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## City of Chattanooga

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Special Counsel

December 23, 2004

**VIA FACSIMILE: (615) 741-5015**

Sharla Dillon, Docket Manager  
Tennessee Regulatory Authority  
460 James Robertson Parkway  
Nashville, TN 37243-0505

***Re: Petition of Tennessee American Water Company to Change and Increase Certain Rates and Charges So As to Permit It to Earn a Fair and Adequate Rate of Return on Its Property Used and Useful in Furnishing Water Service to Its Customers,  
Docket No. 04-00288***

Dear Sharla:

Enclosed please find the direct testimony from the City of Chattanooga in this matter. The original and 13 copies is being forwarded to your office via FedEx.

As always, thank you for your assistance in this matter. Please contact our office if you have any questions.

Sincerely,

MICHAEL A. MCMAHAN

MAM/spb

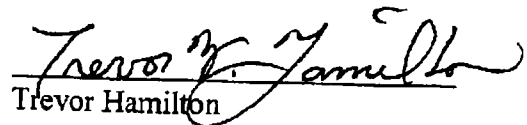
TENNESSEE REGULATORY AUTHORITY

STATE OF TENNESSEE

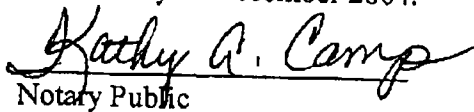
COUNTY OF HAMILTON

BEFORE ME, the undersigned authority, duly commissioned and qualified in and for the State and County aforesaid, personally came and appeared Trevor Hamilton, being by me first duly sworn deposed and said that:

He is appearing as a witness on behalf of the City of Chattanooga before the Tennessee Regulatory Authority, and if present before the Authority and duly sworn, his testimony would set forth in the annexed transcript consisting of two (2) pages.

  
Trevor Hamilton

Sworn to and subscribed before me  
this 23<sup>rd</sup> day of December 2004.

  
Notary Public

My Commission Expires 11-5-06

**TENNESSEE AMERICAN WATER COMPANY  
CASE NO. 04-00288**

**Direct Testimony  
Trevor Hamilton**

1. Q. WILL YOU PLEASE STATE YOUR NAME AND BUSINESS ADDRESS FOR THE RECORD?  
  
A. My name is Trevor Hamilton and my business address is Chattanooga Area Chamber of Commerce, 811 Broad Street, Chattanooga, TN 37402.
  
2. Q. WHAT POSITION DO YOU HOLD WITH THE CHATTANOOGA CHAMBER OF COMMERCE?  
  
A. I am the Vice President of Economic Development and Chief Economic Development Officer.
  
3. Q. HOW LONG HAVE YOU HELD THIS POSITION?  
  
A. For two years in January of 2005.
  
4. Q. HAVE YOU PROVIDED INFORMATION ON YOUR EDUCATIONAL BACKGROUND, QUALIFICATIONS AND WORK EXPERIENCE?  
  
A. I will provide a copy of my curriculum vitae. (Attached as exhibit A).
  
5. Q. WHAT ARE YOUR RESPONSIBILITIES AS VICE PRESIDENT OF ECONOMIC DEVELOPMENT?  
  
A. I head the Economic Development division, a 501(C)(6) organization, one of our primary operating branches. We are responsible for carrying out economic development initiatives in the Chattanooga area, including "Tell the World!," the Chamber's four-year economic strategy with a goal to create a net gain of 20,000

new jobs by July of 2007. Two main goals of our Economic Development strategy are to recruit new businesses, and to retain and expand existing businesses.

6. Q. DO UTILITY RATES PLAY A ROLE IN ECONOMIC DEVELOPMENT WHETHER THAT BE A NEW COMMERCIAL OR INDUSTRIAL ENTERPRISE OR THE EXPANSION OR RETENTION OF AN EXISTING COMMERCIAL OR INDUSTRIAL ENTERPRISE?

A. Yes, everything that bears upon the cost of doing business in a particular community will be considered by both new and existing businesses. The availability, quality, and cost of utilities are important factors in locating new business to any community. The Chattanooga area is in competition with other communities throughout the United States and in some instances throughout the world. As an economic development entity, we are in competition with at least 15,000 other economic development institutions in the United States alone. If a business is dependant upon water, then water and sewer rates will be important factors in a company's decision in siting new facilities and retaining and expanding existing operations. It is important that we are price competitive with good availability and quality.

7. Q. WHAT ABOUT THE IMPACT OF WATER RATES ON ECONOMIC DEVELOPMENT IN THE MANUFACTURING SECTOR?

A. Manufacturing is a target of our retention and recruitment efforts and is one of the most competitive sectors. Water rates have a significant impact on manufacturers, especially in industries that utilize large quantities of water in its business, such as food and beverage. The Chattanooga area is home to several large food and beverage manufacturers who traditionally are high water volume consumers. The food and beverage sector also represents the greatest share of manufacturing jobs in the Chattanooga area. Therefore, competitive water rates are important to maintaining our area's economic base in manufacturing as well as enhancing our ability to attract additional related industries.

## Trevor W. Hamilton

Trevor W. Hamilton serves as the Vice President of Economic Development and Chief Economic Development Officer for the Chattanooga Area Chamber of Commerce. Hamilton oversees the chamber's economic development department and plays a key role in implementing the chamber's "Tell the World!" economic development plan which includes the attraction of new employers, the expansion of existing businesses and workforce development. He assumed his current role following a period in which he served as Director of Global Business Development with the chamber.

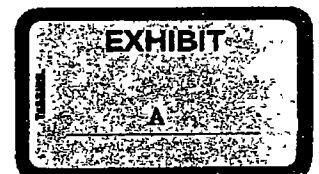
Over the last fourteen years, Hamilton has provided leadership and direction to economic development programs in North Carolina, South Carolina, and Ohio. He served on the recruitment team for the Ohio Department of Development where he worked with a number of industries, which Chattanooga is currently targeting including automotive, high-end office, plastics, and distribution.

In 1994, Hamilton was chosen to lead Ohio's premier business incentive program, the Ohio Job Creation Tax Credit Program, which helped Ohio achieve Site Selection Magazine's number one ranking for new and expanded business for three consecutive years in the 1990's. Under Hamilton's leadership, the program yielded nearly 400 business location and expansion projects totaling approximately 40,000 new jobs and \$5.3 billion in new capital investments.

Hamilton earned a Bachelor of Science from Virginia Tech. He has completed graduate work in economic development, urban affairs and planning, economics, and finance. In addition, he is a graduate of the Economic Development Course accredited by the International Economic Development Council and holds certificates from numerous continuing education courses in economic development, leadership, organizational management, and foreign trade zones.

Hamilton is a native of Atlanta and was raised in Bristol, Virginia. As a Boy Scout, he achieved the rank of Eagle Scout and has participated in the Boy Scouts of America organization.

He and his wife, Melody, have two children, Alexander and Logan. The Hamilton family enjoys hiking, camping, and other outdoor activities with their two golden retrievers.



TENNESSEE REGULATORY AUTHORITY

STATE OF TENNESSEE

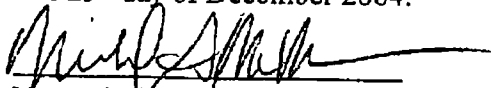
COUNTY OF HAMILTON

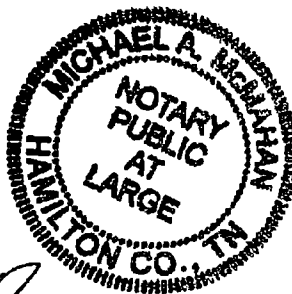
BEFORE ME, the undersigned authority, duly commissioned and qualified in and for the State and County aforesaid, personally came and appeared Daisy Madison, being by me first duly sworn deposed and said that:

She is appearing as a witness on behalf of the City of Chattanooga before the Tennessee Regulatory Authority, and if present before the Authority and duly sworn, her testimony would set forth in the annexed transcript consisting of five (5) pages.

  
Daisy Madison

Sworn to and subscribed before me  
this 23<sup>rd</sup> day of December 2004.

  
Notary Public



My Commission Expires 8/21/07

**TENNESSEE AMERICAN WATER COMPANY**

**CASE NO. 04-00288**

**Direct Testimony**

**Daisy Madison**

1. Q. WILL YOU PLEASE STATE YOUR NAME AND BUSINESS ADDRESS FOR THE RECORD?  
  
A. My name is Daisy Madison, and my business address is City Hall Annex, 100 East 11<sup>th</sup> Street, Fourth Floor, Chattanooga, TN 37402.
  
2. Q. WHAT POSITION DO YOU HOLD WITH THE CITY OF CHATTANOOGA?  
  
A. I am the City Treasurer and Deputy Finance Officer.
  
3. Q. HOW LONG HAVE YOU HELD THIS POSITION?  
  
A. I have been Deputy City Finance Officer since June 1992. I have been City Treasurer since January 1, 2002.
  
4. Q. HAVE YOU PROVIDED INFORMATION ON YOUR EDUCATIONAL BACKGROUND, QUALIFICATIONS AND WORK EXPERIENCE?  
  
A. I graduated from Alabama State University with a B.S. in accounting. I am a Certified Public Accountant. I began my accounting career with the U.S. General Accounting office; then to Public Accounting with Arthur Anderson; then to

*pg 2*

Hamilton County Department of Finance; and finally as Deputy City Finance Officer and City Treasurer. I have been active in public finance and accounting since 1974.

5. Q. WHAT ARE YOUR RESPONSIBILITIES AS TREASURER AND DEPUTY FINANCE OFFICER FOR THE CITY OF CHATTANOOGA?

A. As Treasurer, I am responsible for collection and investments of City funds. As Deputy Finance Officer, I administrate all matters relating to City finances.

6. Q. IS THE CITY OF CHATTANOOGA A CUSTOMER OF TENNESSEE AMERICAN WATER COMPANY?

A. Yes, the City is a customer in two primary capacities. One capacity is in general government operations. The other capacity is as a governmental utility in the operation of a sewer system, which we call an "enterprise fund."

7. Q. HOW DOES THE CITY USE WATER IN THE GENERAL GOVERNMENTAL CATEGORY?

A. The City has a number of fairly large office buildings such as City Hall, City Hall Annex, the Development Resource Center, and the Police Department Administration building plus numerous smaller office buildings. We also operate

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a variety of parks and recreation centers, including some with swimming pools.

We have so many different facilities that I cannot name or categorize them all.

8. Q. AS CITY TREASURER AND DEPUTY FINANCE OFFICER, ARE YOU RESPONSIBLE FOR THE PAYMENT OF WATER BILLS FOR TENNESSEE AMERICAN?

A. Yes, indirectly. My staff does.

9. Q. HOW MUCH DOES THE CITY CURRENTLY PAY TAWC FOR WATER IN ITS GENERAL GOVERNMENTAL CAPACITY?

A. Approximately \$369,000 per year.

10. Q. HOW WILL AN INCREASE IN WATER TARIFFS BE FUNDED FOR GENERAL GOVERNMENTAL ACCOUNTS?

A. It will come from general City revenues. The City obtains revenues from a variety of sources; however, the primary sources of revenue are property taxes and sales taxes.

11. Q. ARE YOU AWARE OF THE RECENT LEGISLATION WITH REGARD TO  
FIRE HYDRANT TARIFFS WHICH WILL RELIEVE THE CITY FROM THE  
OBLIGATION TO DIRECTLY PAY FOR PUBLIC FIRE HYDRANTS?
- A. Yes.
12. Q. HOW WILL THIS IMPACT THE CITY GENERAL BUDGET FINANCIALLY?
- A. We anticipate an initial reduction in fire hydrant cost of approximately \$639,000  
per year.
13. Q. WILL THE INTERCEPTOR SEWER SYSTEM ("ISS") BENEFIT FROM THE  
FIRE HYDRANT DEDUCTION?
- A. No, the sewer system is a self sustaining operation funded solely from revenues  
generated by fees charged to customers.
14. Q. HOW WILL AN INCREASE IN WATER RATES IMPACT THE SEWER  
SYSTEM BUDGET?
- A. Ultimately any increase in sewer system expenses has to be offset by increases in  
revenue.

15. Q. HOW DOES THE SEWER SYSTEM INCREASE REVENUES?

A. The sewer rates are increased.

16. Q. HOW ARE SEWER CHARGES DETERMINED?

A. They are based upon water usage.

17. Q. WILL YOU SUBMIT AS AN EXHIBIT TO YOUR TESTIMONY A COPY OF THE CURRENT SEWER RATES?

A. Yes, they can be attached as Exhibit B.

18. Q. I KNOW THERE ARE A LOT OF OTHER FACTORS INVOLVED, BUT AS A GENERAL PRINCIPLE WILL INCREASES IN WATER TARIFFS HAVE A "DOUBLE WHAMMY" EFFECT ON USERS OF SEWER SYSTEM?

A. To an extent that is true. Sewer users will be paying higher water rates and ultimately the sewer system will pass through its increased cost through higher sewer rates. Both water rates and sewer rates are based upon the quantity of water purchased. I would expect that high volume users might in particular feel the impact.

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ORDINANCE NO. 11344

AN ORDINANCE TO AMEND PART II, CHATTANOOGA CITY CODE, CHAPTER 31, ARTICLE II, SECTIONS 31-36, 31-41 AND 31-43, RELATIVE TO SEWER SERVICE CHARGES AND FEES.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CHATTANOOGA, TENNESSEE:

SECTION 1. That Chattanooga City Code, Part II, Chapter 31, Article II, Section 31-36(a), be and the same is hereby deleted and the following substituted in lieu thereof:

- (a) Enumeration of charges; quantity of water used. Sewer service charges shall be based upon the quantity of water used as shown by water meter readings and shall be the dollar amount derived by applying the total charge in dollars per one thousand (1,000) gallons for the quantities of water shown in the following table:

| User Class<br>(gallons) | Fiscal Year<br>2002/2003<br>Total<br>Charges<br>(\$/1,000 gallons) | Fiscal Year<br>2003/2004<br>Total<br>Charges<br>(\$/1,000 gallons) | Fiscal Year<br>2004/2005<br>Total<br>Charges<br>(\$/1,000 gallons) |
|-------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|
|                         |                                                                    |                                                                    |                                                                    |
| First 100,000           | \$ 3.68                                                            | \$ 3.94                                                            | \$ 4.04                                                            |
| Next 650,000            | 2.70                                                               | 2.91                                                               | 2.99                                                               |
| Next 1,250,000          | 2.18                                                               | 2.36                                                               | 2.42                                                               |
| Next 30,000,000         | 1.59                                                               | 1.74                                                               | 1.79                                                               |
| Over 32,000,000         | 1.40                                                               | 1.52                                                               | 1.56                                                               |

In addition, the total charges derived from the above chart for residential users consuming 100,000 gallons of water or less per month will be multiplied by ninety (90) percent to compensate for water use not going to the sewer such as lawn and garden watering.

SECTION 2. That Chattanooga City Code, Part II, Chapter 31, Article II, Section 31-37, be and the same is hereby deleted and the following substituted in lieu thereof:



Minimum sewer service charges based upon water meter connection size shall be as follows:

Monthly Minimum Sewer Service Charges

| <u>Meter Size</u><br>(inches) | <u>Fiscal Year</u><br>2002/2003<br><u>Charge per Month</u> | <u>Fiscal Year</u><br>2003/2004<br><u>Charge per Month</u> | <u>Fiscal Year</u><br>2004/2005<br><u>Charge per Month</u> |
|-------------------------------|------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|
| 5/8                           | \$ 7.62                                                    | \$ 8.15                                                    | \$ 8.36                                                    |
| 3/4                           | 27.20                                                      | 29.10                                                      | 29.83                                                      |
| 1                             | 47.52                                                      | 50.85                                                      | 52.12                                                      |
| 1-1/2                         | 106.36                                                     | 113.80                                                     | 116.65                                                     |
| 2                             | 188.32                                                     | 201.50                                                     | 206.54                                                     |
| 3                             | 441.44                                                     | 472.34                                                     | 484.15                                                     |
| 4                             | 815.79                                                     | 872.89                                                     | 894.72                                                     |
| 6                             | 1,943.09                                                   | 2,079.10                                                   | 2,131.08                                                   |
| 8                             | 3,436.97                                                   | 3,677.56                                                   | 3,769.50                                                   |

The minimum sewer service charge for residential users with various meter size shall be multiplied by ninety (90) percent to compensate for water use not going to the sewer such as lawn and garden watering.

SECTION 3. That Chattanooga City Code, Part II, Chapter 31, Article II, Section

31-36(c), be and the same is hereby deleted and the following substituted in lieu thereof:

- (c) Billable flow. The amount due from the regional user shall be the dollar amount derived by applying the total charge shown in the table below per one thousand (1,000) gallons of water sold.

|                        | <u>Regional</u><br><u>Operation &amp;</u><br><u>Maintenance</u><br><u>Charge</u><br><u>(\$/1,000 gallons)</u> | <u>Regional</u><br><u>Debt</u><br><u>Charge</u><br><u>(\$/1,000 gallons)</u> | <u>Regional</u><br><u>Total</u><br><u>Charge</u><br><u>(Wheelage</u><br><u>and</u><br><u>Treatment)</u><br><u>(\$/1,000 gallons)</u> |
|------------------------|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Wheelage and Treatment | \$ 0.9714                                                                                                     | \$ 0.4922                                                                    | \$ 1.4636                                                                                                                            |

If regional customers are billed directly through the water company, the rate to be charged shall be one dollar and forty-seven cents (\$1.47) per one thousand (1,000) gallons.

**SECTION 4.** That Chattanooga City Code, Part II, Chapter 31, Article II, Section

31-36(d), be and the same is hereby deleted and the following substituted in lieu thereof:

- (d) Total flow. The amount due from the regional user shall be the dollar amount derived by applying the total charge shown in the table below applied to the quantity of water measured by a flow meter installed and maintained at or near the point of connection between the system of the regional user and the Chattanooga system. In the event of any malfunction of said meters, flow shall be estimated, interpolated and/or projected in the most equitable manner possible. Such estimates, along with available readings for periods where there was no malfunction, shall be the basis for billing.

|                           | Regional<br>Operation &<br>Maintenance<br>Charge<br>(\$/1,000 gallons) | Regional<br>Debt<br>Charge<br>(\$/1,000 gallons) | Regional<br>Total<br>Charge<br>(Wheelage<br>and<br>Treatment)<br>(\$/1,000 gallons) |
|---------------------------|------------------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------|
| Wheelage and<br>Treatment | \$ 0.5393                                                              | \$ 0.2733                                        | \$ 0.8126                                                                           |

**SECTION 5.** That Chattanooga City Code, Part II, Chapter 31, Article II, Section

31-41(c), be and the same is hereby deleted and the following substituted in lieu thereof:

- (c) Rates. Based upon the current cost of treating wastewater containing constituents with concentrations in excess of "normal wastewater," numerical rates are hereby established for Bc and Sc as follows:

Bc = \$0.089 per pound of BOD for concentrations in excess of three hundred (300) milligrams per liter.

Sc = \$0.065 per pound of total suspended solids for concentrations in excess of four hundred (400) milligrams per liter.

**SECTION 6.** That Chattanooga City Code, Part II, Chapter 31, Article II, Section

31-43(b), be and the same is hereby deleted and the following substituted in lieu thereof:

- (b) Fees for garbage grinders. Any user of a garbage grinder, except users in a premise used exclusively for an individual residence, shall be charged at a rate of one hundred-five dollars and twenty-four cents (\$105.24) per month. The superintendent shall bill users on a bi-monthly basis and the bills shall be due and payable within thirty (30) days following the last day of the billing period. The fee for Fiscal Year 2003/2004 shall be one hundred fourteen dollars and sixty-five cents (\$114.65) per month. The fee for Fiscal Year 2004/2005 shall be one hundred nineteen dollars and sixty-eight cents (\$119.68) per month.

**SECTION 7.** That Chattanooga City Code, Part II, Chapter 31, Article II, Section

31-43(f), be and the same is hereby deleted and the following substituted in lieu thereof:

- (f) Fees for septic tank discharge. All persons discharging concentrated, domestic septic tank sewage waste from a truck under the provisions of Article III of this Chapter shall be charged at the rate of twenty-six dollars and nineteen cents (\$26.19) per one thousand (1,000) gallons of such waste. The fee for Fiscal Year 2003/2004 shall be twenty-eight dollars and fifty-three cents (\$28.53) per one thousand (1,000) gallons of such waste. The fee for Fiscal Year 2004/2005 shall be twenty-nine dollars and seventy-nine cents (\$29.79) per one thousand (1,000) gallons of such waste.

**SECTION 8.** That Chattanooga City Code, Part II, Chapter 31, Article II,

Section 31-43(g), be and the same is hereby deleted and the following substituted in lieu thereof:

- (g) Fees Holding tank wastes. All persons discharging any other holding tank waste authorized pursuant to division 6 of this article shall be charged at the rate of three dollars and sixty-eight cents (\$3.68) per one thousand (1,000) gallons of such discharge, plus any surcharge rate authorized by Article III of this chapter for concentrations of pollutants in excess of normal waste water without regard to the definition of the industrial user or other limitations set forth in said section. The superintendent may

also require a chemical analysis of such waste and charge therefore. The fee for Fiscal Year 2003/2004 shall be three dollars and ninety-four cents (\$3.94). The fee for Fiscal Year 2004/2005 shall be four dollars and four cents (\$4.04).

SECTION 9. That this Ordinance shall become effective two (2) weeks from and after its passage as provided by law, but that the operative dates of the changes in rates specified herein shall be July 1, 2002 and that the operative dates for the users billed through the water suppliers shall be December 1, 2002.

SECTION 10. Notwithstanding any other provision of this Ordinance to the contrary, water providers within the City of Chattanooga shall bill according to the new Chattanooga sewer service charges effective on the following dates:

- (1) For the Fiscal Year 2002/2003 - For service rendered beginning on the 1<sup>st</sup> day of December, 2002, and until the 30<sup>th</sup> day of September, 2003;
- (2) For Fiscal Year 2003/2004 - For service rendered beginning on the 1<sup>st</sup> day of October, 2003, and until the 30<sup>th</sup> day of September, 2004; and
- (3) For Fiscal Year 2004/2005 - For service rendered beginning the 1<sup>st</sup> day of October, 2004, and until further notice.

PASSED on Third and Final Reading

November 5, 2002.

S/ \_\_\_\_\_  
CHAIRPERSON

APPROVED: X DISAPPROVED: \_\_\_\_\_

DATE: November 10, 2002

S/ \_\_\_\_\_  
MAYOR

Reviewed By: s/ \_\_\_\_\_  
*James S. Boney*

jcm/ffk/pm

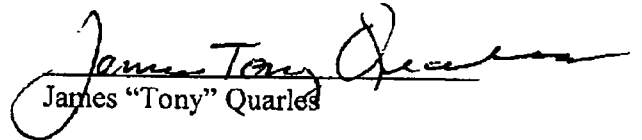
**TENNESSEE REGULATORY AUTHORITY**

**STATE OF TENNESSEE**

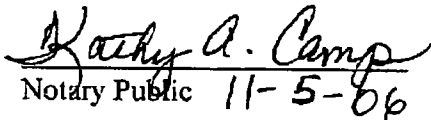
**COUNTY OF HAMILTON**

BEFORE ME, the undersigned authority, duly commissioned and qualified in and for the State and County aforesaid, personally came and appeared James "Tony" Quarles, being by me first duly sworn deposed and said that:

He is appearing as a witness on behalf of the City of Chattanooga before the Tennessee Regulatory Authority, and if present before the Authority and duly sworn, his testimony would set forth in the annexed transcript consisting of three (3) pages.

  
James "Tony" Quarles

Sworn to and subscribed before me  
this 23<sup>rd</sup> day of December 2004.

  
Notary Public 11-5-06

My Commission Expires \_\_\_\_\_

**TENNESSEE AMERICAN WATER COMPANY  
CASE NO. 04-00288**

**Direct Testimony  
James "Tony" Quarles**

1. Q. WILL YOU PLEASE STATE YOUR NAME AND BUSINESS ADDRESS FOR THE RECORD?  
  
A. My name is James "Tony" Quarles, and my business address is City of Chattanooga, 910 Wisdom Street, Chattanooga, TN 37406.
  
2. Q. WHAT POSITION DO YOU HOLD WITH THE CITY OF CHATTANOOGA?  
  
A. I am the Fire Marshall.
  
3. Q. HOW LONG HAVE YOU HELD THIS POSITION?  
  
A. Since December 1999.
  
4. Q. HAVE YOU PROVIDED INFORMATION ON YOUR EDUCATIONAL BACKGROUND, QUALIFICATIONS AND WORK EXPERIENCE?  
  
A. I have an Associates Degree in Fire Science Management from Chattanooga State. I am certified as a Fire Inspector by the National Fire Prevention Association and the State of Tennessee. I am certified as a Building Inspector by the State of Tennessee. I have 27 years experience with the Chattanooga Fire Department in a variety of capacities
  
5. Q. WHAT ARE YOUR RESPONSIBILITIES AS FIRE MARSHALL FOR THE CITY OF CHATTANOOGA WITH RESPECT TO FIRE HYDRANTS?  
  
A. Fire hydrants are part of the requirements of the Fire Code. I supervise this function.

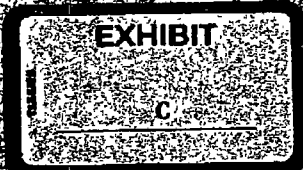
6. Q. WHAT DETERMINES WHERE FIRE HYDRANTS ARE PLACED?
- A. The principal factor is the nature of the surrounding development. The "needed fire flow" is greater in built-up industrial or commercial areas. It is a basic requirement that we have enough water available through public fire hydrants, private fire hydrants and/or sprinkler systems to address a fire.
7. Q. IS THERE A RECOGNIZED STANDARD WITH RESPECT TO "NEEDED FIRE FLOW?"
- A. Yes, the *International Fire Code* contains a Appendix B, captioned "Fire Flow Requirements for Buildings."
8. Q. CAN WE ATTACH A COPY AS EXHIBIT C TO YOUR TESTIMONY?
- A. Yes.
9. Q. IS THERE A DIFFERENCE WITH REGARD TO RESIDENTIAL NEIGHBORHOODS?
- A. Yes, there is somewhat of a different standard for residential neighborhoods. The "exposure distance" between structures becomes an important factor. The greater the density of structures, the more fire hydrants are needed.
10. Q. IS THERE A RECOGNIZED STANDARD FOR LOCATION OF FIRE HYDRANTS?
- A. Yes, I would refer you to the *International Fire Code*, Appendix C, titled "Fire Hydrant Locations and Distributions."
11. Q. CAN WE ATTACH A COPY TO YOUR TESTIMONY AS EXHIBIT D?
- A. Yes.

- 12 Q. DO INDUSTRIAL AND COMMERCIAL USERS PAY FOR THEIR OWN FIRE PROTECTION?
- A. Generally speaking they do. The fire codes have required for a number of years that any assembly building with an occupancy of 300 or more must have a sprinkler system. Industrial buildings that have any processes which can create a fire hazard are also required to have private fire protection. Private fire protection could be a sprinkler system, private fire hydrants or stand pipes, or both.
13. Q. HOW DO THESE INDUSTRIAL AND COMMERCIAL USERS PAY FOR THIS PRIVATE FIRE PROTECTION?
- A. There is the initial construction and installation cost. They incur ongoing maintenance expenses, particularly for sprinkler systems. They also have to pay the water company or utility a separate charge for this service.
14. Q. THE COMPANY'S TARIFF REQUEST IN THIS CASE WOULD RESULT IN AN ACROSS THE BOARD INCREASE FOR THE LOST PUBLIC FIRE HYDRANT REVENUES. GIVEN YOUR KNOWLEDGE AND EXPERIENCE OF THE COST OF PROVIDING BOTH PUBLIC AND PRIVATE FIRE PROTECTION FOR VARIOUS CLASSES OF RATE PAYERS, WHAT IS YOUR OPINION OF THE FAIRNESS OF THIS APPROACH AS OPPOSED TO PLACING A HEAVIER BURDEN ON ONE CLASS OF RATE PAYERS OR ANOTHER.
- A. I think it is a fair way to allocate the lost revenues from public fire protection. Generally industrial and larger commercial users are directly paying at least a portion of the overall cost of fire protection through either private fire hydrants, sprinkler systems, or both. It would not be fair to place a disproportionate cost of public fire protection on either of these two classes of users.

*A Member of the International Code Family*



# INTERNATIONAL FIRE CODE®



# 2003

## APPENDIX B

# FIRE-FLOW REQUIREMENTS FOR BUILDINGS

*The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.*

### SECTION B101 GENERAL

**B101.1 Scope.** The procedure for determining fire-flow requirements for buildings or portions of buildings hereafter constructed shall be in accordance with this appendix. This appendix does not apply to structures other than buildings.

### SECTION B102 DEFINITIONS

**B102.1 Definitions.** For the purpose of this appendix, certain terms are defined as follows:

**FIRE FLOW.** The flow rate of a water supply, measured at 20 pounds per square inch (psi) (138 kPa) residual pressure, that is available for fire fighting.

■ **FIRE-FLOW CALCULATION AREA.** The floor area, in square feet (m<sup>2</sup>), used to determine the required fire flow.

### SECTION B103 MODIFICATIONS

**B103.1 Decreases.** The fire chief is authorized to reduce the fire-flow requirements for isolated buildings or a group of buildings in rural areas or small communities where the development of full fire-flow requirements is impractical.

**B103.2 Increases.** The fire chief is authorized to increase the fire-flow requirements where conditions indicate an unusual susceptibility to group fires or conflagrations. An increase shall not be more than twice that required for the building under consideration.

**B103.3 Areas without water supply systems.** For information regarding water supplies for fire-fighting purposes in rural and suburban areas in which adequate and reliable water supply systems do not exist, the fire code official is authorized to utilize NFPA 1142 or the *International Urban Wildland Interface Code*.

### SECTION B104 FIRE-FLOW CALCULATION AREA

■ **B104.1 General.** The fire-flow calculation area shall be the total floor area of all floor levels within the exterior walls, and under the horizontal projections of the roof of a building, except as modified in Section B104.3.

■ **B104.2 Area separation.** Portions of buildings which are separated by fire walls without openings, constructed in accordance with the *International Building Code*, are allowed to be considered as separate fire-flow calculation areas.

**B104.3 Type IA and Type IB construction.** The fire-flow calculation area of buildings constructed of Type IA and Type IB construction shall be the area of the three largest successive floors.

■ **Exception:** Fire-flow calculation area for open parking garages shall be determined by the area of the largest floor.

### SECTION B105 FIRE-FLOW REQUIREMENTS FOR BUILDINGS

■ **B105.1 One- and two-family dwellings.** The minimum fire-flow requirements for one- and two-family dwellings having a fire-flow calculation area which does not exceed 3,600 square feet (344.5 m<sup>2</sup>) shall be 1,000 gallons per minute (3785.4 L/min). Fire flow and flow duration for dwellings having a fire-flow calculation area in excess of 3,600 square feet (344.5 m<sup>2</sup>) shall not be less than that specified in Table B105.1.

■ **Exception:** A reduction in required fire flow of 50 percent, as approved, is allowed when the building is provided with an approved automatic sprinkler system.

**B105.2 Buildings other than one- and two-family dwellings.** The minimum fire flow and flow duration for buildings other than one- and two-family dwellings shall be as specified in Table B105.1.

■ **Exception:** A reduction in required fire flow of up to 50 percent, as approved, is allowed when the building is provided with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the *International Fire Code*. Where buildings are also of Type I or II construction and are a light-hazard occupancy as defined by NFPA 13, the reduction may be up to 75 percent. The resulting fire flow shall not be less than 1,500 gallons per minute (5678 l/min) for the prescribed duration as specified in Table B 105.1.

### SECTION B106 REFERENCED STANDARDS

|      |       |                                                                 |                         |
|------|-------|-----------------------------------------------------------------|-------------------------|
| ICC  | IBC   | International Building Code                                     | B104.2,<br>Table B105.1 |
| ICC  | IFC   | International Fire Code                                         | B105.2                  |
| ICC  | IUWIC | International Urban-Wildland Interface Code                     | B103.3                  |
| NFPA | 1142  | Standard on Water Supplies for Suburban and Rural Fire Fighting | B103.3                  |

# FIRE-FLOW REQUIREMENTS FOR BUILDINGS

TABLE B105.1  
MINIMUM REQUIRED FIRE FLOW AND FLOW DURATION FOR BUILDINGS<sup>a</sup>

| FIRE-FLOW CALCULATION AREA (square feet) |                                |                              |                                |                       | FIRE FLOW<br>(gallons per minute) <sup>c</sup> | FLOW<br>DURATION (hours) |
|------------------------------------------|--------------------------------|------------------------------|--------------------------------|-----------------------|------------------------------------------------|--------------------------|
| Type IA and IB <sup>b</sup>              | Type IIA and IIIA <sup>b</sup> | Type IV and V-A <sup>b</sup> | Type IIB and IIIB <sup>b</sup> | Type V-B <sup>b</sup> |                                                |                          |
| 0-22,700                                 | 0-12,700                       | 0-8,200                      | 0-5,900                        | 0-3,600               | 1,500                                          | 2                        |
| 22,701-30,200                            | 12,701-17,000                  | 8,201-10,900                 | 5,901-7,900                    | 3,601-4,800           | 1,750                                          |                          |
| 30,201-38,700                            | 17,001-21,800                  | 10,901-12,900                | 7,901-9,800                    | 4,801-6,200           | 2,000                                          |                          |
| 38,701-48,300                            | 21,801-24,200                  | 12,901-17,400                | 9,801-12,600                   | 6,201-7,700           | 2,250                                          |                          |
| 48,301-59,000                            | 24,201-33,200                  | 17,401-21,300                | 12,601-15,400                  | 7,701-9,400           | 2,500                                          |                          |
| 59,001-70,900                            | 33,201-39,700                  | 21,301-25,500                | 15,401-18,400                  | 9,401-11,300          | 2,750                                          |                          |
| 70,901-83,700                            | 39,701-47,100                  | 25,501-30,100                | 18,401-21,800                  | 11,301-13,400         | 3,000                                          | 3                        |
| 83,701-97,700                            | 47,101-54,900                  | 30,101-35,200                | 21,801-25,900                  | 13,401-15,600         | 3,250                                          |                          |
| 97,701-112,700                           | 54,901-63,400                  | 35,201-40,600                | 25,901-29,300                  | 15,601-18,000         | 3,500                                          |                          |
| 112,701-128,700                          | 63,401-72,400                  | 40,601-46,400                | 29,301-33,500                  | 18,001-20,600         | 3,750                                          |                          |
| 128,701-145,900                          | 72,401-82,100                  | 46,401-52,500                | 33,501-37,900                  | 20,601-23,300         | 4,000                                          | 4                        |
| 145,901-164,200                          | 82,101-92,400                  | 52,501-59,100                | 37,901-42,700                  | 23,301-26,300         | 4,250                                          |                          |
| 164,201-183,400                          | 92,401-103,100                 | 59,101-66,000                | 42,701-47,700                  | 26,301-29,300         | 4,500                                          |                          |
| 183,401-203,700                          | 103,101-114,600                | 66,001-73,300                | 47,701-53,000                  | 29,301-32,600         | 4,750                                          |                          |
| 203,701-225,200                          | 114,601-126,700                | 73,301-81,100                | 53,001-58,600                  | 32,601-36,000         | 5,000                                          |                          |
| 225,201-247,700                          | 126,701-139,400                | 81,101-89,200                | 58,601-65,400                  | 36,001-39,600         | 5,250                                          |                          |
| 247,701-271,200                          | 139,401-152,600                | 89,201-97,700                | 65,401-70,600                  | 39,601-43,400         | 5,500                                          |                          |
| 271,201-295,900                          | 152,601-166,500                | 97,701-106,500               | 70,601-77,000                  | 43,401-47,400         | 5,750                                          |                          |
| 295,901-Greater                          | 166,501-Greater                | 106,501-115,800              | 77,001-83,700                  | 47,401-51,500         | 6,000                                          |                          |
| —                                        | —                              | 115,801-125,500              | 83,701-90,600                  | 51,501-55,700         | 6,250                                          |                          |
| —                                        | —                              | 125,501-135,500              | 90,601-97,900                  | 55,701-60,200         | 6,500                                          |                          |
| —                                        | —                              | 135,501-145,800              | 97,901-106,800                 | 60,201-64,800         | 6,750                                          |                          |
| —                                        | —                              | 145,801-156,700              | 106,801-113,200                | 64,801-69,600         | 7,000                                          |                          |
| —                                        | —                              | 156,701-167,900              | 113,201-121,300                | 69,601-74,600         | 7,250                                          |                          |
| —                                        | —                              | 167,901-179,400              | 121,301-129,600                | 74,601-79,800         | 7,500                                          |                          |
| —                                        | —                              | 179,401-191,400              | 129,601-138,300                | 79,801-85,100         | 7,750                                          |                          |
| —                                        | —                              | 191,401-Greater              | 138,301-Greater                | 85,101-Greater        | 8,000                                          |                          |

For SI 1 square foot = 0.0929 m<sup>2</sup>, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

- a. The minimum required fire flow shall be permitted to be reduced by 25 percent for Group R.
- b. Types of construction are based on the *International Building Code*.
- c. Measured at 20 psi.

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# INTERNATIONAL FIRE CODE®



# 2003

## APPENDIX C

# FIRE HYDRANT LOCATIONS AND DISTRIBUTION

*The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.*

### SECTION C101 GENERAL

**C101.1 Scope.** Fire hydrants shall be provided in accordance with this appendix for the protection of buildings, or portions of buildings, hereafter constructed.

### SECTION C102 LOCATION

**C102.1 Fire hydrant locations.** Fire hydrants shall be provided along required fire apparatus access roads and adjacent public streets.

### SECTION C103 NUMBER OF FIRE HYDRANTS

**C103.1 Fire hydrants available.** The minimum number of fire hydrants available to a building shall not be less than that listed in Table C105.1. The number of fire hydrants available to a complex or subdivision shall not be less than that determined by spacing requirements listed in Table C105.1 when applied to fire apparatus access roads and perimeter public streets from which fire operations could be conducted.

### SECTION C104 CONSIDERATION OF EXISTING FIRE HYDRANTS

**C104.1 Existing fire hydrants.** Existing fire hydrants on public streets are allowed to be considered as available. Existing fire hydrants on adjacent properties shall not be considered available unless fire apparatus access roads extend between properties and easements are established to prevent obstruction of such roads.

### SECTION C105 DISTRIBUTION OF FIRE HYDRANTS

**C105.1 Hydrant spacing.** The average spacing between fire hydrants shall not exceed that listed in Table C105.1.

**Exception:** The fire chief is authorized to accept a deficiency of up to 10 percent where existing fire hydrants provide all or a portion of the required fire hydrant service.

Regardless of the average spacing, fire hydrants shall be located such that all points on streets and access roads adjacent to a building are within the distances listed in Table C105.1.

**TABLE C105.1  
NUMBER AND DISTRIBUTION OF FIRE HYDRANTS**

| FIRE-FLOW REQUIREMENT<br>(gpm) | MINIMUM NUMBER<br>OF HYDRANTS | AVERAGE SPACING<br>BETWEEN HYDRANTS <sup>a, b, c</sup><br>(feet) | MAXIMUM DISTANCE FROM<br>ANY POINT ON STREET OR ROAD<br>FRONTAGE TO A HYDRANT <sup>d</sup> |
|--------------------------------|-------------------------------|------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| 1,750 or less                  | 1                             | 500                                                              | 250                                                                                        |
| 2,000-2,250                    | 2                             | 450                                                              | 225                                                                                        |
| 2,500                          | 3                             | 450                                                              | 225                                                                                        |
| 3,000                          | 3                             | 400                                                              | 225                                                                                        |
| 3,500-4,000                    | 4                             | 350                                                              | 210                                                                                        |
| 4,500-5,000                    | 5                             | 300                                                              | 180                                                                                        |
| 5,500                          | 6                             | 300                                                              | 180                                                                                        |
| 6,000                          | 6                             | 250                                                              | 150                                                                                        |
| 6,500-7,000                    | 7                             | 250                                                              | 150                                                                                        |
| 7,500 or more                  | 8 or more <sup>e</sup>        | 200                                                              | 120                                                                                        |

For SI: 1 foot = 304.8 mm, 1 gallon per minute = 3.785 L/m

a Reduce by 100 feet for dead-end streets or roads.

b Where streets are provided with median dividers which can be crossed by fire fighters pulling hose lines, or where arterial streets are provided with four or more traffic lanes and have a traffic count of more than 30,000 vehicles per day, hydrant spacing shall average 500 feet on each side of the street and be arranged on an alternating basis up to a fire-flow requirement of 7,000 gallons per minute and 400 feet for higher fire-flow requirements.

c Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, fire hydrants shall be provided at spacing not to exceed 1,000 feet to provide for transportation hazards.

d Reduce by 50 feet for dead-end streets or roads.

e One hydrant for each 1,000 gallons per minute or fraction thereof.

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