

Methodology of Calculating Wholesale Water Rate to Elizabethtown

I. General Philosophy

A. Elizabethtown shall share a pro-rated portion of the Districts' Operation and Maintenance Costs as follows:

1. Water Treatment Plant Costs shall be shared on a pro-rated basis with adjustments for Line Loss
2. Transmission and Distribution Costs shall be shared on a pro-rated usage basis with adjustment based on inch-miles proportion, i.e. inch miles of pipe line utilized by E-town versus total inch-miles of District system.
3. Administrative General Costs shall be shared on a pro-rated usage basis with a 33.33% multiplier.
4. Electrical pumping Costs at Cecilia Pump Station based on pro-rated usage basis.

B. Elizabethtown shall share a pro-rated portion of the Districts' Debt Service (including coverage) and Depreciation based on portion of system reserved for Elizabethtown as compared to total capacity.

C. Elizabethtown does not share any of the Districts' customer service costs such as meter reading, billing, and customer service representatives.

D. Elizabethtown does not share any of the Districts Debt Service (plus coverage) or Depreciation for Capital projects not utilized by Elizabethtown.

II. Definitions, Factors, Ratios, and Techniques

A. The District Annual Report submitted to the Public Service Commission delineates (or shall be modified to delineate) the following:

1. Water Treatment Expenses - Includes payroll and benefit costs of staff working only on water treatment plus chemicals, electricity, and various expenses at water treatment plant (T&P).
2. Transmission and Distribution Expenses - Includes cost of staff and various expenses specifically related to T&D.
3. Administrative and General Expenses - Includes staff and miscellaneous expenses specifically related to overall management, accounting, purchasing, personnel, and computer services and excludes customer service.
4. Total Water Produced and Purchased.
5. Total Water Sold
6. Percent of Line Loss relative to water produced and purchased. Typically $\pm 14\%$.

B. Debt Service and Depreciation Costs are as follows:

| | | |
|--|------------|----------|
| 1. Debt Service (including 20% Coverage) | | |
| Water Treatment Plant (existing)..... | \$ 331,058 | per year |
| 24" Pipe | \$ 556,148 | per year |
| Cecilia and Pear Orchard Tanks (including Telemetry) | \$ 200,152 | per year |
| Cecilia Pump Station (original) | \$ 18,968 | per year |
| Water Treatment Plant (expansion) | \$ 625,886 | per year |
| Cecilia Pump Station (upgrade) | \$ 2,685 | per year |
| Pear Orchard Loop to Loctust Grove | \$ 294,585 | per year |
| 2. Depreciation | | |
| Water Treatment Plant (existing) | \$ 75,291 | |
| 24" Pipe | \$ 108,849 | |
| Cecilia and Pear Orchard Tanks (includes Telemetry) | \$ 36,314 | |
| Cecilia Pump Station (original) | \$ 7,846 | |
| Water Treatment Plant (expansion) | \$ 107,550 | |
| Cecilia Pump Station (upgrade) | \$ 665 | |
| Pear Orchard Loop to Loctust Grove | \$ 58,917 | |

C. Pro-rata Usage Factor = $\frac{\text{Amount of Water Sold to E-town}}{\text{Total Water Sold (Includes E-town)}}$ = 0.2557 Exhibit 1
 (PRUF)

D. Water Treatment Capacity Factor = $\frac{\text{Capacity reserved for E-town}}{\text{Total Capacity of Treatment Plant}}$ = 0.1852
 (WTPCF)
 Note: 8.1 mgd equals capacity of plant

E. Tank/Telemetry Capacity Factor = $\frac{\text{Tank Capacity Reserved - E-Town}}{\text{Total Capacity of Cecilia/Pear Orchard Tanks}}$ = 0.25
 (T&T CF)
 Note: 2.0 mg equals capacity of Cecilia and Pear Orchard Tanks; 0.5 is reserved for E-town

F. 24" Line Capacity Factor = $\frac{\text{Capacity reserved for E-town}}{\text{Total Line Capacity}}$ = 0.1852
 (24" LCF)
 Note: Assume 24" capacity equals 8.1 mgd

G. Cecilia Pump Station Factor = $\frac{\text{Capacity reserved for E-town}}{\text{Total Capacity of Pump Station}}$ = 0.1852
 (PSCF)
 Note: Total capacity of station is 8.1 mgd

H. Inch Mile Ratio - The inch mile ratio is used to adjust E-town's T&D costs and to adjust for Line Loss.

Inch Mile Ratio = $\frac{\text{Inch mile of pipeline jointly used by E-town}}{\text{Total inch miles of system}}$ = 0.1293 Exhibit 2
 (IMR)

I. Adjustment for Line Loss and Plant Use - This procedure provides a Water Production Multiplier (WPM) for the District and E-town which in effect calculates the amount of water produced to sell a given amount. Included in the adjustment is water used in the plant. The Multiplier is determined by adding Line Loss and Plant Use and on a mathematically calculating multiplier. For E-town, Line Loss is allocated based on the Inch Mile Ratio.

| | | |
|---------------------------------------|--------------------------------------|-----------|
| Line Loss = LL (expressed as decimal) | | Exhibit 1 |
| Plant Use = PU (expressed as decimal) | | Exhibit 1 |
| Inch Mile ratio = IMR | | |
| District WPM = | $\frac{1}{1 - (LL+PU)}$ | = 1.3893 |
| E-town WPM = | $\frac{1}{1 - (LL \times IMR + PU)}$ | = 1.1596 |

J. Treatment Cost Allocation Factor (TCAF) is determined as follows:

| | | |
|---|--|----------|
| TCAF = PRUF x $\frac{\text{E-town WPM}}{\text{District WPM}}$ | | = 0.2135 |
|---|--|----------|

K. Transmission and Distribution Cost Allocation Factor (TDCAF) is determined as follows:

| | | |
|--------------------|--|----------|
| TDCAF = PRUF x IMR | | = 0.0331 |
|--------------------|--|----------|

L. Administrative and General Cost Allocation Factor (AGCAF) is determined as follows:

| | | |
|-----------------------|--|----------|
| AGCAF = PRUF x 0.3333 | | = 0.0852 |
|-----------------------|--|----------|

M. Cecilia Pump Station Cost Allocation Factor (PSCAF) is determined as follows:

| | | |
|---|--|----------|
| PSCAF = $\frac{\text{Amount of Water Sold to E-town}}{\text{Total Water Pumped as Pump Station}}$ | | = 0.4242 |
|---|--|----------|

Note: The PSCAF is to allocate electrical costs at Cecilia pump station. No multipliers are used since they would be the same.

III. Rate Calculation Technique

Elizabethtown Cost of Service is the summation of the following:

| | | | | |
|----|--|---|--------|-------------------|
| a. | Water Treatment Plant Cost x TCAF | | | <u>\$ 279,254</u> |
| | \$ 1,308,205 | x | 0.2135 | |
| b. | Transmission and Distribution Cost x TDCAF | | | <u>\$ 55,619</u> |
| | \$ 1,682,673 | x | 0.0331 | |
| c. | Administrative and General Cost x AGCAF | | | <u>\$ 57,769</u> |
| | \$ 677,757 | x | 0.0852 | |
| d. | Electrical Cost Cecilia Pump Station x PSCAF | | | <u>\$ 63,805</u> |
| | \$ 150,410 | x | 0.4242 | |
| e. | Total WTP Debt Service x WTPCF | | | <u>\$ 177,212</u> |
| | \$ 956,944 | x | 0.1852 | |
| f. | Tank and Telemetry Debt Service x T&T CF | | | <u>\$ 50,038</u> |
| | \$ 200,152 | x | 0.2500 | |
| g. | 24" Line Debt Service x 24" LCF | | | <u>\$ 157,543</u> |
| | \$ 850,733 | x | 0.1852 | |
| h. | Cecilia Pump Station Debt Service x PSCF | | | <u>\$ 4,010</u> |
| | \$ 21,653 | x | 0.1852 | |
| i. | Total WTP Funded Depreciation x WTPCF | | | <u>\$ 33,859</u> |
| | \$ 182,841 | x | 0.1852 | |
| j. | Tank and Telemetry Funded Depreciation x T&T CF | | | <u>\$ 9,079</u> |
| | \$ 36,314 | x | 0.2500 | |
| k. | 24" Line Funded Depreciation x 24" LCF | | | <u>\$ 31,068</u> |
| | \$ 167,766 | x | 0.1852 | |
| l. | Cecilia Pump Station Funded Depreciation x PSCAF | | | <u>\$ 1,576</u> |
| | \$ 8,511 | x | 0.1852 | |
| | Total Elizabethtown Cost of Service | | | <u>\$ 920,831</u> |

The Elizabhtown Rate is:

Elizabethtown Cost of Service
Elizabethtown Purchase Amount

The Elizabhtown Rate is:

\$ 920,831 = \$ 2.2935
401,500,000

Exhibit 1 Total Water Sold and Used and Lost

Per PSC Report dated December 31, 2012, pg 58 of 71

| | |
|--|-------------------|
| 2012 Retail water sold to District customers | 1,140,062,000 |
| 2012 Fire Department Usage | 1,848,000 |
| 2012 Other Uses (Shop Use, Plant Use, Testing) | <u>26,582,000</u> |
| Total HCWD#2 Water | 1,168,492,000 gal |

Elizabethtown Water

Daily Usage: 1.10 million gallons per day minimum

Daily Usage Reserve: 1.50 million gallons per day capacity reserved

Yearly: 401,500,000 gal

Total Water Sold 1,569,992,000 gal

$$\text{PRUF} = \frac{401,500,000}{1,569,992,000} = 0.2557$$

Per PSC Report dated December 31, 2012, pg 58 of 71

| | |
|------------------------|---------------|
| 2012 Plant Use | 215,312,748 |
| 2012 Raw Water Treated | 1,848,272,000 |

$$\text{PU} = \frac{215,312,748}{1,848,272,000} = 0.1165$$

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| | |
|----------------------------------|--------------------|
| 2012 Water Flushed and New Mains | 28,430,000 |
| 2012 Unaccounted Leaks | 274,124,000 |
| Total Losses | <u>302,554,000</u> |

$$\text{LL} = \frac{302,554,000}{1,848,272,000} = 0.1637$$

Exhibit 2 Inch Mile Ratio

Ring Road Interconnect

| Size | Linear Feet | Miles | IMR |
|------|-------------|--------|---------|
| 12 | 11157.34 | 2.113 | 25.358 |
| 24 | 68626.79 | 12.997 | 311.940 |
| | | Total | 337.298 |

Pear Orchard Interconnect

| Size | Linear Feet | Miles | IMR |
|------|-------------|-------|---------|
| 8 | 2369.65 | 0.449 | 3.590 |
| 10 | 16.15 | 0.003 | 0.031 |
| 12 | 28.82 | 0.005 | 0.066 |
| 24 | 23463.92 | 4.444 | 106.654 |
| | | Total | 110.341 |

Buffalo Creek Interconnect

| Size | Linear Feet | Miles | IMR |
|------|-------------|-------|---------|
| 8 | 85.75 | 0.016 | 0.130 |
| 20 | 7891.12 | 1.495 | 29.891 |
| 24 | 19807.16 | 3.751 | 90.033 |
| | | Total | 120.053 |

Loctust Grove Road Interconnect

| Size | Linear Feet | Miles | IMR |
|------|-------------|-------|---------|
| 10 | 85.35 | 0.016 | 0.162 |
| 20 | 13735.27 | 2.601 | 52.028 |
| 24 | 13991.08 | 2.650 | 63.596 |
| | | Total | 115.785 |

Total E-town Inch Miles: 683.476

Total HCWD#2 Inch Miles: 5288.0

$$\text{IMR} = \frac{683.476}{5288.0} = 0.1293$$

Exhibit 3 Cecilia Pump Station Electrical Cost

| | | |
|--|----|---------------|
| Average Monthly Electrical Cost: | \$ | 12,534.17 |
| Yearly Cost: | \$ | 150,410.00 |
| 2012 Cecilia Pump Station Gallons Pumped | | 1,271,693,520 |
| 2012 Etown Water Sold | | 406,571,000 |
| 2012 Etown Percentage | | 31.97% |
| 2012 Etown Cost | \$ | 48,087.33 |
| 2012 Etown Cost/1000 gal | \$ | 0.1183 |

Exhibit 4 Plant Treatment Costs

Per PSC Report dated December 31, 2012, pg 50 of 71

| | | |
|--------------------------|----|--------------|
| Salaries | \$ | 449,330.00 |
| Benefits | \$ | 180,775.00 |
| Purchased Water | \$ | 2,497.00 |
| Purchased Power | \$ | 272,102.00 |
| Chemicals | \$ | 289,501.00 |
| Materials and Supplies | \$ | 66,811.00 |
| Contract Services | \$ | 33,706.00 |
| Ins. Workers Comp. | \$ | 2,494.00 |
| Miscellaneous Expenses | \$ | 10,989.00 |
| Treatment Cost for Water | \$ | 1,308,205.00 |

Exhibit 5 Transmission and Distribution Costs

Per PSC Report dated December 31, 2012, pg 50 of 71

| | | |
|-----------------------------|----|--------------|
| Salaries | \$ | 737,437.00 |
| Benefits | \$ | 334,971.00 |
| Purchased Power | \$ | 150,410.00 |
| Chemicals | \$ | - |
| Materials and Supplies | \$ | 82,033.00 |
| Contract Services | \$ | 131,198.00 |
| Transportation Expenses | \$ | 197,721.00 |
| Ins. Workers Comp. | \$ | 5,311.00 |
| Miscellaneous Expenses | \$ | 43,592.00 |
| Transmission Cost for Water | \$ | 1,682,673.00 |

Exhibit 6 2012 Administration and General Costs

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| | | |
|-------------------------------|----|------------|
| Salaries - Administration | \$ | 292,734.00 |
| Salaries - Commissioners | \$ | 30,250.00 |
| Benefits - Administration | \$ | 88,653.73 |
| Benefits - Commissioners | \$ | 55,275.27 |
| Ins. Workers Comp. - Admin. | \$ | 1,517.18 |
| Ins. Workers Comp. - Comm. | \$ | 1,354.82 |
| Contractual Services - Legal | \$ | 6,000.00 |
| Contractual Services - Acct | \$ | 12,500.00 |
| Contractual Services - Admin. | \$ | 21,522.00 |
| Rental of Equipment | \$ | 636.00 |
| Insurance - Vehicle | \$ | 14,832.00 |
| Insurance - General Liability | \$ | 47,853.00 |
| Materials & Supplies - Admin. | \$ | 31,606.00 |
| Advertising Expense | \$ | 1,590.00 |
| Miscellaneous Expense - Admin | \$ | 71,433.00 |
| Total Costs: | \$ | 677,757.00 |