

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

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In the Matter of:

NOTICE OF ADJUSTMENT OF )  
RATES OF KENTUCKY-AMERICAN ) CASE NO. 8314  
WATER COMPANY )

O R D E R

PROCEDURAL BACKGROUND

On August 18, 1981, Kentucky-American Water Company, Inc., ("Kentucky-American") filed its notice with this Commission to increase its rates effective September 8, 1981. Kentucky-American, which provides water service to approximately 62,312 customers in central Kentucky, requested a general rate increase of 31.6 percent or \$3,426,320 in additional annual revenue. Kentucky-American stated that the additional revenue was necessary to offset increased operating and capital costs. In this Order, the Commission has allowed \$2,177,946 of additional revenue.

In order to determine the reasonableness of the request, the Commission, in an Order entered August 19, 1981, suspended the proposed rates for a period of 5 months after September 8, 1981, and held public hearings on September 21 and December 9, 1981, in the Commission's offices in Frankfort, Kentucky, following notice given pursuant to the Commission's regulations. The Consumer Protection Division of the Attorney General's Office ("Attorney General") was present and participated in the hearings. The Lexington-South Elkhorn Water District intervened but did not participate in the hearings.

Briefs were filed with the Commission on January 11, 1981, and the entire record, including Kentucky-American's responses to numerous requests for additional information, has been submitted for final determination.

Public Meeting

The Commission commends Kentucky-American for holding a public meeting in Lexington on November 12, 1981, to explain its requested rate increase to its consumers.

ANALYSIS AND DETERMINATION

Test Period

Kentucky-American proposed and the Commission has accepted the 12-month period ending May 31, 1981, as the test period in this matter. In accordance with Commission policy, appropriate pro forma adjustments have been included.

Kentucky River Station  
Treatment Facilities

On February 27, 1980, Kentucky-American filed with the Utility Regulatory Commission ("URC"), predecessor to this Commission, an application seeking URC approval of Kentucky-American's proposed expansion of its Kentucky River treatment facilities. That application became Case No. 7757.

Not surprisingly, in Case No. 7757 projected population growth in Fayette County produced considerable discussion -- and far less agreement. Although the URC approved the proposed construction, disagreement between two sets of population projections

caused the URC to insert the following unusual language in its Order approving the proposed improvements to the Kentucky River treatment facility:

Because of the magnitude of the variance of population projections of record in this matter with respect to Fayette County, the Commission questions the timeliness of the proposed construction. The Commission recognizes that expansion of plant capacity to meet future needs must include capacity in excess of needs existing at the time of construction completion. The Commission, however, is concerned that the proposed expansion may include plant capacity that may be greatly in excess of that needed for meeting the maximum daily demands in the near future. Further, the Commission is of the opinion that responsible management decisions should not result in gross over building of plant capacity.

The Commission, on the basis of the above, reminds the Utility the cost of unreasonable, excessive plant capacity may be excluded from consideration in the Utility's future applications for rate adjustments. (1)

Kentucky-American witness Mr. Edens provided population projections for Fayette County, as did Dr. Brockway, Director of Population Research, Urban Studies Center, University of Louisville. (It was especially appropriate that Dr. Brockway provide these data. The Urban Studies Center prepares the Commonwealth's official population estimates, and in this work (2) the Center works jointly with the U.S. Bureau of the Census.) In his testimony Dr. Brockway suggested that the model used by the Population Research unit to make population projections can be expected to produce results within 2 percent of actual, at least for larger geographical areas. (3)

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- (1) Case No. 7757, final Order, June 6, 1980, page 3.  
(2) Case No. 7757, Transcript of Evidence ("TE"), June 3, 1980, page 23.  
(3) Ibid., page 31.

Since the URC concluded Case No. 7757, the U.S. Bureau of Census has published the official 1980 population figure for Fayette County, and on the basis of that determination the Urban Studies Center has published revised population projections for Fayette County. Following are the three sets of projections:

<u>Year</u>	<u>POPULATION PROJECTIONS</u>		
	<u>Ky.-American</u>	<u>Urban Studies Center</u>	
		(4)	(5)
		<u>Initial</u>	<u>Revised</u>
1980	222,000	198,926	204,165*
1985	246,600	210,940	216,873
1990	274,100	223,359	230,111
1995	300,000	236,143	243,404

\*Actual population - U.S. Bureau of the Census

From the above data, several conclusions are obvious: Kentucky-American's figure for 1980 exceeded the Census Bureau determination by 8.7 percent, while Dr. Brockway's figure for 1980 was approximately 2.6 percent below that of the Census Bureau. More interestingly, however, Kentucky-American's projection for 1995 exceeds the Urban Studies Center's revised 1995 figures by 23.2 percent. The following table summarizes the growing discrepancy between the two projections:

(4) Ibid., April 1, 1980, page 14.

(5) Ibid., June 3, 1980, page 36.

(6) Case No. 8314, TE, December 9, 1981, pages 42-43. Figures for 1980, 1985 and 1990 are contained in material received from the Urban Studies Center, referred to in TE, page 43.

POPULATION PROJECTIONS

<u>Year</u>	<u>Ky.-American</u>	<u>Urban Center</u>	<u>Difference</u>
1985	246,600	216,873	+ 13.7%
1990	274,100	230,111	+ 19.1%
1995	300,000	243,404	+ 23.2%

In view of the discrepancy between the population projections presented by Kentucky-American in Case No. 7757 and the revised projections of the Urban Studies Center, and the failure of Kentucky-American in this proceeding to present tangible evidence of the necessity for the expansion of its Kentucky River treatment facilities, in order to determine the appropriateness of the expansion the Commission will order a thorough review by an independent consulting firm to be selected by the Commission and compensated by Kentucky-American.

Net Investment

Kentucky-American proposed a net investment rate base of \$41,994,504.<sup>(7)</sup> Subsequent to passage of the Economic Recovery Tax Act of 1981, Kentucky-American reduced its rate base by \$171,276<sup>(8)</sup> to reflect additional deferred taxes applicable to the normalization of the difference in tax depreciation and book depreciation for that portion of construction work in progress and out-of-period additions which have been or will be included in the rate base placed in service during the 1981 and 1982 calendar years. The Commission accepts the normalization method of

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(7) Notice, Exhibit 4, Schedule 2, page 1.

(8) Notice, Revised Exhibit 4, Schedule 2, page 1.

accounting for timing differences in book and tax depreciation under the new tax act for rate-making purposes and has thus accepted Kentucky-American's proposed adjustment.

The Commission has, moreover, made an adjustment to Kentucky-American's proposed cash working capital requirement. Since Kentucky-American bills the majority of its customers on a quarterly basis, it maintained that the Commission's formula for determining cash working capital using 45 days or 1/8 of adjusted operation and maintenance expenses was inadequate because it had a greater investment in daily funds. Kentucky-American performed a lead/lag study to determine its cash working capital requirements. While the Commission does not agree with certain specific "lead/lag days" for expenses incurred and paid, the effect is not material, and the Commission is of the opinion that the methodology Kentucky-American used is generally appropriate. Moreover, the resulting cash working capital allowance has proven to be reasonably accurate as the total net investment closely approximates investor-supplied capital including accumulated job development investment tax credits ("JDIC").

The Commission is, therefore, persuaded that the 45-day calculation of cash working capital is inappropriate in the computation of Kentucky-American's working capital needs because of its quarterly billing cycle. However, as a lead/lag study is both time-consuming and costly, the Commission is of the opinion

that a formula approach using 60 days or 1/6 of adjusted operation and maintenance expenses is preferable. It provides a similar working capital requirement and will be less expensive to Kentucky-American and its ratepayers in future rate proceedings. Thus the Commission has increased Kentucky-American's rate base by  
<sup>(9)</sup>  
 \$127,682.

Therefore, the Commission has determined Kentucky-American's net investment rate base to be as follows:

Utility Plant in Service	\$ 53,010,111
Construction Work in Progress	6,363,928
Prepayments	20,042
Materials and Supplies	223,984
Cash Working Capital	<u>1,028,554</u>
Sub-total	\$ 60,646,619
Less:	
Reserve for Depreciation and Amortization	\$ 7,755,395
Customer Advances for Construction	2,288,864
Contributions	3,365,829
Deferred Federal and State Taxes	3,494,402
Unamortized Investment Tax Credit	<u>279,283</u>
Sub-total	\$ 17,183,773
Net Original Cost Rate Base	\$ 43,462,846
Less:	
Plant Acquisition Adjustment	<u>\$ 1,511,936</u>
Net Investment	<u>\$ 41,950,910</u>

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(9) 1/6 (\$6,171,324 adjusted operation and maintenance expenses) = \$1,028,554.

### Capital

Kentucky-American's capital base at May 31, 1981, was \$39,608,807 including JDIC of \$1,115,900.<sup>(10)</sup> The Commission has increased the capital base \$2,271,451<sup>(11)</sup> to allow for the inclusion of the out-of-period additions included in Kentucky-American's net investment rate base as discussed above. The \$2,271,451 is composed of \$614,983<sup>(12)</sup> of JDIC and \$1,656,468<sup>(13)</sup> of investor-supplied capital.

### Revenues And Expenses

For the 12 months ending May 31, 1981, Kentucky-American had operating income of \$3,236,200.<sup>(14)</sup> Kentucky-American proposed several pro forma adjustments, including changes pursuant to the Economic Recovery Tax Act of 1981, which decreased its test period operating income to \$2,956,374.<sup>(15)</sup> The Commission finds the appropriate level of adjusted test period operating income to be \$3,045,843.

In its analysis of Kentucky-American's operations, the Commission has accepted the majority of its proposed pro forma adjustments, including wage, salary and related employee benefit

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- (10) Response to Staff Request No. 1, Item 2, page 2 of 2, line 12.  
(11) Notice, Exhibit 4, Schedule 2, line 5.  
(12) Notice, Exhibit 5, Schedule 25.  
(13) \$2,271,451 - \$614,983 = \$1,656,468.  
(14) Notice, Revised Exhibit 5, Schedule 1, page 1.  
(15) Ibid.



increases. The Commission has further accepted Kentucky-American's proposed reduction in its operating income adjustment for the increased cost of purchased power expenses of \$40,035.<sup>(16)</sup>

Moreover, the Commission has made the following adjustments:

Postage Expense

The Commission has increased the pro forma level of postage expenses of \$9,805 and \$1,163, respectively, to \$16,405 and \$2,183 or a combined increase of \$7,620 to reflect the increase in postal rates which became effective November 1, 1981. This adjustment reduces Kentucky-American's proposed operating income by \$3,868.<sup>(17)</sup>

Rate Case Expenses

Kentucky-American will incur legal fees of \$60,000 for the preparation and presentation of this rate case. Based on its experience with similar and larger rate cases, the Commission is concerned with the magnitude of this fee. For example, the Commission points out that in the recent Louisville Gas and Electric ("LG&E") proceeding (Case No. 8284, Order issued January 4, 1982), LG&E incurred only \$30,007 in legal fees for the preparation and presentation of its case before this Commission. Moreover, LG&E's attorneys were required to cross-examine more witnesses for intervenors than were Kentucky-American's counsel

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(16)  $\$1,761,995 - \$1,683,123 = \$78,872 \times 49.24\% = \$38,837.$   
(17)  $\$7,620 \times 49.24\% = \$3,752; \$7,620 - \$3,752 = \$3,868.$

in this case, as well as to respond to more informational requests on more complex issues and to represent LG&E in an additional public meeting prior to the formal hearings in Frankfort.

The Commission is of the opinion and finds that legal fees of \$60,000 for a case of this nature are excessive. Based upon the relative simplicity of the case, the issues involved, the rate increase proposed, the information requested, the participation of intervenors and the number and length of hearings, the Commission is of the opinion and finds that the ratepayers should be required to pay legal fees of no more than \$30,000 in this proceeding which increases Kentucky-American's proposed operating income by \$15,228.<sup>(18)</sup>

Tax Effect of Increased Debt Costs

Kentucky-American reported debt charges of \$2,338,307<sup>(19)</sup> for the period ended May 31, 1981. The amount of debt charges provided for herein is \$2,415,630, a difference of \$77,323. The income tax reduction on this differential is approximately \$38,074,<sup>(20)</sup> which the Commission finds is the appropriate adjustment to net operating income.

Therefore, the Commission finds that Kentucky-American's adjusted test period operations are as follows:

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(18)  $\$30,000 \times 49.24\% = \$14,772$ ;  $\$30,000 - 14,772 = \$15,228$ .

(19) Notice, Revised Exhibit 5, Schedule 1, page 2 of 2, line 23.

(20)  $\$77,323 \times 49.24\% = \$38,074$ .

	<u>Kentucky-American Adjusted</u>	<u>Commission Adjustments</u>	<u>Commission Adjusted</u>
Revenues	\$ 10,855,218	\$ -0-	\$ 10,855,218
Expenses	<u>7,898,844</u>	<u>(89,469)</u>	<u>7,809,375</u>
Operating Income	\$ 2,956,374	\$ 89,469	\$ 3,045,843

#### RATE OF RETURN

#### Capital Structure

Kentucky-American proposed to use the actual end-of-test-year capital structure adjusted for proposed issues of common stock and long-term debt. Kentucky-American's proposal replaces \$5,335,000 of short-term debt with \$3,000,000 of common equity and \$6,000,000 of long-term debt. The cost rate for long-term debt is estimated at 16 percent. Mr. Edgemon testified that the common stock and long-term debt would be issued by the third quarter of 1982, assuming that a "favorable order is received in this case by mid-February 1982."<sup>(21)</sup> The Attorney General's witness, Mr. Johnson, disagreed with this adjustment, arguing that the proposed changes in Kentucky-American's capitalization are not known with any degree of certainty. He recommended using the actual end-of-test-year capital structure. The Commission is of the opinion that the actual end-of-test-year capital structure proportions should be used in determining the overall cost of capital in this case.

Therefore, the Commission has determined Kentucky-American's adjusted capital structure to be as follows:

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(21) Edgemon testimony, page 10.

	<u>\$</u>	<u>%</u>
Long-Term Debt	\$ 21,686,269	51.78
Short-Term Debt	5,804,487	13.86
Preferred Stock	4,189,086	10.00
Common Equity	<u>10,200,416</u>	<u>24.36</u>
	<u>\$ 41,880,258</u>	<u>100.00%</u>

This method in further calculation assigns the overall cost of capital to JDIC as required by Section 47 of the Internal Revenue Code.

Cost of Capital

At the end of the test year, Kentucky-American had embedded costs of 6.91 percent for long-term debt and 7.33 percent for preferred stock. Both Kentucky-American and Mr. Johnson proposed to use these cost rates. Mr. Johnson recommended a cost rate for short-term debt of 15.5 percent. Over the past 12 months interest rates on 3-month commercial paper averaged 15.8 percent.<sup>(22)</sup>

Considering recent trends in interest rates the Commission is of the opinion that a short-term debt cost rate of 15.8 percent is reasonable.

Kentucky-American requested a 17 percent rate of return on common equity.<sup>(23)</sup> Dr. Christy and Mr. Edgemon testified in support of this request. Mr. Edgemon used a risk-premium analysis. Dr. Christy supported Mr. Edgemon's risk-premium analysis and used an adjusted book yield method of calculating the cost of common

(22) Average interest rates for 12 months ended November, 1981.

(23) Notice, Exhibit 6, Schedule 1, line 5.

equity. Dr. Christy testified that utilities have proved more risky than industrial companies and that water companies appear more risky than other utilities. (24)

Mr. Johnson determined a cost of common equity range of 12 to 13 percent using a comparable earnings approach and a range of 14 to 15.9 percent using a market approach. His best estimate of the cost of common equity was 14 percent. He testified that under certain circumstances the use of spread theory or risk-premium analysis produces unreasonable results. Given today's abnormal bond market conditions, he believed it would be inappropriate for the Commission to adopt spread theory methodology at this time. Mr. Johnson disagreed with Dr. Christy's evaluation of the relative riskiness of water companies. He concluded that Kentucky-American has less overall equity risk than the average telephone utility or average electric utility, and that the overall equity risk of the average utility is far less than that of the average unregulated firm.

The Commission is not convinced that Kentucky-American is a relatively high-risk utility, that water utilities are riskier than other utilities, or that utilities in general have greater common equity risk than industrial companies. The Commission is of the opinion that a return on common equity of 13.5 to 14.5 percent is fair, just and reasonable. A return on equity in this range would not only allow Kentucky-American to attract capital at

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(24) Prefiled testimony of Mr. Edgemon and Mr. Christy.

reasonable costs to insure continued service and provide for necessary expansion to meet future requirements, but also would result in the lowest possible cost to the ratepayer. Within this range of returns the Commission finds that a return on common equity of 14.0 percent will allow Kentucky-American to meet its operating expenses and best attain the above objectives.

Rate of Return Summary

The overall cost of capital in this case is 9.91 percent, which provides a rate of return on net investment of 9.89 percent, which the Commission finds to be the fair, just and reasonable return in that it is sufficient to provide Kentucky-American reasonable compensation for the service it renders.

Authorized Increase

The required net operating income, based on the rate of return on net investment of 9.89 percent found fair, just and reasonable, is approximately \$4,150,334.<sup>(25)</sup> To achieve this level of operating income, Kentucky-American is entitled to increase its rates and charges to produce additional revenues on an annual basis of \$2,177,946, determined as follows:

Calculation of Increase

Adjusted Net Operating Income	\$ 3,045,843
Net Operating Income Found Reasonable	\$ 4,150,334
Deficiency	\$ 1,104,491
Deficiency Adjusted for Income Taxes and P.S.C. Fees,	

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(25)  $\$4,150,334 \div \$41,950,910 = 9.89\%$ .

(26)  $\$1,104,491 \times 1.9719$  gross revenue conversion factor =  
\$2,177,946.

### Rate Design

In its application, Kentucky-American proposed a rate adjustment averaging approximately 32 percent. The adjustment was applied uniformly to each rate schedule, including the general service schedule available to residential, commercial, industrial, and other customers, the municipal service schedule, and the fire protection service schedule. The adjustment would produce pro forma additional revenue based on the test year billing analysis of \$3,426,204.

Kentucky-American did not conduct a cost of service study or rate design analysis to support its application in this case. The most recent cost of service and rate design study conducted by Kentucky-American was in 1967. The Commission has reviewed and re-evaluated the 1967 study, imputing current financial data insofar as possible and methodologically reasonable. If the Commission were to assume the validity of the allocation factors used in the 1967 study, the reliability of an analysis based on imputed financial data, and the desirability of a declining block rate structure, the Commission would determine that the general service rates prepared by Kentucky-American and the rates authorized in this Order are compensatory at each rate level. However, the Commission is skeptical that allocation factors developed in 1967 are descriptive of the service environment in 1982. The area served by Kentucky-American has experienced significant economic development and population growth since 1967. In addition,

Kentucky-American's rate base has increased substantially since 1967. Furthermore, the Commission is not persuaded that Kentucky-American's general service declining block rate structure is desirable, either in the number of rate steps or the marginal difference between rate steps. Neither is the Commission persuaded that residential, commercial, industrial, and other customers should be served under the same rate schedule. Finally, the Commission notes with concern that the 1967 study allocated a portion of fire protection service expense to the revenue requirement from general service rates and failed to justify municipal service rates.

Therefore, it is the opinion of the Commission that Kentucky-American should conduct a cost of service study and rate design analysis. Furthermore, the conclusions and supporting documents should be filed as part of Kentucky-American's next general rate application. The cost of service study should be in sufficient detail to separate the service cost and revenue requirement allocable to each customer class, specifically including residential, commercial, and industrial customer groups. In addition, the cost of service study should incorporate the anticipated service cost effects of committed construction projects. The rate design study should be in sufficient detail to allow consideration of alternative rate structures and the relative impact of rate design alternatives on each customer class.



The Commission has made a uniform rate adjustment of approximately 20 percent to each of Kentucky-American's rate schedules. The adjustment will produce the amount of additional revenue found reasonable. The rates authorized Kentucky-American are contained in Appendix A.

SUMMARY

The Commission, after consideration of the evidence of record and being advised, is of the opinion and finds that:

1. The rates in Appendix A produce gross operating revenues of \$13,033,164 for the adjusted test year ending May 31, 1981, and are the fair, just and reasonable rates to be charged for water service by Kentucky-American.

2. The returns allowed in this matter on a test period basis will permit Kentucky-American to cover its operating expenses, pay its interest and provide for a reasonable dividend and a reasonable amount of surplus for equity growth.

3. The rates proposed by Kentucky-American produce annual revenues in excess of those found reasonable herein and should be denied upon application of KRS 278.030.

IT IS THEREFORE ORDERED that the proposed rates sought by Kentucky-American be and they hereby are denied upon application of KRS 278.030. ✓

IT IS FURTHER ORDERED that the rates in Appendix A be and they hereby are approved as the fair, just and reasonable rates for water service provided by Kentucky-American effective with service rendered on and after February 8, 1982. ✓

IT IS FURTHER ORDERED that a thorough study of the appropriateness of the expansion of the Kentucky River treatment facilities shall be made by an independent consulting firm which will be selected by the Commission and compensated by Kentucky-American and that the results of said study shall be made a part of the record in its next general rate proceeding.

IT IS FURTHER ORDERED that a meeting shall be held on February 25, 1982, at 2:00 p.m. Eastern Standard Time, in the Commission's offices in Frankfort, Kentucky, to discuss the selection of the independent consulting firm and the procedure and details for making the study. ✓

IT IS FURTHER ORDERED that Kentucky-American shall conduct a cost of service study in sufficient detail to separate the service cost and revenue requirement allowable to each customer class. ✓

IT IS FURTHER ORDERED that Kentucky-American shall conduct a rate design study in sufficient detail to consider alternative rate structures and the relative impact of rate design alternatives on each customer class.

IT IS FURTHER ORDERED that Kentucky-American shall file its cost of service study and rate design study in its next general rate application.

IT IS FURTHER ORDERED that within 30 days from the date of this Order, Kentucky-American shall file with this Commission its revised tariff sheets setting out the rates for water service approved herein.

Done at Frankfort, Kentucky, this 8th day of February, 1982.

PUBLIC SERVICE COMMISSION

Merlin M. Vohy  
Chairman

Katharine Sandall  
Vice Chairman

Ann Carigan  
Commissioner

ATTEST:

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Secretary

Done at Frankfort, Kentucky, this 8th day of February, 1982.

By the Commission

ATTEST:

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Secretary

APPENDIX A

APPENDIX TO AN ORDER OF THE PUBLIC SERVICE  
COMMISSION IN CASE NO. 8314 DATED FEBRUARY 8, 1982

The following rates are prescribed for the customers served by Kentucky-American Water Company. All other rates and charges not specifically mentioned herein shall remain the same as those in effect under authority of the Commission prior to the effective date of this Order.

Service Classification No. 1

Meter Rates

	<u>Cubic Feet Per Month</u>	<u>Cubic Feet Per Quarter</u>	<u>Rate Per 100 Cubic Feet</u>
For the first	5,000	15,000	\$ 1.18137
For the next	30,000	90,000	.85559
For the next	300,000	900,000	.49720
For all over	335,000	1,005,000	.32834

Minimum Charges

Minimum Charge

<u>Meter Size</u>	<u>Per Month</u>	<u>Per Quarter</u>
5/8"	\$ 3.51	\$ 10.53
3/4"	5.27	15.81
1"	8.74	26.22
1-1/2"	17.58	52.74
2"	28.12	84.36
3"	60.79	182.37
4"	92.78	278.34
6"	195.22	585.66

Service Classification No. 2

Meter Rates

	<u>Rate Per 100 Cubic Feet</u>
For all water used	\$ .59776

Service Classification No. 2 (Cont'd)

Minimum Charges

None

Service Classification No. 3

Rates

<u>Service Size</u>	<u>Annual Rate</u>
4" Diameter	\$ 138.96
6" Diameter	276.48
8" Diameter	553.92
12" Diameter	1,107.96

Minimum Charges

See above

Service Classification No. 4

Rates

<u>Type of Service</u>	<u>Annual Rate</u>
For each public fire hydrant contracted for or ordered by City, County, State or Federal Governmental Agencies or Institutions	\$ 137.64
For each private fire hydrant contracted for by Industries or Private Institutions	137.64
For each water customer whose premises are located within 1,000 feet of a private hydrant not contracted for by Industries or Private Institutions, as measured along public street or roads, in advance	5.93