

1. To assess the overall stability of the water system.
2. To recommend a fair and equitable water rate structure that will cover the expenses of the water system.
3. To recommend sustainable actions to the water system for the short and long-term.

It is the objective of this rate analysis to examine the revenues from rates and charges made by the City of Jackson to recover the cost of providing safe, efficient, and reliable water service to the residential, business, and institutional customers served by the water system. The goal of the system's rates should be to provide for the proper operations and maintenance of the current system, provide adequate funding for future improvements to the system, and lastly financially prepare for timely replacement of the system's infrastructure.



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Rate Analysis Process

The water rate analysis is a detailed, comprehensive, and tailored review unique to each water system. This time-consuming process looks at every aspect of the water system and requires the support of the entire utility staff. The outcome desired by RCAP is to provide a rate structure that will enable financial stability and overall sustainability to the water system in the City of Jackson. The process of RCAP's water rate analysis is outlined below.

1. Financial Analysis

a. Data Collection

- A detailed analysis of historical financial data, preferably five (5) years, will be obtained from the accounting system. Reports gathered include, but are not limited to: Income Statement, Balance Sheet, Chart of Accounts, General Ledger, Check Register, Accounts Receivable Aging, and Debt Service Schedules.

b. Data Analysis

- The current financial status is examined by removing anomalies from historical data and projecting future known and measurable revenues and expenses into a forecasted financial model. This model separates all revenues and expenses into categories and then allocates each expense category into fixed or variable cost components. Financial stability is determined and recommendations are suggested.

2. Production Analysis

a. Data Collection

- A detailed analysis of one (1) year of production data will be obtained from the water system manager/superintendent, water operators, and Monthly Operating Reports. Key information to be gathered includes the number and size of all water taps and the total gallons treated and pumped.



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b. Data Analysis

- Water production and distribution are reviewed and the total water loss in the system is determined. This information is used to determine additional methods to increase revenue or decrease expenses, such as: Energy Audits, Water Loss Programs, Meter Replacement Programs, etc.

3. Billing Analysis

a. Data Collection

- A detailed analysis of one (1) year of customer billing data will be obtained from the billing system and organized into a database for review. Billing history for each customer account is obtained, including, but not limited to: account number, name, address, status, applied water rate, and monthly and yearly billing usage.

b. Data Analysis

- Customer billing information is separated into four categories: Residential, Business/Industry, Non-Profit/Public Facilities, and Wholesale. Each category is analyzed separately to determine average water usage and revenues. This information is then formatted into a forecast model to determine how different rates will affect each customer category. The fairness of water rates is considered a high priority!

4. Establish Water Rates

- a. Calculate a sustainable rate structure
- b. Complete an affordability test based upon Median Household Income (MHI) of the community
- c. If a change in rate structure is needed:
 - Create a short-term plan for immediate relief
 - Create a long-term plan for system sustainability
 - Complete necessary requirements to approve and enact a new rate structure

Statement of Accountability

Although similar in some cases, a water rate analysis should not be compared to a financial audit. The objectives and methods of analysis are different and are not to be confused. Information derived for this water rate analysis was provided from the City of Jackson Waterworks and has not been verified for authenticity. A utility rate analysis does not analyze the financial statements to ensure they have been presented fairly or check for fraudulent activity in a utility system; therefore, a utility rate analysis should never take the place of a yearly audit.



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Current Condition

The City of Jackson Waterworks does not maintain a financially or operationally sustainable structure.

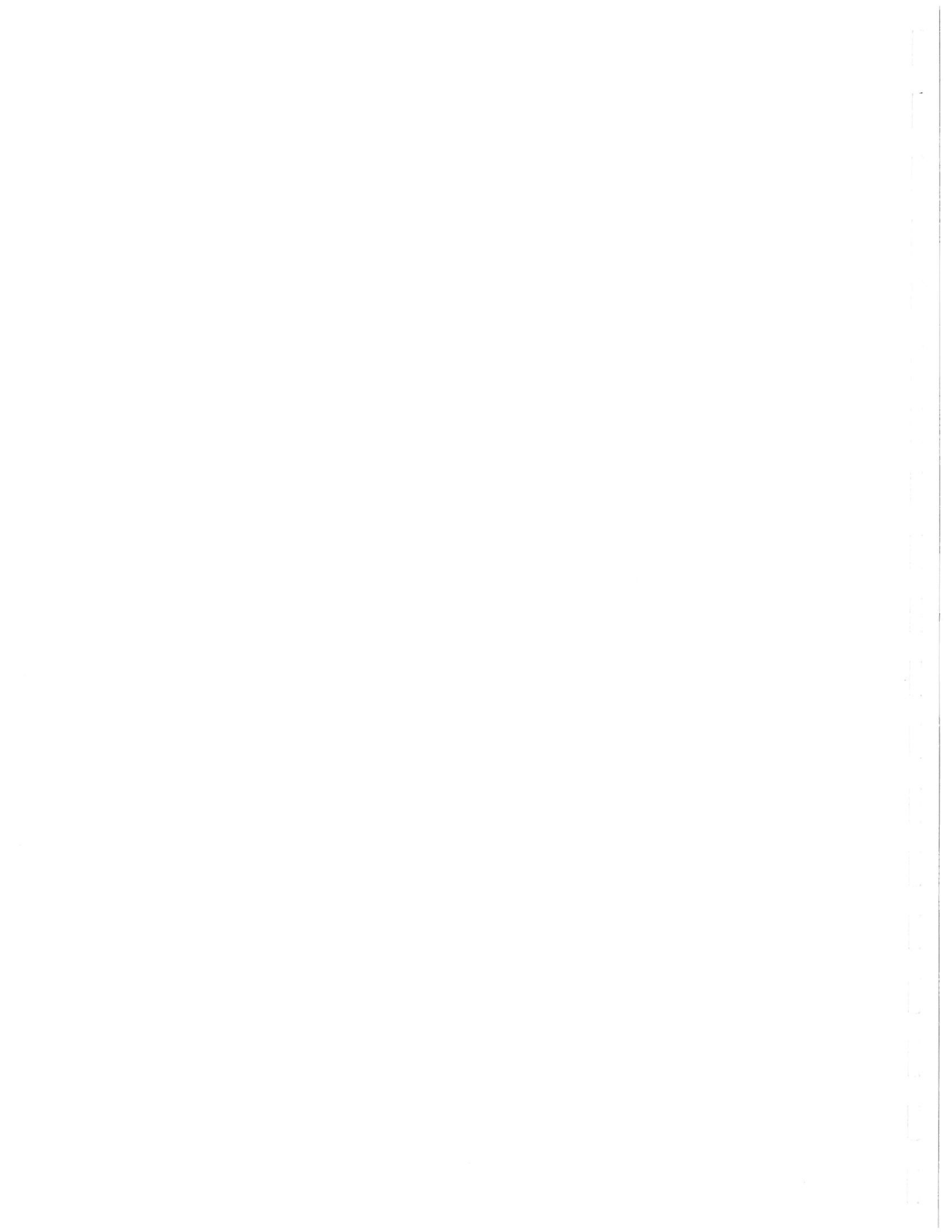
In the past five (5) years alone the waterworks has lost approximately \$1,250,000 from water service. Due to this financial distress, the water system has not been able to maintain a sustainable level of service. Maintenance or replacement of critical assets and the purchase of regular operational supplies needed to provide high quality potable water have been postponed due to lack of funds. These methods are NOT sustainable for a water system.



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Financial Analysis



Five Year Audit Review

| | 2006 | 2007 | 2008 | 2009 | 2010 | Avg Increase Per Year |
|-----------------------|----------------|------------------|------------------|------------------|------------------|--------------------------|
| Revenue | | | | | | |
| Water Sales | 690,878 | 722,864 | 775,254 | 1,095,841 | 1,070,600 | 113% |
| Miscellaneous | 15,292 | 3,162 | 2,149 | 8,520 | 24,737 | 194% |
| Total Revenues | 706,170 | 726,026 | 777,403 | 1,104,361 | 1,095,337 | 113% |
| Expenses | | | | | | |
| Salaries | 289,788 | 235,736 | 315,614 | 323,161 | 311,544 | 104% |
| Depreciation | 345,352 | 351,149 | 353,435 | 380,182 | 382,932 | 103% |
| Taxes and Retirement | 47,822 | 37,167 | 83,370 | 72,086 | 86,515 | 127% |
| Utilities | 69,752 | 113,242 | 93,493 | 119,717 | 108,863 | 116% |
| Supplies | 89,555 | 165,276 | 101,897 | 227,522 | 275,700 | 148% |
| Insurance | 73,538 | 61,624 | 79,283 | 75,326 | 89,589 | 107% |
| Contract Labor | 27,998 | 79,945 | 17,106 | 52,810 | 32,189 | 169% |
| Sludge Hauling | - | - | - | - | - | - |
| Miscellaneous | 21,834 | 24,214 | 5,002 | 7,309 | 28,451 | 167% |
| Total Expense | 965,639 | 1,068,353 | 1,049,200 | 1,258,113 | 1,315,783 | 108% |

Net Income (Loss) (259,469) 132% (342,327) 79% (271,797) 57% (153,752) 143% (220,446) 103%



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Financial Analysis

| | Test Period | Adjustments | Ref # | Typical Year |
|---------------------------------|------------------|------------------|-------|------------------|
| Income | | | | |
| Water Revenue | 1,518,289 | (436,436) | 1 | 1,081,853 |
| Other Revenue | 416,289 | (377,691) | 2 | 38,598 |
| Total Income | 1,934,577 | (814,126) | | 1,120,451 |
| Expenses | | | | |
| Labor and Fringe | 423,658 | 68,550 | 3 | 492,208 |
| Insurance | 32,497 | - | | 32,497 |
| Administration | 16,317 | (546) | 4 | 15,771 |
| Utilities | 120,621 | 5,000 | 5 | 125,621 |
| Production Fees | 31,279 | (6,367) | 6 | 24,912 |
| Maintenance and Repairs | 32,804 | - | | 32,804 |
| Supplies | 149,993 | - | | 149,993 |
| Transportation | 13,604 | 898 | 7 | 14,502 |
| Travel | 1,367 | (898) | 8 | 469 |
| Uniforms | 7,719 | (360) | 9 | 7,359 |
| Miscellaneous | 7,543 | 250 | 10 | 7,793 |
| Debt Service | 248,114 | 201,264 | 11 | 449,379 |
| NSF Checks | 2,559 | - | | 2,559 |
| Depreciation | 99,540 | - | | 99,540 |
| Total Expenses | 1,187,615 | 267,792 | | 1,455,407 |
| | | | | |
| Net Income (Loss) | 746,962 | | | (334,956) |
| <i>Recommended Reserves</i> | | | | |
| Emergency Reserve | | | 12 | 36,385 |
| Water System Needs | | | 13 | 23,848 |

FULL COST OF PROVIDING WATER

1,515,640

FULL LOSS

(395,189)



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Adjustments for Typical Year

For the purpose of this water rate analysis all non-water revenues and expenses have been extracted from the accounting data. Each account has been analyzed and adjusted to only show revenues and expenses directly related to water services. In addition, all “known and measurable” future expenses have been calculated and adjusted to each account as necessary. These combined adjustments create a yearly financial outlook for the entire water system referred to as the typical year.

The following adjustments were made to each account/s:

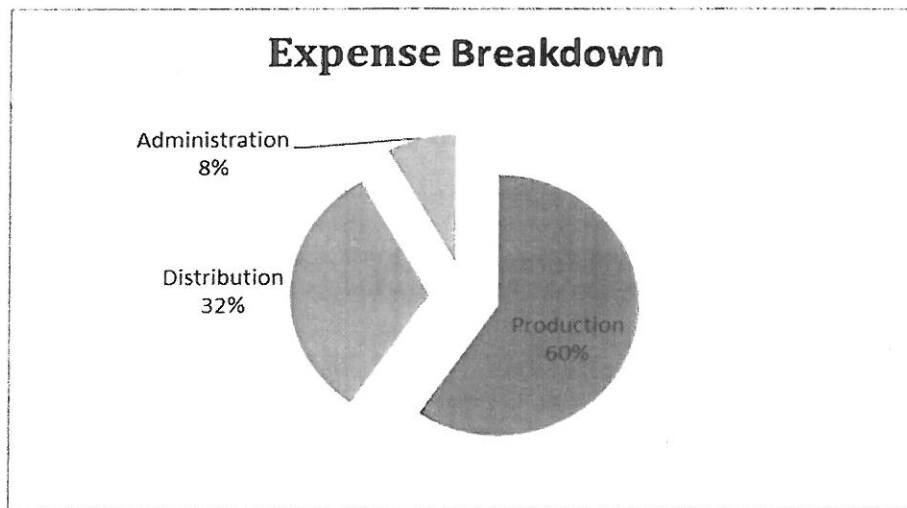
1. Water Revenue has been adjusted to reflect only the income from water sales during the test period.
2. Other Revenue has been adjusted to remove non-water income. Other Revenue is derived from penalties, service charges, tap fees, and interest income.
3. Labor and Fringe has been adjusted to remove all non-water expenses and invalid accounting transactions. Payroll has been analyzed and adjusted to reflect all future known and measurable staffing and fringe expenditures.
4. Administration has been adjusted to remove all non-water expenses and invalid accounting transactions.
5. Utilities have been analyzed and adjusted to reflect all future known and measurable expenses.
6. Production has been adjusted to remove all non-water expenses and invalid accounting transactions.
7. Transportation has been adjusted to remove all non-water expenses and invalid accounting transactions. Since records are not retained to distribute transportation expense among each city service, an estimated allocation has been used.
8. Travel has been adjusted to remove all non-water expenses and invalid accounting transactions.
9. Uniforms has been adjusted to remove all non-water expenses and invalid accounting transactions.



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10. Miscellaneous has been adjusted to remove all non-water expenses and invalid accounting transactions.
11. Debt Service has been analyzed and adjusted to reflect all water system debt payments. Required payments to depreciation and short-lived asset accounts have been included.
12. Jackson Waterworks does not maintain an "Emergency Reserve Account." RCAP recommends creating an account valued at 12.5% of operating expenses used only for emergency situations. Monthly payments of \$3,032 for the next five (5) years will fully fund this account.
13. Due to a lack of funds, Jackson Waterworks has been unable to provide proper maintenance and supplies for the water system. Costs associated with current water system repairs, maintenance, and minor assets have been estimated. Monthly payments of \$1,987 would fund these necessary improvements within three (3) years.



Expense Breakdown

| Expense | Production | | | Distribution | | | Administration | | |
|-------------------------|---------------------|------------|-------------------|--------------|-------------------|------------|-------------------|------------|-------|
| | Total | Category % | Total | Category % | Total | Category % | Total | Category % | Total |
| Labor and Fringe | 492,207.95 | 54% | 265,792.29 | 30% | 147,662.39 | 16% | 78,753.27 | | |
| Insurance | 32,497.30 | 34% | 11,049.08 | 33% | 10,724.11 | 33% | 10,724.11 | | |
| Administration | 15,770.86 | 0% | - | 0% | - | 100% | 15,770.86 | | |
| Utilities | 125,620.61 | 98% | 123,108.20 | 2% | 2,512.41 | 0% | - | | |
| Production Fees | 24,912.42 | 100% | 24,912.42 | 0% | - | 0% | - | | |
| Maintenance and Repairs | 32,804.12 | 20% | 6,560.82 | 80% | 26,243.30 | 0% | - | | |
| Supplies | 149,993.35 | 100% | 149,993.35 | 0% | - | 0% | - | | |
| Transportation | 14,501.53 | 10% | 1,450.15 | 80% | 11,601.22 | 10% | 1,450.15 | | |
| Travel | 469.26 | 50% | 234.63 | 50% | 234.63 | 0% | - | | |
| Uniforms | 7,358.98 | 65% | 4,783.34 | 35% | 2,575.64 | 0% | - | | |
| Miscellaneous | 7,793.04 | 34% | 2,649.63 | 33% | 2,571.70 | 33% | 2,571.70 | | |
| Debt Service | 449,378.58 | 50% | 224,689.29 | 50% | 224,689.29 | 0% | - | | |
| Bad Debt | 2,558.95 | 0% | - | 0% | - | 100% | 2,558.95 | | |
| Depreciation | 99,540.00 | 50% | 49,770.00 | 50% | 49,770.00 | 0% | - | | |
| Total | 1,455,406.96 | | 864,993.21 | | 478,584.69 | | 111,829.05 | | |

Recommended Reserves

| | | | | | | | |
|--------------------|-----------|------|-----------|-----|-----------|-----|-----------|
| Emergency Reserve | 36,385.17 | 34% | 12,370.96 | 33% | 12,007.11 | 33% | 12,007.11 |
| Water System Needs | 23,847.57 | 100% | 23,847.57 | 0% | - | 0% | - |

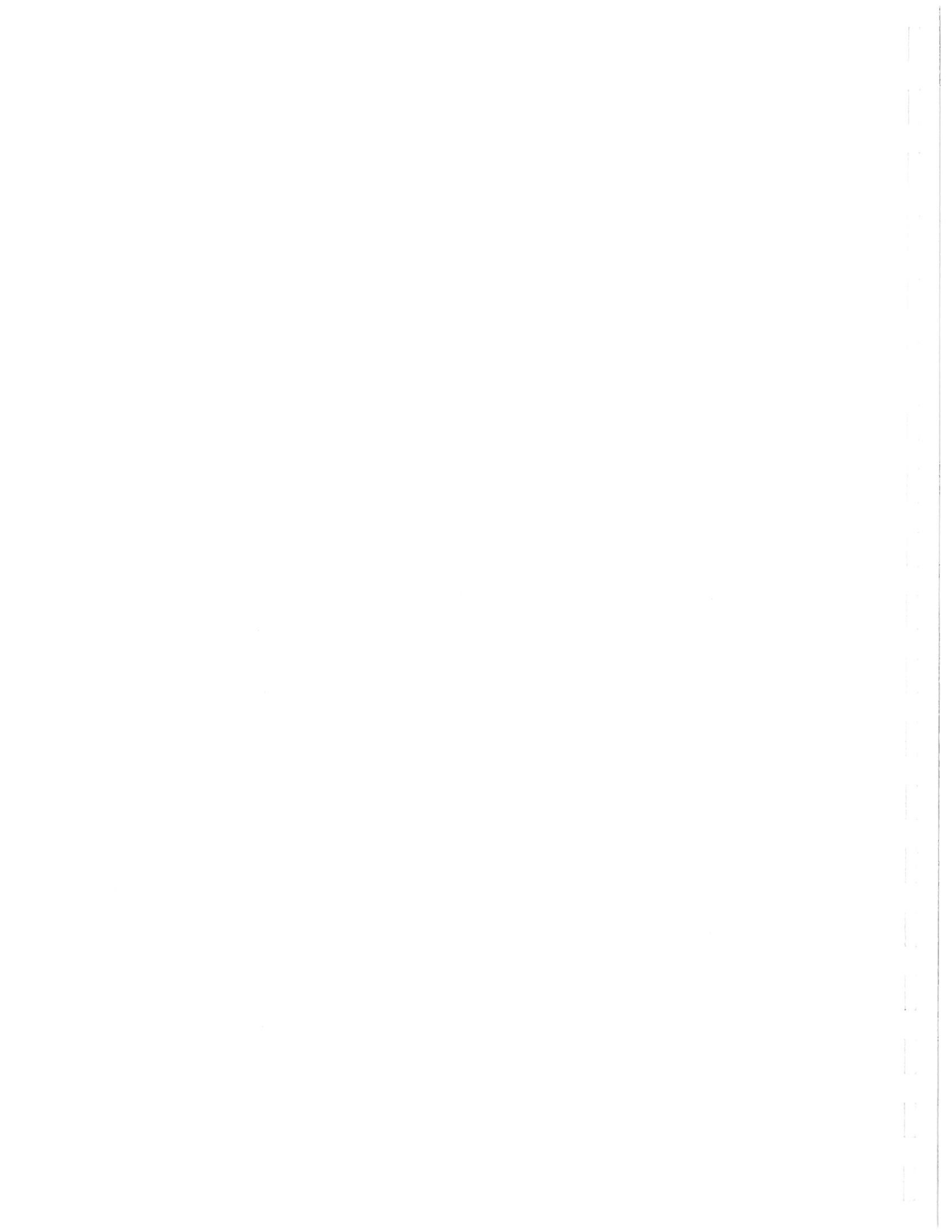
Full Cost of Providing Water

| | | |
|-------------------|-------------------|-------------------|
| 901,211.74 | 490,591.80 | 123,836.15 |
|-------------------|-------------------|-------------------|

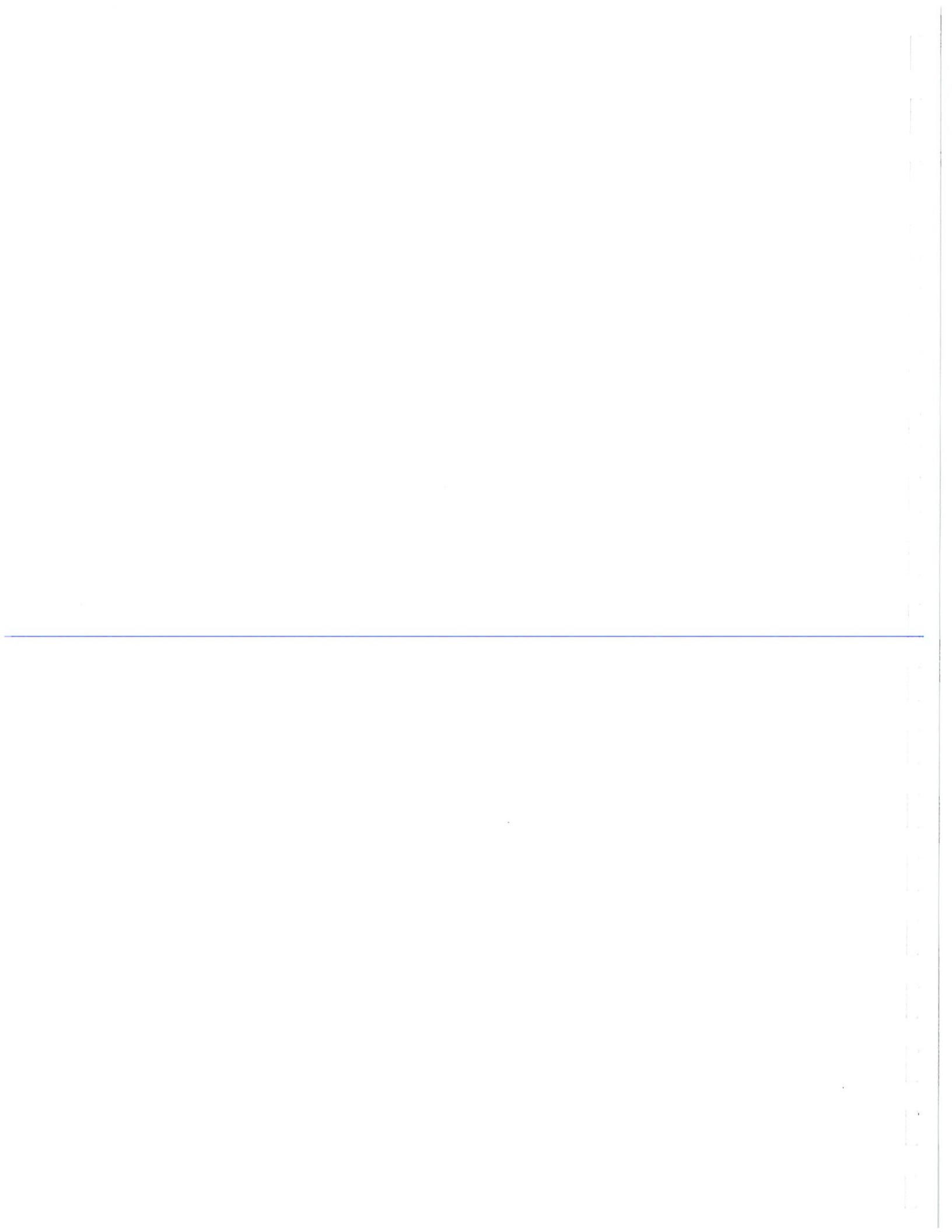


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Production Analysis



Production Analysis

| Month | Raw Water Treated | Filtered Water | Water Sold | Water Loss | Percentage |
|--------------|--------------------|--------------------|--------------------|--------------------|------------|
| May | 32,165,466 | 29,316,396 | 13,965,000 | 15,351,396 | 52% |
| June | 31,384,794 | 28,529,471 | 17,234,000 | 11,295,471 | 40% |
| July | 32,883,420 | 29,471,535 | 15,244,000 | 14,227,535 | 48% |
| August | 32,549,086 | 29,315,310 | 25,604,000 | 3,711,310 | 13% |
| September | 31,309,157 | 28,013,761 | 16,203,000 | 11,810,761 | 42% |
| October | 33,443,850 | 28,591,134 | 15,746,000 | 12,845,134 | 45% |
| November | 31,171,628 | 28,675,238 | 22,826,000 | 5,849,238 | 20% |
| December | 36,183,694 | 32,301,043 | 13,534,000 | 18,767,043 | 58% |
| January | 36,338,704 | 32,526,909 | 17,573,000 | 14,953,909 | 46% |
| February | 32,295,430 | 28,982,232 | 12,742,000 | 16,240,232 | 56% |
| March | 34,122,984 | 26,662,893 | 13,820,000 | 12,842,893 | 48% |
| April | 30,913,662 | 27,649,445 | 15,878,000 | 11,771,445 | 43% |
| Total | 394,761,875 | 350,035,367 | 200,369,000 | 149,666,367 | 43% |

Real Cost of Water Loss \$ 901,212 \$ 515,876 \$ 385,336

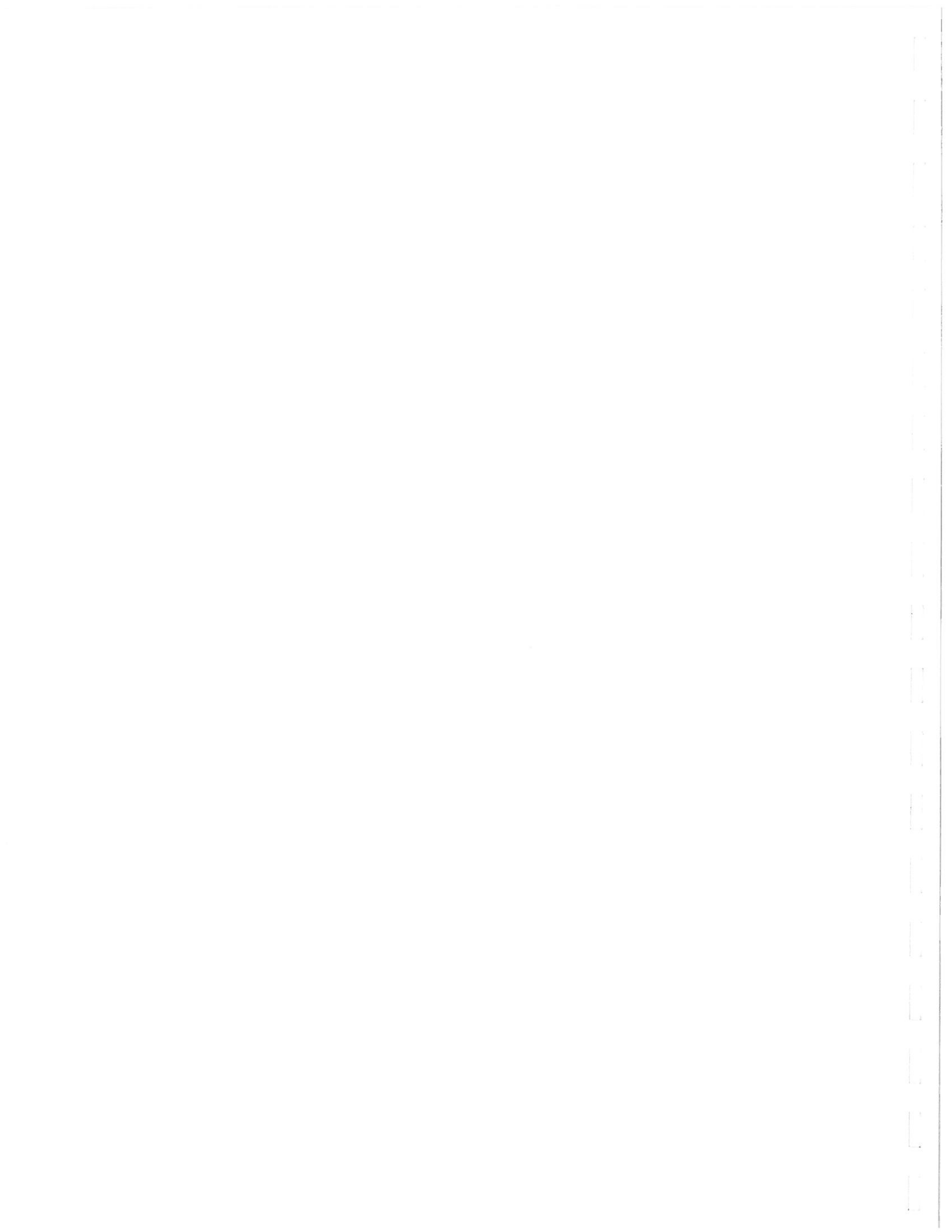
| | |
|--------------------------------|----------------|
| Total Treated Water (1,000gal) | 350,035.37 |
| Total Production Cost | 901,212 |
| Cost per 1,000 gallons | \$ 2.57 |



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Usage Analysis



Total Customer Distribution

| | Average Usage | # of Customers | % of Customers | Total Annual Water Usage | % of Usage |
|--------------|---------------|----------------|----------------|--------------------------|-------------|
| Under 1000 | 0.73 | 462 | 22% | 4,025 | 3.3% |
| 1001-2000 | 1.99 | 462 | 22% | 11,031 | 9.2% |
| 2001-3000 | 2.98 | 341 | 16% | 12,186 | 10.1% |
| 3001-4000 | 3.95 | 315 | 15% | 14,916 | 12.4% |
| 4001-5000 | 4.99 | 174 | 8% | 10,429 | 8.7% |
| 5001-6000 | 5.98 | 123 | 6% | 8,823 | 7.3% |
| 6001-7000 | 7.01 | 66 | 3% | 5,549 | 4.6% |
| 7001-8000 | 8.03 | 42 | 2% | 4,046 | 3.4% |
| 8001-9000 | 8.72 | 27 | 1% | 2,824 | 2.3% |
| 9001-10000 | 9.93 | 20 | 1% | 2,383 | 2.0% |
| 10001-11000 | 10.95 | 14 | 1% | 1,839 | 1.5% |
| 11001-12000 | 11.01 | 7 | 0% | 925 | 0.8% |
| 12001-13000 | 13.07 | 6 | 0% | 941 | 0.8% |
| 13001-14000 | 13.96 | 2 | 0% | 335 | 0.3% |
| 14001-15000 | 16.19 | 4 | 0% | 777 | 0.6% |
| 15001-16000+ | 68.17 | 48 | 2% | 39,267 | 32.6% |
| TOTAL | | 2,113 | 100% | 120,296 | 100% |

Wholesale

| | Average Usage | % of Customers | Total Annual Water Usage | % of Usage |
|------------------------------|---------------|----------------|--------------------------|------------|
| WATER DISTRICT, BREATHITT CO | 5,002 | 0.05% | 59,360 | 100% |

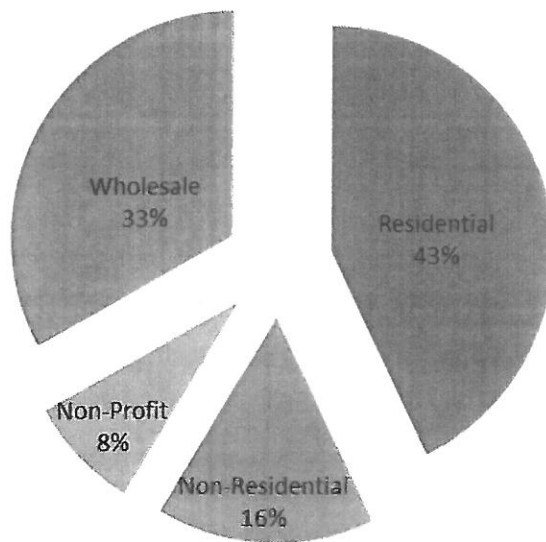
Total Annual Consumption 179,656
Total Number of Customers 2,114



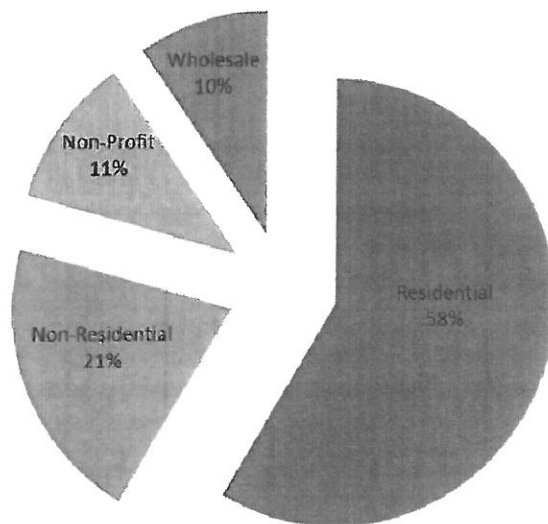
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Customer Usage



Revenue Breakdown



Base Equity Test

| | Average Usage | Billable Units | # of Customers | % of Customers | Total Annual Water Usage | % of Usage | Base Rate | Usage Rate | Avg. Monthly Bill | Annual Revenue | % of Revenue | Target Revenue | Equity Test |
|--------------|---------------|----------------|----------------|----------------|--------------------------|----------------|------------------|------------------|-------------------|---------------------|---------------|----------------|-------------|
| Under 1000 | 0.73 | - | 462 | 22% | 4,025 | 3.35% | 7,642.07 | - | 16.54 | 91,704.81 | 7.86% | 12,61% | -4.74% |
| 1001-2000 | 1.99 | - | 462 | 22% | 11,031 | 9.17% | 7,642.07 | - | 16.54 | 91,704.81 | 7.86% | 15,52% | -7.65% |
| 2001-3000 | 2.98 | 1.0 | 341 | 16% | 12,186 | 10.13% | 5,640.57 | 2,756.59 | 24.63 | 100,765.96 | 8.64% | 13.13% | -4.49% |
| 3001-4000 | 3.95 | 1.9 | 315 | 15% | 14,916 | 12.40% | 5,210.50 | 5,086.84 | 32.63 | 123,328.05 | 10.58% | 13.65% | -3.08% |
| 4001-5000 | 4.99 | 3.0 | 174 | 8% | 10,429 | 8.67% | 2,878.18 | 4,307.09 | 41.29 | 86,223.20 | 7.39% | 8.45% | -1.06% |
| 5001-6000 | 5.98 | 4.0 | 123 | 6% | 8,823 | 7.33% | 2,034.58 | 4,043.96 | 49.42 | 72,942.47 | 6.25% | 6.58% | -0.32% |
| 6001-7000 | 7.01 | 5.0 | 66 | 3% | 5,549 | 4.61% | 1,091.72 | 2,731.10 | 57.92 | 45,873.93 | 3.93% | 3.87% | 0.07% |
| 7001-8000 | 8.03 | 6.0 | 42 | 2% | 4,046 | 3.36% | 694.73 | 2,092.58 | 66.36 | 33,447.80 | 2.87% | 2.68% | 0.19% |
| 8001-9000 | 8.72 | 6.7 | 27 | 1% | 2,824 | 2.35% | 446.61 | 1,498.84 | 72.05 | 23,345.40 | 2.00% | 1.81% | 0.19% |
| 9001-10000 | 9.93 | 7.9 | 20 | 1% | 2,383 | 1.98% | 330.83 | 1,310.79 | 82.08 | 19,698.41 | 1.69% | 1.46% | 0.23% |
| 10001-11000 | 10.95 | 8.9 | 14 | 1% | 1,839 | 1.53% | 231.58 | 1,035.27 | 90.49 | 15,202.18 | 1.30% | 1.10% | 0.21% |
| 11001-12000 | 11.01 | 9.0 | 7 | 0% | 925 | 0.77% | 115.79 | 521.42 | 91.03 | 7,646.55 | 0.66% | 0.55% | 0.11% |
| 12001-13000 | 13.07 | 11.1 | 6 | 0% | 941 | 0.78% | 99.25 | 548.98 | 108.04 | 7,778.68 | 0.67% | 0.53% | 0.13% |
| 13001-14000 | 13.96 | 12.0 | 2 | 0% | 335 | 0.28% | 33.08 | 197.69 | 115.38 | 2,789.23 | 0.24% | 0.19% | 0.05% |
| 14001-15000 | 16.19 | 14.2 | 4 | 0% | 777 | 0.65% | 66.17 | 469.07 | 133.81 | 6,422.88 | 0.55% | 0.42% | 0.13% |
| 15001-16000+ | 68.17 | 66.2 | 48 | 2% | 39,267 | 32.84% | 793.98 | 26,253.73 | 563.49 | 324,572.49 | 27.83% | 17.46% | 10.37% |
| Total | | | 2,113 | 100% | 120,296 | 100.00% | 34,951.71 | 52,833.95 | | 1,053,427.86 | 90.33% | 100.00% | |

Wholesale

| | Average Usage | Billable Units | # of Customers | % of Customers | Total Annual Water Usage | % of Usage | Base Rate | Usage Rate | Avg. Monthly Bill | Annual Revenue | % of Revenue | Target Revenue | Equity Test |
|-----------------------------|---------------|----------------|----------------|----------------|--------------------------|------------|-----------|------------|-------------------|----------------|--------------|----------------|-------------|
| WATER DISTRICT, BREATHTT CO | 5,002 | - | 1 | 0.05% | 59,360 | 100.00% | - | 9,503.80 | 9,503.80 | 112,784.00 | 9.67% | 10.07% | -0.39% |

Current Rates:

| | | | | | |
|--------------------------|----------|---------------------------|--------------|------------------------------|-----------|
| Minimum Bill | \$ 16.54 | Total Annual Consumption | 179,656 | Full Cost of Providing Water | 1,515,563 |
| Variable (per 1,000 gal) | \$ 8.27 | Total Number of Customers | 2,114 | Revenue Generated | 1,166,212 |
| Wholesale rate | \$ 1.90 | Total Revenue | \$ 1,166,212 | Net Loss | 349,351 |

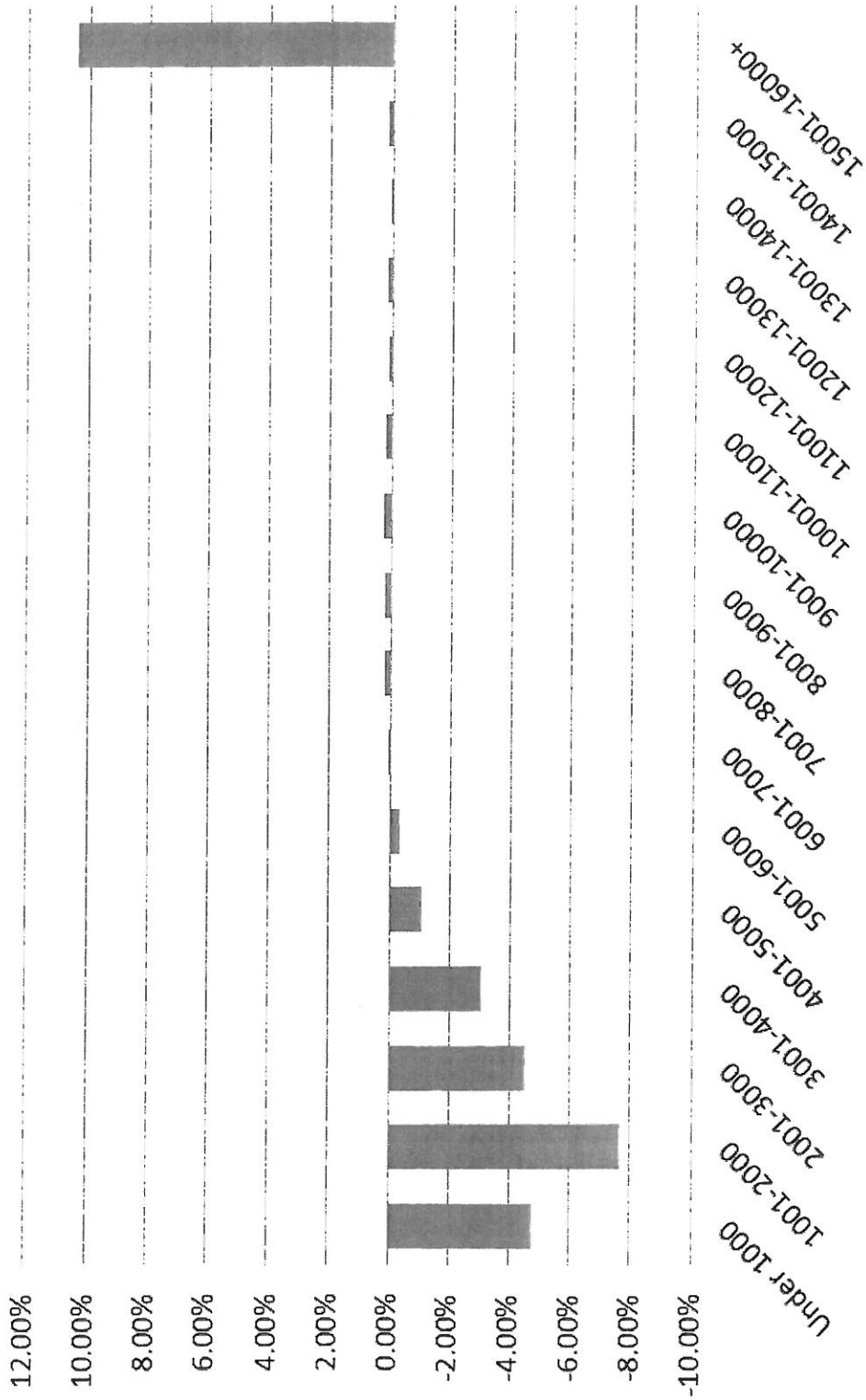
*Rates Prior to November 2011 Wholesale Rate Increase



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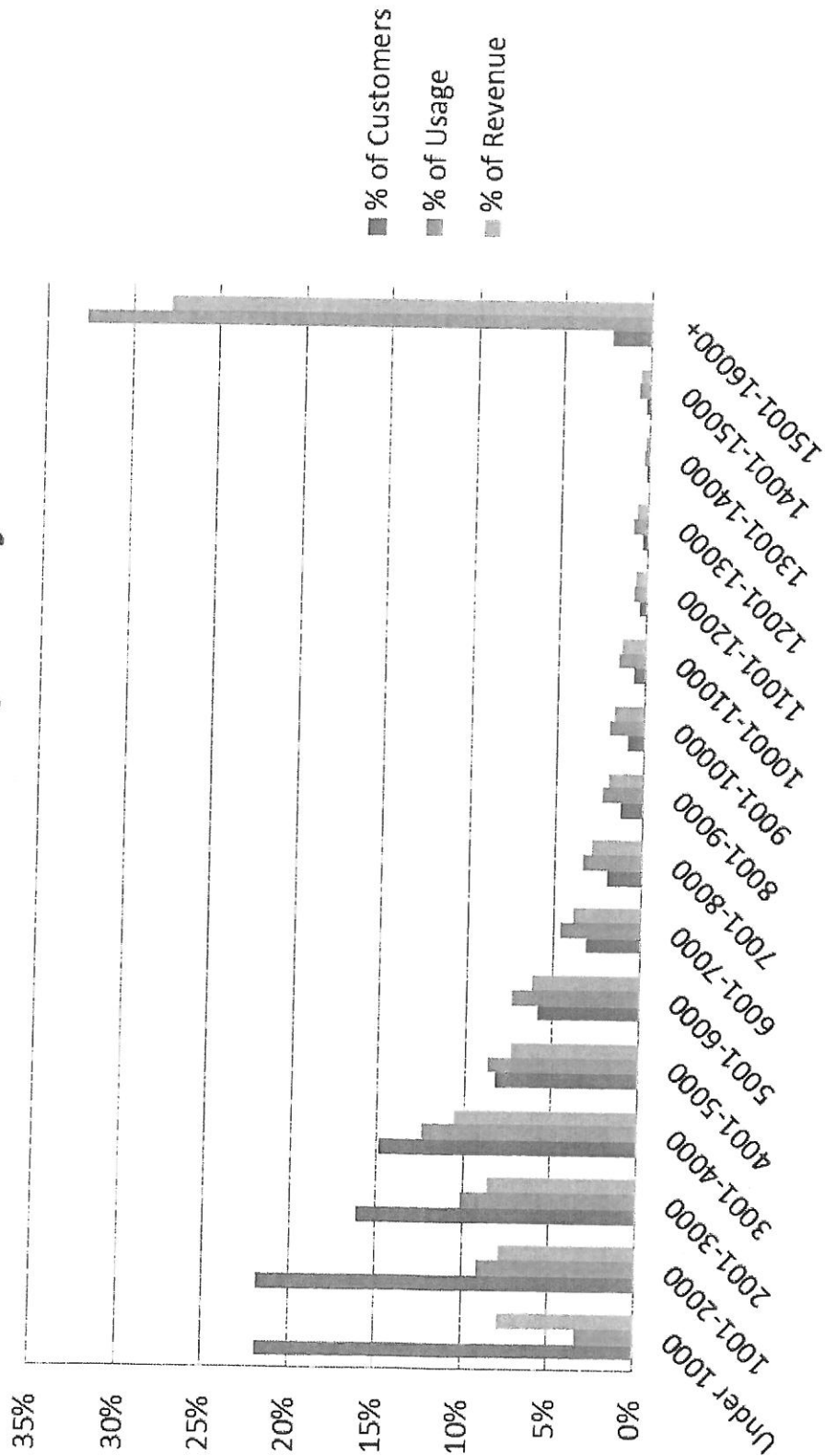
Base Equity Test



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Base Equity Analysis



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Recommendations

Short-Term

1. Water Rate Increase

A water rate increase is the quickest and easiest way to increase water revenues. When water system expenses continually exceed revenues, a rate increase is normally needed to quickly reduce the financial burden for the water system. This allows spending on operations and maintenance to continue as well as provides immediate financial assistance for necessary water system improvements.

Rate Structure Guidelines

It is the governing board's responsibility to select a rate structure that is fair and equitable to all ratepayers and produces enough revenues to successfully operate the business.

- Rate structure should be simple and easy to administer.
- Rates should be fair and equitable.
- Utility rates should promote the lifestyle and development goals of the community.
- Rates should cover the full cost of providing the utility service.
- Rates should be reviewed and adjusted on an annual basis.

Rate Structure

| | Scenario (1) Current Rates | Scenario (2) 30% Rate Increase | Scenario (3) New Rate Structure |
|--|-------------------------------|-----------------------------------|------------------------------------|
| Water/Sewer Customers | | | |
| Minimum Charge | \$ 13.43 | \$ 17.46 | \$ 30.00 |
| Usage Charge | \$ 6.71 | \$ 8.72 | \$ 7.75 |
| Water Only Customers | | | |
| Minimum Charge | \$ 19.63 | \$ 25.52 | \$ 30.00 |
| Usage Charge | \$ 9.81 | \$ 12.75 | \$ 7.75 |
| Wholesale | \$ 2.90 | \$ 2.90 | \$ 2.90 |
| Average Rates | | | |
| Residential | | | |
| Water & Sewer | \$ 23.29 | \$ 30.28 | \$ 41.39 |
| Water Only | \$ 34.05 | \$ 44.27 | \$ 41.39 |
| Non-Residential | | | |
| Water & Sewer | \$ 90.77 | \$ 118.00 | \$ 119.33 |
| Water Only | \$ 132.70 | \$ 172.51 | \$ 119.33 |
| Residential Monthly Average Usage Per Customer | | 3.47 | |
| Non-Residential Monthly Average Usage Per Customer | | 13.53 | |

*Average rates based on historical usage analysis.



Scenario (1)

| | Average Usage | Billable Units | # of Customers | % of Customers | Total Annual Water Usage | % of Usage | Base Rate | Usage Rate | Avg. Monthly Bill | Annual Revenue | % of Revenue | Target Revenue | Equity Test |
|--------------|---------------|----------------|----------------|----------------|--------------------------|----------------|------------------|------------------|-------------------|---------------------|---------------|----------------|-------------|
| Under 1000 | 0.73 | - | 462 | 22% | 4,025 | 3.35% | 7,642.07 | - | 16.54 | 91,704.81 | 7.48% | 12.61% | -5.12% |
| 1001-2000 | 1.99 | - | 462 | 22% | 11,031 | 9.17% | 7,642.07 | - | 16.54 | 91,704.81 | 7.48% | 15.52% | -8.03% |
| 2001-3000 | 2.98 | 1.0 | 341 | 16% | 12,186 | 10.13% | 5,640.57 | 2,756.59 | 24.63 | 100,765.96 | 8.22% | 13.13% | -4.91% |
| 3001-4000 | 3.95 | 1.9 | 315 | 15% | 14,916 | 12.40% | 5,210.50 | 5,066.84 | 32.63 | 123,328.05 | 10.06% | 13.65% | -3.59% |
| 4001-5000 | 4.99 | 3.0 | 174 | 8% | 10,429 | 8.67% | 2,878.18 | 4,307.09 | 41.29 | 86,223.20 | 7.04% | 8.45% | -1.42% |
| 5001-6000 | 5.98 | 4.0 | 123 | 6% | 8,823 | 7.33% | 2,034.58 | 4,043.96 | 49.42 | 72,942.47 | 5.95% | 6.58% | -0.63% |
| 6001-7000 | 7.01 | 5.0 | 66 | 3% | 5,549 | 4.61% | 1,091.72 | 2,731.10 | 57.92 | 45,873.93 | 3.74% | 3.87% | -0.13% |
| 7001-8000 | 8.03 | 6.0 | 42 | 2% | 4,046 | 3.36% | 694.73 | 2,092.58 | 66.36 | 33,447.80 | 2.73% | 2.68% | 0.05% |
| 8001-9000 | 8.72 | 6.7 | 27 | 1% | 2,824 | 2.35% | 446.61 | 1,498.84 | 72.05 | 23,345.40 | 1.90% | 1.81% | 0.09% |
| 9001-10000 | 9.93 | 7.9 | 20 | 1% | 2,383 | 1.98% | 330.83 | 1,310.79 | 82.08 | 19,699.41 | 1.61% | 1.46% | 0.14% |
| 10001-11000 | 10.95 | 8.9 | 14 | 1% | 1,839 | 1.53% | 231.58 | 1,035.27 | 90.49 | 15,202.18 | 1.24% | 1.10% | 0.14% |
| 11001-12000 | 11.01 | 9.0 | 7 | 0% | 925 | 0.77% | 115.79 | 521.42 | 91.03 | 7,646.55 | 0.62% | 0.55% | 0.07% |
| 12001-13000 | 13.07 | 11.1 | 6 | 0% | 941 | 0.78% | 99.25 | 548.98 | 108.04 | 7,778.68 | 0.63% | 0.53% | 0.10% |
| 13001-14000 | 13.96 | 12.0 | 2 | 0% | 335 | 0.28% | 33.08 | 197.69 | 115.38 | 2,789.23 | 0.23% | 0.19% | 0.04% |
| 14001-15000 | 16.19 | 14.2 | 4 | 0% | 777 | 0.65% | 66.17 | 469.07 | 133.81 | 6,422.88 | 0.52% | 0.42% | 0.11% |
| 15001-16000+ | 68.17 | 66.2 | 48 | 2% | 39,267 | 32.64% | 793.98 | 26,253.73 | 563.49 | 324,572.49 | 26.48% | 17.46% | 9.03% |
| Total | | | 2,113 | 100% | 120,296 | 100.00% | 34,951.71 | 52,833.95 | | 1,053,427.86 | 85.95% | 100.00% | |

Wholesale

| | Average Usage | Billable Units | # of Customers | % of Customers | Total Annual Water Usage | % of Usage | Base Rate | Usage Rate | Avg. Monthly Bill | Annual Revenue | % of Revenue | Target Revenue | Equity Test |
|-----------------------------|---------------|----------------|----------------|----------------|--------------------------|------------|-----------|------------|-------------------|----------------|--------------|----------------|-------------|
| WATER DISTRICT, BREATHTT CO | 5,002 | - | 1 | 0.05% | 59,360 | 100.00% | - | 14,505.80 | 14,505.80 | 172,144.00 | 14.05% | 10.07% | 3.98% |

Scenario Rates:

| | | | | | |
|--------------------------|----------|---------------------------|--------------|---------------------------------|-----------|
| Minimum Bill | \$ 16.54 | Total Annual Consumption | 179,656 | Full Cost of Providing Water | 1,515,563 |
| Variable (per 1,000 gal) | \$ 8.27 | Total Number of Customers | 2,114 | Revenue Generated From Scenario | 1,225,572 |
| Wholesale rate | \$ 2.90 | Total Revenue | \$ 1,225,572 | Net Loss | 289,991 |

*This scenario is based on a \$1.00 wholesale rate increase that took effect November 1, 2011. This rate increase resulted in additional wholesale water revenues of \$59,360; however, without any further changes to the water system Jackson will continue to have an estimated loss of \$289,991.



Scenario (2)

| | Average Usage | Billable Units | # of Customers | % of Customers | Total Annual Water Usage | % of Usage | Base Rate | Usage Rate | Avg. Monthly Bill | Annual Revenue | % of Revenue | Target Revenue | Equity Test |
|--------------|---------------|----------------|----------------|----------------|--------------------------|----------------|------------------|------------------|-------------------|---------------------|---------------|----------------|-------------|
| Under 1000 | 0.73 | - | 462 | 22% | 4,025 | 3.35% | 9,934.69 | - | 21.50 | 119,216.26 | 7.73% | 12.61% | -4.87% |
| 1001-2000 | 1.99 | - | 462 | 22% | 11,031 | 9.17% | 9,934.69 | - | 21.50 | 119,216.26 | 7.73% | 15.52% | -7.78% |
| 2001-3000 | 2.98 | 1.0 | 341 | 16% | 12,186 | 10.13% | 7,332.75 | 3,583.57 | 32.01 | 130,995.75 | 8.50% | 13.13% | -4.64% |
| 3001-4000 | 3.95 | 1.9 | 315 | 15% | 14,916 | 12.40% | 6,773.65 | 6,586.89 | 42.41 | 160,326.46 | 10.40% | 13.65% | -3.25% |
| 4001-5000 | 4.99 | 3.0 | 174 | 8% | 10,429 | 8.67% | 3,741.64 | 5,599.21 | 53.68 | 112,090.16 | 7.27% | 8.45% | -1.18% |
| 5001-6000 | 5.98 | 4.0 | 123 | 6% | 8,823 | 7.33% | 2,644.95 | 5,257.15 | 64.24 | 94,825.11 | 6.15% | 6.58% | -0.43% |
| 6001-7000 | 7.01 | 5.0 | 66 | 3% | 5,549 | 4.61% | 1,419.24 | 3,550.44 | 75.30 | 59,636.11 | 3.87% | 3.87% | 0.00% |
| 7001-8000 | 8.03 | 6.0 | 42 | 2% | 4,046 | 3.36% | 903.15 | 2,720.36 | 86.27 | 43,482.14 | 2.82% | 2.68% | 0.15% |
| 8001-9000 | 8.72 | 6.7 | 27 | 1% | 2,824 | 2.35% | 580.60 | 1,948.49 | 93.67 | 30,349.01 | 1.97% | 1.81% | 0.16% |
| 9001-10000 | 9.93 | 7.9 | 20 | 1% | 2,383 | 1.98% | 430.07 | 1,704.03 | 106.71 | 25,609.23 | 1.66% | 1.48% | 0.20% |
| 10001-11000 | 10.95 | 8.9 | 14 | 1% | 1,839 | 1.53% | 301.05 | 1,345.85 | 117.64 | 19,762.84 | 1.28% | 1.10% | 0.19% |
| 11001-12000 | 11.01 | 9.0 | 7 | 0% | 925 | 0.77% | 150.53 | 677.85 | 118.34 | 9,940.52 | 0.64% | 0.55% | 0.09% |
| 12001-13000 | 13.07 | 11.1 | 6 | 0% | 941 | 0.78% | 129.02 | 713.67 | 140.45 | 10,112.29 | 0.66% | 0.53% | 0.12% |
| 13001-14000 | 13.96 | 12.0 | 2 | 0% | 335 | 0.28% | 43.01 | 256.99 | 150.00 | 3,600.00 | 0.23% | 0.19% | 0.05% |
| 14001-15000 | 16.19 | 14.2 | 4 | 0% | 777 | 0.65% | 86.01 | 609.80 | 173.95 | 8,349.74 | 0.54% | 0.42% | 0.12% |
| 15001-16000+ | 68.17 | 66.2 | 48 | 2% | 39,267 | 32.64% | 1,032.18 | 34,129.84 | 732.54 | 421,944.24 | 27.37% | 17.48% | 9.91% |
| Total | | | 2,113 | 100% | 120,296 | 100.00% | 45,437.22 | 68,694.13 | | 1,369,456.22 | 88.83% | 100.00% | |

Wholesale

| | Average Usage | Billable Units | # of Customers | % of Customers | Total Annual Water Usage | % of Usage | Base Rate | Usage Rate | Avg. Monthly Bill | Annual Revenue | % of Revenue | Target Revenue | Equity Test |
|------------------------------|---------------|----------------|----------------|----------------|--------------------------|------------|--------------|------------|-------------------|---------------------------------|--------------|----------------|-------------|
| WATER DISTRICT, BREATHITT CO | 5,002 | - | 1 | 0.05% | 59,360 | 100.00% | - | 14,505.80 | 14,505.80 | 172,144.00 | 11.17% | 10.07% | 1.10% |
| Scenario Rates: | | | | | | | | | | | | | |
| Minimum Bill | \$ 21.50 | | | | | | 179,656 | | | Full Cost of Providing Water | | | 1,515,563 |
| Variable (per 1,000 gal) | \$ 10.75 | | | | | | 2,114 | | | Revenue Generated From Scenario | | | 1,541,600 |
| Wholesale rate | \$ 2.90 | | | | | | \$ 1,541,600 | | | Net Income | | | 26,037 |

*This scenario is based on a \$1.00 wholesale rate increase and a 30% city rate increase. This combination of rate increases results in additional water revenues of \$375,388 and sufficiently provides enough revenues for sustained operations. The only issue remaining is that it does not solve the imbalance of equity among all user groups.



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Scenario (3)

| | Average Usage | Billable Units | # of Customers | % of Customers | Total Annual Water Usage | % of Usage | Base Rate | Usage Rate | Avg. Monthly Bill | Annual Revenue | % of Revenue | Target Revenue | Equity Test |
|--------------|---------------|----------------|----------------|----------------|--------------------------|----------------|------------------|------------------|-------------------|---------------------|---------------|----------------|-------------|
| Under 1000 | 0.73 | - | 462 | 22% | 4,025 | 3.35% | 13,860.00 | - | 30.00 | 166,320.00 | 10.89% | 12.61% | -1.72% |
| 1001-2000 | 1.99 | - | 462 | 22% | 11,031 | 9.17% | 13,860.00 | - | 30.00 | 166,320.00 | 10.89% | 15.52% | -4.63% |
| 2001-3000 | 2.98 | 1.0 | 341 | 16% | 12,186 | 10.13% | 10,230.00 | 2,584.63 | 37.58 | 153,775.50 | 10.07% | 13.13% | -3.07% |
| 3001-4000 | 3.95 | 1.9 | 315 | 15% | 14,916 | 12.40% | 9,450.00 | 4,750.75 | 45.08 | 170,409.02 | 11.16% | 13.65% | -2.50% |
| 4001-5000 | 4.99 | 3.0 | 174 | 8% | 10,429 | 8.67% | 5,220.00 | 4,038.40 | 53.21 | 111,100.75 | 7.27% | 8.45% | -1.18% |
| 5001-6000 | 5.98 | 4.0 | 123 | 6% | 8,823 | 7.33% | 3,690.00 | 3,791.69 | 60.83 | 89,780.25 | 5.88% | 6.56% | -0.70% |
| 6001-7000 | 7.01 | 5.0 | 66 | 3% | 5,549 | 4.61% | 1,980.00 | 2,560.73 | 68.80 | 54,488.75 | 3.57% | 3.87% | -0.30% |
| 7001-8000 | 8.03 | 6.0 | 42 | 2% | 4,046 | 3.36% | 1,260.00 | 1,962.04 | 76.72 | 38,664.50 | 2.53% | 2.68% | -0.14% |
| 8001-9000 | 8.72 | 6.7 | 27 | 1% | 2,824 | 2.35% | 810.00 | 1,405.33 | 82.05 | 26,584.00 | 1.74% | 1.81% | -0.07% |
| 9001-10000 | 9.93 | 7.9 | 20 | 1% | 2,383 | 1.98% | 600.00 | 1,229.02 | 91.45 | 21,948.25 | 1.44% | 1.46% | -0.03% |
| 10001-11000 | 10.95 | 8.9 | 14 | 1% | 1,839 | 1.53% | 420.00 | 970.69 | 99.33 | 16,688.25 | 1.09% | 1.10% | 0.00% |
| 11001-12000 | 11.01 | 9.0 | 7 | 0% | 925 | 0.77% | 210.00 | 488.90 | 99.84 | 8,386.75 | 0.55% | 0.55% | 0.00% |
| 12001-13000 | 13.07 | 11.1 | 6 | 0% | 941 | 0.78% | 180.00 | 514.73 | 115.79 | 8,336.75 | 0.55% | 0.53% | 0.01% |
| 13001-14000 | 13.96 | 12.0 | 2 | 0% | 335 | 0.28% | 60.00 | 185.35 | 122.68 | 2,944.25 | 0.19% | 0.19% | 0.01% |
| 14001-15000 | 16.19 | 14.2 | 4 | 0% | 777 | 0.65% | 120.00 | 439.81 | 139.95 | 6,717.75 | 0.44% | 0.42% | 0.02% |
| 15001-16000+ | 68.17 | 66.2 | 48 | 2% | 39,267 | 32.64% | 1,440.00 | 24,615.94 | 542.83 | 312,671.25 | 20.47% | 17.46% | 3.02% |
| Total | | | 2,113 | 100% | 120,296 | 100.00% | 63,390.00 | 49,538.00 | | 1,355,136.02 | 88.73% | 100.00% | |

Wholesale

| | Average Usage | Billable Units | # of Customers | % of Customers | Total Annual Water Usage | % of Usage | Base Rate | Usage Rate | Avg. Monthly Bill | Annual Revenue | % of Revenue | Target Revenue | Equity Test |
|-----------------------------|---------------|----------------|----------------|----------------|--------------------------|------------|-----------|------------|-------------------|----------------|--------------|----------------|-------------|
| WATER DISTRICT, BREATHTT CO | 5,002 | - | 1 | 0.05% | 59,360 | 100.00% | - | 14,505.80 | 14,505.80 | 172,144.00 | 11.27% | 10.07% | 1.21% |

Scenario Rates:

| | | | | | |
|--------------------------|----------|---------------------------|--------------|---------------------------------|-----------|
| Minimum Bill | \$ 30.00 | Total Annual Consumption | 179,656 | Full Cost of Providing Water | 1,515,563 |
| Variable (per 1,000 gal) | \$ 7.75 | Total Number of Customers | 2,114 | Revenue Generated From Scenario | 1,527,280 |
| Wholesale rate | \$ 2.90 | Total Revenue | \$ 1,527,280 | Net Income | 11,717 |

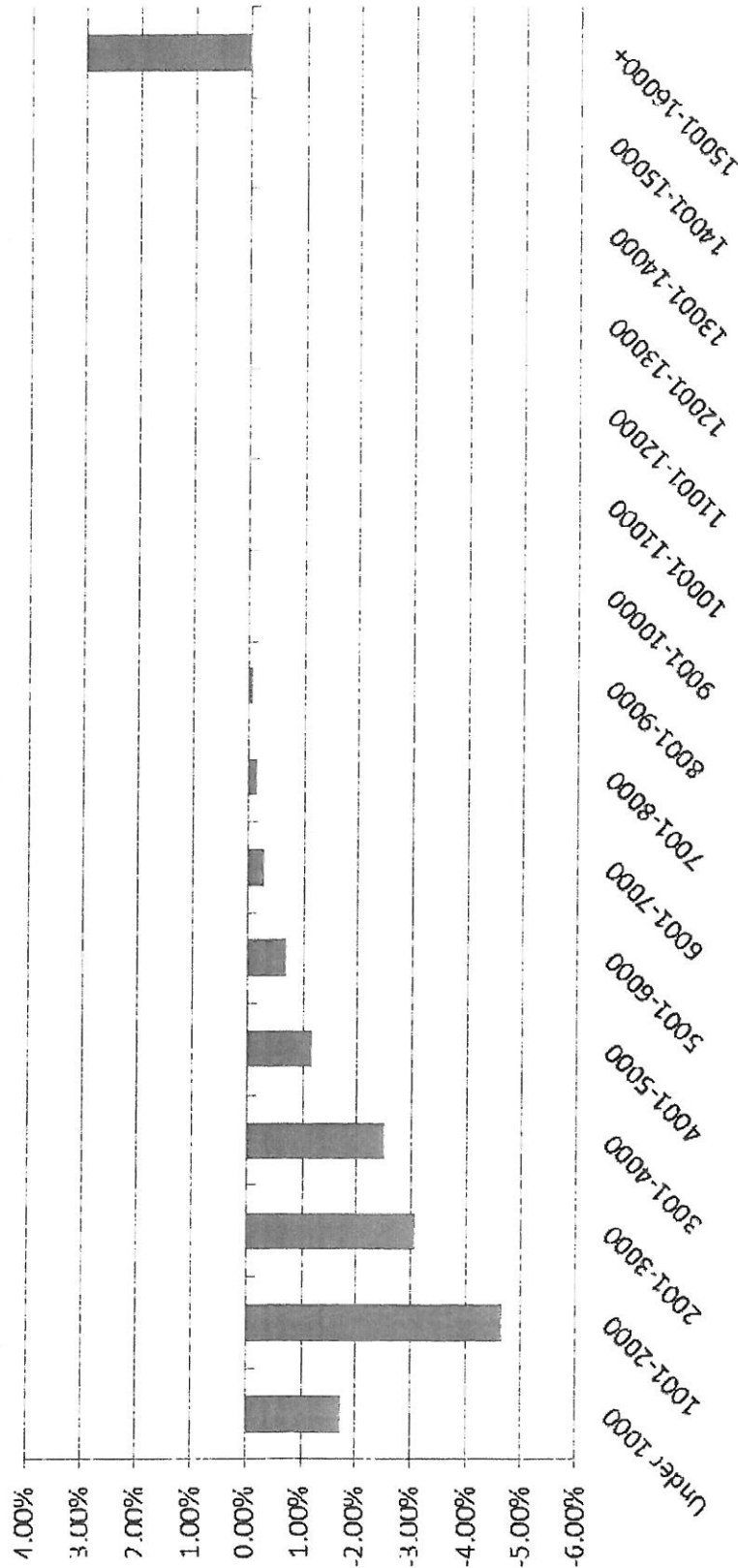
*This scenario is based on a \$1.00 wholesale rate increase and a restructured city rate increase based on a fair and equitable rate structure. These changes sufficiently provide enough revenues for sustained operations and reduces the gap of inequity for the City of Jackson Waterworks.



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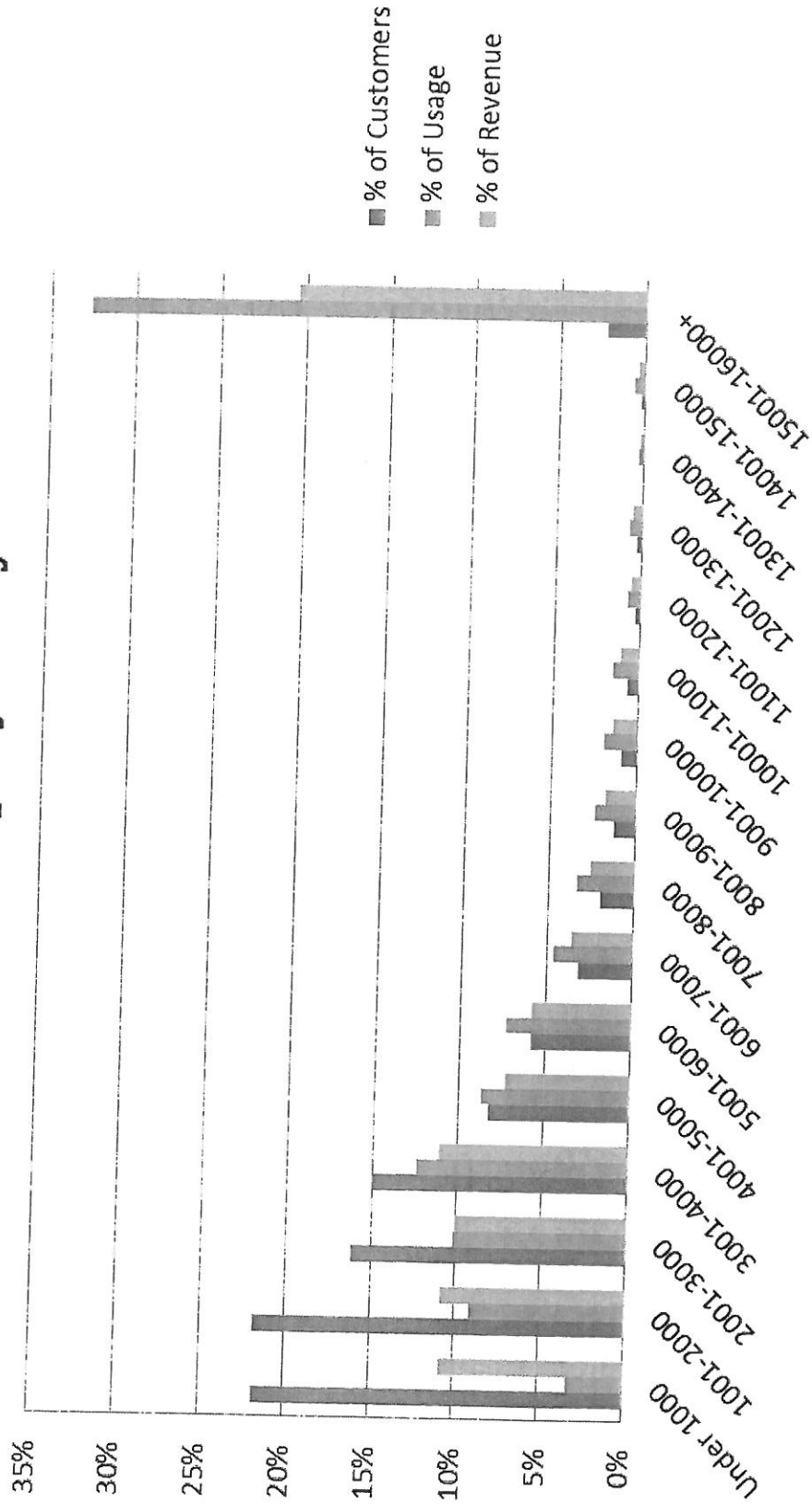
Equity Test



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Base Equity Analysis



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Affordability Standards

What Are Affordable Rates? Consider these numbers:

| | | |
|-----------|---------------|-------------|
| CDBG | Water Only | \$18.00 |
| | Water & Sewer | \$36.00 |
| USDA / RD | Water Only | 1.5% of MHI |
| | Water & Sewer | 3.0% of MHI |

| Affordability Test | | | | | |
|--------------------|----------|----------|----------|----------|----------|
| MHI | 1.0% | 1.5% | 2.0% | 2.5% | 3.0% |
| \$ 10,000.00 | \$ 8.33 | \$ 12.50 | \$ 16.67 | \$ 20.83 | \$ 25.00 |
| \$ 12,000.00 | \$ 10.00 | \$ 15.00 | \$ 20.00 | \$ 25.00 | \$ 30.00 |
| \$ 14,000.00 | \$ 11.67 | \$ 17.50 | \$ 23.33 | \$ 29.17 | \$ 35.00 |
| \$ 16,000.00 | \$ 13.33 | \$ 20.00 | \$ 26.67 | \$ 33.33 | \$ 40.00 |
| \$ 18,000.00 | \$ 15.00 | \$ 22.50 | \$ 30.00 | \$ 37.50 | \$ 45.00 |
| \$ 20,000.00 | \$ 16.67 | \$ 25.00 | \$ 33.33 | \$ 41.67 | \$ 50.00 |
| \$ 22,000.00 | \$ 18.33 | \$ 27.50 | \$ 36.67 | \$ 45.83 | \$ 55.00 |
| \$ 24,000.00 | \$ 20.00 | \$ 30.00 | \$ 40.00 | \$ 50.00 | \$ 60.00 |
| \$ 26,000.00 | \$ 21.67 | \$ 32.50 | \$ 43.33 | \$ 54.17 | \$ 65.00 |
| \$ 28,000.00 | \$ 23.33 | \$ 35.00 | \$ 46.67 | \$ 58.33 | \$ 70.00 |
| \$ 30,000.00 | \$ 25.00 | \$ 37.50 | \$ 50.00 | \$ 62.50 | \$ 75.00 |

City of Jackson MHI: \$25,272

Communities charging less than 1.5% of MHI for water service should not feel remorseful about raising rates.



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Tips for Defending a Rate Increase

Defending a rate increase may be one of the most uncomfortable tasks for a water system's staff. It's important to understand, however, that many of the arguments against a rate increase are based on misperceptions, a lack of information, or false information. Here are some suggested responses to common arguments against rate increases.

The "We can't afford it!" Argument

Reason: Everyone is old and on a fixed income.

Response: *This profile probably fits most rural areas in Kentucky and all surrounding states. Everyone else is in the same boat.*

Reason: Gas, electric, and all my bills are increasing – we need a break!

Response: *Gas, electric, and everything else is also increasing for our utility system. We have to be able to pay our bills too!*

Reason: The economy in this area is tough right now.

Response: *When hasn't the economy been tight over the last two decades? At what point in the future do you think it will drastically change for this region? The longer we hold off on important maintenance and funding our reserves, the worse shape we will be in the future.*

The "You don't need it!" Argument

Reason: You can find ways to work with less!

Response: *We have been working with less for several years – we have not been investing in our replacement/sinking fund like we should have all along and the longer we wait to fund necessary repairs, the more expensive it will be when the time comes.*

Reason: You already have a million dollar plant, what more do you need?

Response: *It takes money to operate that plant, and it is one of the largest investments our community has ever made. Would you rather have this plant deteriorate to the point that we lose our investment?! It would be like buying a new car and then never performing the necessary service to properly maintain it.*

The “You don’t need it!” Argument (continued)

Reason: You don’t need to pay the employees so much. They make more than I do!

Response: *The operators are professionals. They had to go through a lot of training to get certified. They are responsible for one of the community’s biggest investments and they are responsible for the public health and safety of our water. Also, the job continues to get more complicated each year with new regulations. In the coming years, it is projected that there will be a nationwide shortage of qualified operators; we need to keep our operator as well as other staff to continue providing safe drinking water.*

Other Common Arguments

Reason: You just raised our taxes! Where are my tax dollars going?

Response: *In most cases tax dollars are not used to fund a utility. Local water and sewer utilities are supposed to be self-sustaining with the income from user charges and should not be funded with taxes.*

Reason: The people in the next town pay half as much as we do!

Response: *Their system is a lot different than ours. They may have a larger customer base, so there are more people to spread around the burden of fixed costs. They may have significantly different treatment requirements. They also may not be fully funding the system the way they should and a significant rate hike may possibly be in their future.*

Short-Term Continued

2. Customer Billing

Ensure every customer connected to the water supply is metered and receiving a separate and accurate bill each month. Create strict policies on water theft and damage to meters and water system assets.

3. Accounts Receivable

If the collection and shut-off policies are not being strictly enforced, the system is losing revenue. The customers who pay on time are subsidizing late payers. If there are large amounts of accounts receivable, consider reducing the amount of time customers are given to pay their bills. Also, the penalty for late payment is perhaps not high enough to encourage customers to pay on time.

4. Bulk Purchasing

Consider purchasing chemicals and supplies in bulk to save money. Try to coordinate with a nearby system to buy larger quantities or to purchase equipment that can be shared. Always get bids on high-cost items and periodically call vendors to ensure the water system is getting the best price on supplies.

5. Fees and Deposits

Review the current fee and deposit policies to make sure they reflect the cost of providing services. Does the tap fee really cover the full cost of hooking up a new customer? Does the service-fee cover the extra cost of night and weekend work? Make sure all of the policies are in writing.

Long-Term Recommendations

1. Water Meter Replacement Program

The U.S. Environmental Protection Agency (USEPA) gives water meters an estimated useful life of fifteen (15) years. If the meters currently used exceed fifteen years of usage there is a high probability that deterioration has significantly reduced the accuracy of the water meter. This inaccurate water reading could be contributing to the high water loss and depriving the city of earned water revenues.

2. Leak Detection Program

A leak detection program will reduce the amount of water loss and can instantly save money. The industry standard for water loss in a drinking water system is less than fifteen percent (15%).

3. Asset Management Plan

Asset Management Plans are created to ensure that each asset within the water system is being properly maintained. It also ensures that funding is available to perform regularly scheduled maintenance. Although it might cost more to maintain assets in the short-term, there is considerable savings in the long-term. By investing in asset management there can be reduced life-cycle cost, which is critical to maintaining standard performance. An Asset Management Plan enables water systems to provide safe drinking water at the lowest possible cost; water systems owe that to their communities!

4. Emergency Reserve Fund

Emergency situations can and will happen. It is always advantageous to prepare for these unexpected circumstances. An emergency reserve fund will provide needed funds in a time of distress.

5. Energy Audit

Water treatment and distribution systems are heavy energy consumers and with energy costs continuing to increase it quickly becomes apparent how important energy efficiency can be for a utility. RCAP energy audits are designed specifically for drinking water systems and a 20% average savings opportunity has been discovered at each system!

Summary

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Summary

As inflation and prices of necessary supplies and equipment continue to rise on a frequent basis, the total cost of fully operating and maintaining a sustainable water system has significantly increased. The City of Jackson needs to ensure their ability to provide safe, potable drinking water to their customers now and in the future.

RCAP recommends restructuring and increasing the City of Jackson's water rates. The current water rate structure provides a discount to customers who have both water and wastewater services. Although this can be beneficial to some customers, it does not provide a fair and equitable rate structure for the entire customer base. It is therefore recommended by RCAP to remove the current structure and provide an equivalent water rate for customers with water and/or wastewater services as recommended on page 22.

RCAP recommends a series of long-term system improvements be initiated, specifically aimed at reducing the system's high water loss. The suggested programs in the long-term recommendations to accomplish this goal are a meter replacement program, leak detection program, and asset management plan. System improvements created from these programs will reduce water loss, reduce expenses, and increase water revenues enabling the system to operate at a greater efficiency.

RCAP also highly recommends improving the system's accounting and billing software and investing in staff training for these programs to ensure accurate record keeping in the future. This will enable reports, and therefore future decisions made by city officials based on financial information, to be more precise.

The recommended water rate restructure and increase will provide the required financial revenues to sustain system operations in the short-term while the recommended long-term programs will enable the system to be sustainable well into the future. It is only with the combination of these recommendations that Jackson Waterworks will be able to achieve both a financially and operationally sustainable water system.



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