



**AGENDA**  
**Water and Wastewater Financing Board**

May 8, 2014  
10:00 am  
Room 31, Legislative Plaza  
301 Sixth Avenue North  
(6<sup>th</sup> Avenue between Charlotte Avenue and Union Street)  
Nashville, Tennessee

Call to Order

Approval of Minutes

November 14, 2013

Cases:

Humphreys County Sewer  
City of Collinwood  
Lauderdale County Water System  
City of Munford  
Town of Huntland

Humphreys County  
Wayne County  
Lauderdale County  
Tipton County  
Franklin County

Status

Town of Sharon  
Town of Atwood  
Town of Englewood

Weakley County  
Carroll County  
McMinn County

Cases – Water loss:

Town of Westmoreland  
Town of Tiptonville  
City of Jellico  
City of McMinnville  
Town of Tellico Plains  
City of Hohenwald

Sumner County  
Lake County  
Campbell County  
Warren County  
Monroe County  
Lewis County

Miscellaneous:

Compliance reports  
Cases currently under WWFB jurisdiction  
Water loss annual review  
Next meeting

Open Discussion

Visitors to the Legislative Plaza are required to pass through a metal detector and must present photo identification. Individuals with disabilities who wish to participate in this meeting or to review filings should contact the Office of State and Local Finance to discuss any auxiliary aids or services need to facilitate such participation. Such contact may be in person or by writing, telephone or other means, and should be made prior to the scheduled meeting date to allow time to provide such aid or service. Contact the Office of State and Local Finance (Ms. Joyce Welborn) for further information.

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James K. Polk State Office Building  
Nashville, TN 37243-1402  
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MINUTES  
of the  
WATER AND WASTEWATER FINANCING BOARD MEETING  
November 14, 2013  
10:10 a.m.

Chair Ann Butterworth opened the meeting of the Water and Wastewater Financing Board (WWFB) at Legislative Plaza, Room 31, in Nashville, Tennessee.

Board members present and constituting a quorum:

Ann Butterworth, Chair, Comptroller Designee

Tom Moss, Department of Environment and Conservation (TDEC) Commissioner Designee

Randy Wilkins, Representing Utility Districts

Drexel Heidel, Active Employee of a Water Utility District

Ben Bolton, Representing Manufacturing Interests

Tamika Parker, Representing Environmental Interests

Betsy Crossley, Representing Municipalities

Members absent:

Kenny Wiggins, Active Employee of a Municipal Water System

Staff present from the Office of the Comptroller of the Treasury:

Joyce Welborn

Rachel Newton

Due to the presence of representatives for several communities, three items were taken out of the agenda order.

Status reports

Town of Huntsville/Scott County Sewer System

Ms. Welborn provided background on the Town of Huntsville from the previous meeting. Mayor George Potter, Alderman Paul Lay and MTAS representative Alan Major were present on behalf of the Town. Mayor Potter stated that Scott County had given the eastern part of its system serving 51 customers to the Town, but kept the related debt. The Town was already receiving the revenue from that section and covering the expenses. The plan was for the Town to take the entire County system eventually, but some additional details need to be worked out with the County. The Town's current sewer plant is being upgraded from 250,000 gallons per day to 1,000,000 gallons per day and will be able to handle the flow, but the County system will have to reverse its flow to get to the Town system. Engineers are currently working on the cost of the change in flow direction. The County is increasing its rates 20% annually for the next three years, so the City is matching those increases. After Mayor Potter spoke, Ms. Welborn related information received from the Scott County Mayor via email. Mr. Bolton moved to accept the actions by both the Town and the County with the 20% annual increase for the next three years for both entities and to continue to monitor the systems during the audit process. Scott County,

previously scheduled for the next meeting, will not be required to attend. Mr. Wilkins seconded the motion which carried unanimously.

#### Water loss case

##### City of New Johnsonville

Mr. Seth Rye, consulting engineer for the City, was present. Ms. Welborn presented the information submitted by the City. Mr. Rye stated that the City had recently hired Rye Engineering which had not worked on the water loss reporting worksheet being reviewed by the Board. He volunteered to follow up on questions from members. Mr. Moss moved to endorse the actions of the City and continue to monitor the loss. Mr. Bolton seconded the motion. Motion carried unanimously.

#### Approval of Minutes

Mr. Bolton moved approval of the minutes of July 11, 2013 with the addition of the phrase “The Mayor stated that the” at the start of the second sentence about the City of Sunbright. Ms. Parker seconded the motion. Motion was approved with Ms. Crossley abstaining.

#### Cases – Financial distress

##### Town of Kimball

At the July 2013 meeting, the Board voted to defer any action on Town of Kimball until counsel for the Board could clarify if the additional rate paid by the municipal buildings (a general fund subsidy) was legal. Ms. Newton stated that the Board does not have the authority in this matter to force the Town to change its rates or to bring a legal action against the Town regarding its rates. She suggested that the Board could comment that such actions are not a “best practice” endorsed by the Board, but that would be a policy decision to be determined by the Board. Mr. Bolton moved to reluctantly accept the actions of the Town and state that the additional rate set to be paid by municipal buildings was not a best practice endorsed by the Board. Mr. Heidel seconded the motion which carried unanimously.

##### Town of Obion

The Town of Obion had been reported to the Board as having a negative change in net assets in its water and sewer system for two consecutive years ending June 30, 2012. The current Mayor began his two-year term in November 2012. He attributed the financial condition to poor management and record keeping. The “borrowing” of a certified operator from a neighboring town also increased the expenses. By the end of 2013, town staff should be certified, thereby eliminating that expense. The Mayor is currently working to get a better understanding and control over the activities of the water and sewer system. Although the Mayor has stated that no rate increase is planned until July 2014, at the earliest, staff recommended that a small increase be put in place in January 2014. Mr. Moss moved to recommend the Town adopt a 3.5% increase effective January 1, 2014 or as soon as possible thereafter. Ms. Parker seconded the motion. Motion carried unanimously.

#### Town of Hornsby

The Town of Hornsby had been reported to the Board as having a negative change in net assets in its water system for two consecutive years ending June 30, 2012. During the construction project on Highway 64, the road was widened and the source of water was changed from Bolivar to Selmer. Most of the meters put in place when the system was installed in the 1970's were still in use. At its meeting in November 2013, the Town Council voted to increase its rates by 20% effective January 1, 2014. Mr. Wilkins moved to accept the Town's action of a 20% rate increase and suggest the adoption of written policies. Ms. Parker seconded the motion. Motion carried unanimously.

#### City of Ramer

The City of Ramer had been reported to the Board as having a negative change in net assets in its water and sewer system for five consecutive fiscal years. The City has been very active with rate endorsed by the Board in the past. However, those increases from FY 10 through FY 13 were not sufficient to offset the expenses averaging 5.2% annually. The City has adopted rate increases in FY 15 through FY 18 of 19.7%, 11.5%, 6.9% and 5.5%, respectively. Mr. Bolton moved to endorse the actions of the City regarding the rate increases with the assumption that the city has or is funding repair of the retention tank. The motion also included requiring the City to adopt and implement a meter replacement policy and contacting MTAS for an in-depth rate review. Mr. Moss seconded the motion which carried unanimously.

#### Status Reports

Towns of Henning, Hornbeak, Monterey, and Mosheim and the City of Sunbright were presented as status reports to follow up from the last meeting. No action was taken by the Board.

#### Town of Englewood

The Town of Englewood had been reported to the Board as having a negative change in net assets in its water and sewer system for three consecutive fiscal years. At the last meeting the Board had requested justification for the outside rates to be submitted for review at the next Board meeting. The Town has contacted MTAS and adjusted the rates based on that study. However, the Town requested additional time to determine the best plan of action.

#### Cases – water loss

Cases of water loss are presented to the Board but no action is taken unless specifically requested by members. The cases will continue to be reviewed annually until they are in compliance. The following cases were presented:

City of Ashland City

City of Dunlap

Town of Benton

Additional information was requested on the line and meter replacement program.

Town of Hollow Rock

Additional information was requested regarding the meter replacement policy which is to include a gradual replacement of meters. Also it was noted that the treatment plant does not have a meter, but should have one to accurately account for usage.

Status – water loss

Water loss status report was presented for the Town of Halls. The Board took no action.

Compliance Report

The following is in compliance with both financial distress and water loss: City of Cowan.

Jurisdiction List

Ms. Welborn stated that the Board package included a schedule identifying all systems which were currently under the Board's jurisdiction. A separate sheet was included for the systems dealing only with excessive water loss.

Future Meetings

Inquiry was made regarding water loss and what enforcement would be in the future. The concern was those entities that have increasing water losses instead of decreasing. Ms. Welborn stated that the Board has the authority through Chancery Court to enforce water loss issues similar to that for financial distress. She also stated that the water loss subcommittee has been established and hopefully will be involved in creating a second water loss "checklist" for systems with continuing water loss issues.

The next regular meeting was scheduled for March 13, 2014, at 10:00 a.m.in the Legislative Plaza.

Meeting was adjourned at 11:44 a. m.

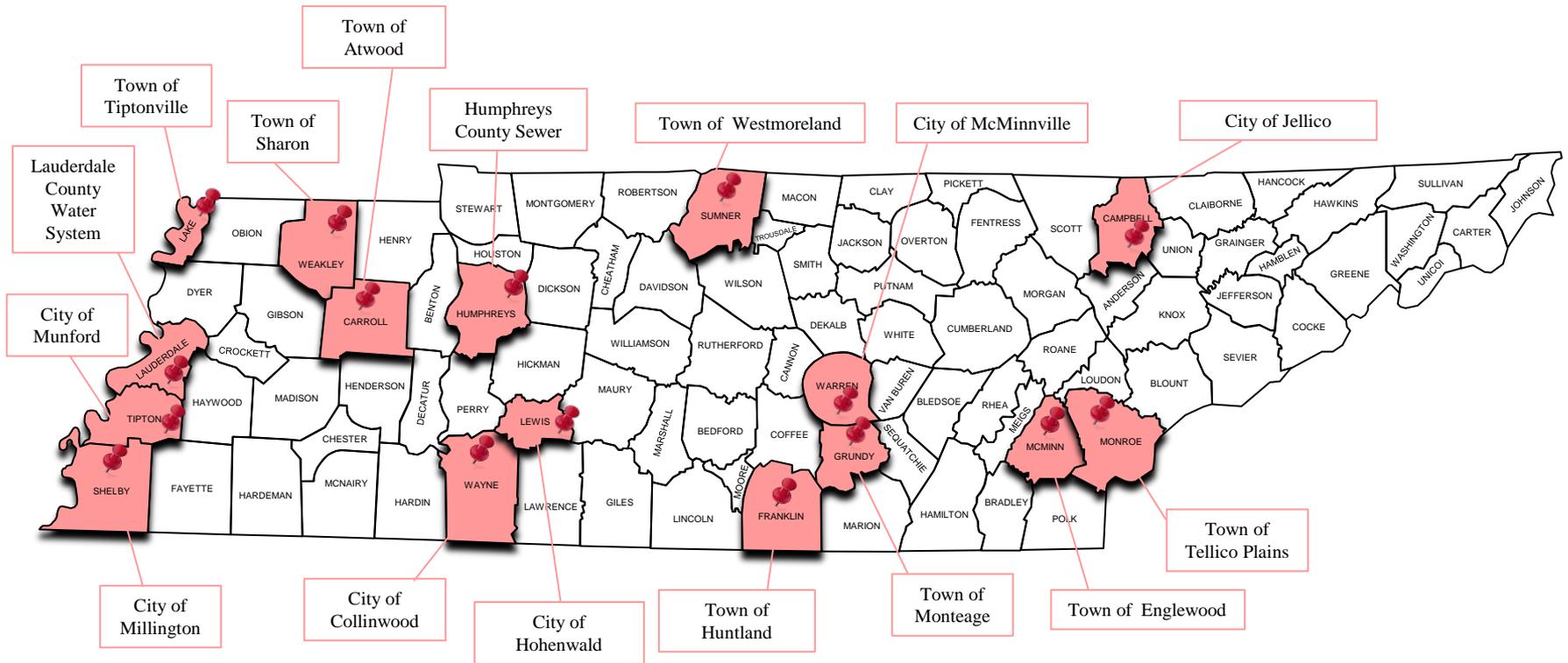
Respectfully submitted,

Ann Butterworth  
Chair

Joyce Welborn  
Board Coordinator

# WWF&B

## May 8, 2014



WATER AND WASTEWATER FINANCING BOARD  
Case Study

Case:                   Humphreys County Sewer System  
Mayor:                Jessie Wallace  
Customers:            16 sewer

The Humphreys County sewer system has been experiencing a negative change in net assets for the last five fiscal years according to the information contained in audited financial statements. All available financial and rate information is included on the attached sheet.

The wastewater system was installed in 1992 to resolve sewage treatment issues around Exit 143 in the Buffalo Community – just down the road from Loretta Lynn’s ranch. All customers are commercial entities except six, which are trailers. There is no growth in the system currently, but the potential is very high because of the interstate location. The system is on both sides of the interstate, but there are only four customers on the south side.

The system is debt free and has approximately three years of operating capital in the bank.

Water is provided by the City of Waverly, but the County prepares its own billings, based on water reading from the City, and collects for sewer service. The City does not disconnect water for non-payment of sewer service.

The commercial customers will pay \$7.92 per thousand gallons effective July 1, 2014, based on the water usage provided by the City of Waverly. The flat monthly fee of \$28.94 for residential customers is based on the projected usage of 3,800 gallons per month. Those customers are on well water and therefore not metered. The last three fiscal years have seen rate increases of 5% annually as promised to the Water and Wastewater Financing Board in 2012. Approximately 50% of the revenue comes from the Pilot Travel Center.

The operation of the system is contracted to Veteran Management Services.

The design capacity of the lagoon system is 100,000 gallons per day. The system has the ability to grow to meet any future needs for development. With the exception of I & I (infiltration and inflow) the environmental condition of the system is excellent. The current base treatment flow is approximately 55% of the plant’s capacity. During some rain events, the I & I is twice the amount it should be based on water usage. When running a camera through the pipes recently, it was discovered that there are two areas of major concern. One is a pipe that runs adjacent to an old abandoned “catch basin.” Engineers believe that digging down to repair the pipe will cause the catch basin will collapse and the road to cave in. The other issue is a pipe that runs at the base of a slope for an elevated parking lot/driveway that, when repairs are attempted, would result in the closing of a church. Engineers are also trying to design a plan to help that situation.

It is extremely difficult for such a small system to be considered financially stable. Staff's opinion is that there are at least two methods to allow the Humphreys County Sewer System remedy the financial distress:

1. Negotiate with the City of Waverly regarding a takeover of the system. Although that would not solve the I & I problem, it would allow the costs to be spread over a larger revenue base. The City currently has the water service for most of the customers in the area.
2. Growth. Although the Tennessee Department of Economic and Community Development are aware of the potential for the area, nothing seems to be happening.

**The Humphreys County Executive and the manager of the sewer system, Lance Smith, will be at the meeting to make a presentation to the Board.**

| <b>HUMPHREYS COUNTY WASTEWATER SYSTEM</b> |                    |                    |                    |                    |                    |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|
| <b>HISTORY FILE</b>                       |                    |                    |                    |                    |                    |
|   | <b>Audited</b>     | <b>Audited</b>     | <b>Audited</b>     | <b>Audited</b>     | <b>Audited</b>     |
| <b>Fiscal Year 6/30</b>                   | <b>2009</b>        | <b>2010</b>        | <b>2011</b>        | <b>2012</b>        | <b>2013</b>        |
| Sewer revenues                            | \$ 85,560          | \$ 97,645          | \$ 105,661         | \$ 98,064          | \$ 101,850         |
| Other revenue                             | \$ 1,252           |                    |                    | \$ 2,033           | \$ 269             |
| Contributions                             | \$ 25,992          |                    |                    |                    |                    |
| <b>Total Revenue</b>                      | <b>\$ 112,804</b>  | <b>\$ 97,645</b>   | <b>\$ 105,661</b>  | <b>\$ 100,097</b>  | <b>\$ 102,119</b>  |
| <b>Total Expenses</b>                     | <b>\$ 124,529</b>  | <b>\$ 126,974</b>  | <b>\$ 132,238</b>  | <b>\$ 150,836</b>  | <b>\$ 149,254</b>  |
| Operating Income                          | \$ (11,725)        | \$ (29,329)        | \$ (26,577)        | \$ (50,739)        | \$ (47,135)        |
| Interest Expense                          |                    |                    |                    |                    |                    |
| <b>Change in Net Assets</b>               | <b>\$ (11,725)</b> | <b>\$ (29,329)</b> | <b>\$ (26,577)</b> | <b>\$ (50,739)</b> | <b>\$ (47,135)</b> |
| <u>Supplemental Information</u>           |                    |                    |                    |                    |                    |
| Principal payment                         |                    |                    |                    |                    |                    |
| Depreciation                              | \$ 45,678          | \$ 45,677          | \$ 45,677          | \$ 45,677          | \$ 45,677          |
| <b>Sewer rates</b>                        |                    |                    |                    |                    |                    |
| Per thousand gallons                      | \$ 6.83            |                    |                    |                    |                    |
| Sewer customers                           | 16                 |                    |                    |                    |                    |

## Joyce Welborn

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**From:** Jessie Wallace <jwallace@humphreystn.com>  
**Sent:** Wednesday, April 02, 2014 11:45 AM  
**To:** Joyce Welborn  
**Cc:** Lance Smith (vmslance@gmail.com)  
**Subject:** Humphreys County Waste Water System  
**Attachments:** 5.8.14 Projections.xlsx

Ms. Welborn

As requested, I attach here a spreadsheet containing projections for the current fiscal year. I have also projected out through 2016 with what I feel are reasonable assumptions, which include no growth variable. If we realize anticipated benefits from infiltration reduction, we'll be very close to breaking even by 2016 without any additional rate increases. Any new development by that point will push us over into the black by a good margin. At the same time we'll have no debt and strong fund balance.

Please let me know what you think.

Jessie R. Wallace  
Humphreys County Executive  
RM 1 Rawlings Building  
102 Thompson Street  
Waverly, TN 37185  
Phone: (931) 296-7795  
Fax: (931) 296-5011  
<http://www.humphreystn.com/>

## Humphreys County Waste Water System

### HISTORY FILE and Projections

|   | Audited               |                       | Audited               |                       | Audited               |                       | Projected *           |                      | Projected **         |  |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|----------------------|--|
|   | 2010                  | 2011                  | 2012                  | 2013                  | 2014                  | 2015                  | 2016                  | 2017                 | 2018                 |  |
| <b>Fiscal Year 6/30</b>   |                       |                       |                       |                       |                       |                       |                       |                      |                      |  |
| Sewer Revenues  | \$ 97,645.00          | \$ 105,661.00         | \$ 100,097.00         | \$ 102,119.00         | \$ 104,548.00         | \$ 109,775.00         | \$ 109,775.00         | \$ 109,775.00        | \$ 109,775.00        |  |
| Total Operating Revenue   | \$ 97,645.00          | \$ 105,661.00         | \$ 100,097.00         | \$ 102,119.00         | \$ 104,548.00         | \$ 109,775.00         | \$ 109,775.00         | \$ 109,775.00        | \$ 109,775.00        |  |
| Regular Operating Expense   | \$ 81,297.00          | \$ 86,561.00          | \$ 72,565.00          | \$ 72,764.00          | \$ 74,082.00          | \$ 74,082.00          | \$ 74,082.00          | \$ 68,082.00         | \$ 68,082.00         |  |
| Infiltration repair, Equipment  |                       |                       | \$ 32,594.00          | \$ 30,812.00          | \$ 13,425.42          | \$ 60,000.00          | \$ 60,000.00          | \$ -                 | \$ -                 |  |
| Depreciation  | \$ 45,677.00          | \$ 45,677.00          | \$ 45,677.00          | \$ 45,678.00          | \$ 45,677.00          | \$ 45,677.00          | \$ 45,677.00          | \$ 45,677.00         | \$ 45,677.00         |  |
| Total Expenses  | \$ 126,974.00         | \$ 132,238.00         | \$ 150,836.00         | \$ 149,254.00         | \$ 133,184.42         | \$ 179,759.00         | \$ 179,759.00         | \$ 113,759.00        | \$ 113,759.00        |  |
| <b>Total Operating Income (Loss)</b>  | <b>\$ (29,329.00)</b> | <b>\$ (26,577.00)</b> | <b>\$ (50,739.00)</b> | <b>\$ (47,135.00)</b> | <b>\$ (28,636.42)</b> | <b>\$ (69,984.00)</b> | <b>\$ (69,984.00)</b> | <b>\$ (3,984.00)</b> | <b>\$ (3,984.00)</b> |  |
| <b>Notes:</b>   |                       |                       |                       |                       |                       |                       |                       |                      |                      |  |
| Infiltration Repair will probably not re-commence until after the end of the current Fiscal Year                                |                       |                       |                       |                       |                       |                       |                       |                      |                      |  |
| Estimate of addition infiltration repair in calendar year 2014 = <b>\$60,000</b>  |                       |                       |                       |                       |                       |                       |                       |                      |                      |  |
| Beginning in 2015 Est Annual savings from Chemical Expense and Electricity after repair = <b>\$6,000</b>                        |                       |                       |                       |                       |                       |                       |                       |                      |                      |  |
| Approved and Scheduled 5% in Fiscal Year 2014-2015  |                       |                       |                       |                       |                       |                       |                       |                      |                      |  |
| Cash on hand as of 1/31/14 = <b>\$335,325.11</b>  |                       |                       |                       |                       |                       |                       |                       |                      |                      |  |
| <b>Zero debt</b>  |                       |                       |                       |                       |                       |                       |                       |                      |                      |  |
| These projections assume no addition development. We have capacity for approximately 40% growth and do expect it to materialize |                       |                       |                       |                       |                       |                       |                       |                      |                      |  |
| * Based on Actual numbers through 1/31/14   |                       |                       |                       |                       |                       |                       |                       |                      |                      |  |
| ** Assumes we've completed Infiltration related Rehab   |                       |                       |                       |                       |                       |                       |                       |                      |                      |  |

WATER AND WASTEWATER FINANCING BOARD  
Case Study

Case: City of Collinwood, Wayne County  
Mayor: Jasper Brewer  
Customers: 687 water  
Water Loss: 51.3%

The City of Collinwood has been experiencing a negative change in net assets in its water system for at least two consecutive fiscal years according to the information contained in audited financial statements as of June 30, 2011. The water system also has excessive water losses. The financial and rate history is attached.

Within the last 12 months, audited financial statements for FY 09, FY 10 and FY 11 have been submitted to our office. The audited statements for FY 12 were scheduled to be filed with the Comptroller of the Treasury by October 31, 2013. The reason for the delay, in part, is an investigative audit conducted by the Comptroller of the Treasury. That investigation resulted in the indictment of one former city recorder for theft over \$60,000. Since the investigation, other city employees have been dismissed, including the city manager. The former city manager has filed a lawsuit and requested reinstatement. That lawsuit is pending. The current city manager started September 6, 2013. A second special investigation was also conducted.

The new administration has a great deal to overcome in the next few years.

- Accounting changes need to be made to allocate sewer and water expenses to the appropriate fund. Currently, all expenditures for salaries, fringe benefits, postage, etc are being charged only to the water fund.
- Internal controls within the office have been virtually non-existent until very recently. Now all three staff personnel in the office have a different role in the receipt, balancing and deposits of the revenue.
- When asked about various policies the City may have in place, staff was told that the Board had adopted some, but they were not in a manual in easy to locate form. Staff suggested that TAUD be contacted in order to utilize the utility district policy manual as a guide. The City does have a debt management policy.
- Rates need to be evaluated to determine if they are sufficient – after other allocations have been made. Rates will probably need to be increased, but the rate levels may also need adjusting. MTAS has prepared a rate study.
- Capital asset records need to be reviewed to determine if the assets are still in use or if the depreciation expense should be adjusted.
- The bulk water sales policy is also being addressed. Currently an honor system is used to allow the purchaser to notify the City Hall staff of the information regarding billing, amount purchased, etc. Corrections made in this area may help

with the 51% water loss currently reported in the audit. TAUD should also be contacted to help with the AWWA form.

**At the time of packet preparation, information had not been received from the City. Therefore, there is no recommendation from staff at this time. Meetings were to be held on April 14 and 21, 2014 to approve rate adjustments. The City will continue to be under the jurisdiction of the Board until an audit is received which reflects compliance.**

| <b>CITY OF COLLINWOOD</b>       |                   |                   |                    |
|---------------------------------|-------------------|-------------------|--------------------|
| <b>HISTORY FILE</b>             |                   |                   |                    |
|                                 | <b>Audited</b>    | <b>Audited</b>    | <b>Audited</b>     |
| <b>fiscal year ended 6/30</b>   | <b>2009</b>       | <b>2010</b>       | <b>2011</b>        |
| Water revenues                  | \$ 282,257        | \$ 283,670        | \$ 248,861         |
| Other revenues                  | \$ 4,838          | \$ 11,780         | \$ 2,697           |
| Insurance recovery              |                   |                   | \$ 6,070           |
| Grant revenue                   |                   |                   | \$ 4,051           |
| <b>Total Operating Revenues</b> | <b>\$ 287,095</b> | <b>\$ 295,450</b> | <b>\$ 261,679</b>  |
| <b>Total Operating Expenses</b> | <b>\$ 286,421</b> | <b>\$ 298,569</b> | <b>\$ 281,552</b>  |
| Operating Income                | \$ 674            | \$ (3,119)        | \$ (19,873)        |
| Interest Expense                | \$ 5,798          | \$ 5,163          | \$ 4,625           |
| <b>change in net assets</b>     | <b>\$ (5,124)</b> | <b>\$ (8,282)</b> | <b>\$ (24,498)</b> |
| <u>Supplemental Information</u> |                   |                   |                    |
| Principal payment               | \$ 28,796         | \$ 23,060         | \$ 23,098          |
| Depreciation                    | \$ 77,875         | \$ 78,397         | \$ 79,068          |
| <b><u>Water Rates</u></b>       |                   |                   |                    |
| <b><u>Inside</u></b>            |                   |                   |                    |
| First 2,000 gallons             | \$ 12.30          | \$ 12.30          | \$ 12.30           |
| All over                        | \$ 6.212          | \$ 6.212          | \$ 6.21            |
| <b><u>Outside</u></b>           |                   |                   |                    |
| First 2,000 gallons             | \$ 17.40          | \$ 17.40          | \$ 17.40           |
| All over                        | \$ 12.375         | \$ 12.375         | \$ 12.38           |
| Water customers                 | 701               | 693               | 687                |
| <b>Water loss</b>               | <b>45.96%</b>     | <b>51.30%</b>     | <b>51.300%</b>     |

## WATER AND WASTEWATER FINANCING BOARD

### Case Study

Case: Lauderdale County Water System  
Superintendent: Randy Newman  
Customers: 3,809 water  
Validity Score: 69  
Non-revenue water: 9.7%

The Lauderdale County Water system has been experiencing a negative change in net assets in its water system for two consecutive years according to the information contained in audited financial statements. All financial and rate information is included in the attached history file.

The last rate increase was in 1995.

Ninety percent of the water sold is treated by the system. The remaining 10% is purchased from the City of Ripley for \$2.90 per thousand gallons. That portion of the system contains the 780 oldest meters.

Several years ago, a flood hit the area resulting in the loss of approximately 100 metered customers. For the most part, those residents never returned to the houses which remain vacant.

Fifty percent of the meters are over 20 years old. It is estimated that it will take \$1,000,000 to replace all of them.

The attached information reflects actions that the system has taken to reach financial compliance. Thus far, it appears that the efforts have paid off. The positive change in net assets, as of January 31, 2014, is approximately \$45,000.

At its February meeting, the Board voted to decrease the minimum bill from 2,000 gallons to 1,500 gallons. Officials project that the change will generate \$90,000 in additional revenue.

**Staff recommends the Board endorse the actions of the Lauderdale County Water system based on the attached information submitted.** Staff will continue to monitor the financial condition of the Town until audited financial statements reflect compliance.

| LAUDERDALE COUNTY WATER SYSTEM  |                     |                     |                     |                     |                     |                     |          |
|---------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------|
| HISTORY FILE                    |                     |                     |                     |                     |                     |                     |          |
|                                 | Audited             | Audited             | Audited             | Audited             | Audited             | Audited             |          |
| Fiscal Year June 30             | 2008                | 2009                | 2010                | 2011                | 2012                | 2013                |          |
| Water revenues                  | \$ 1,161,089        | \$ 1,131,931        | \$ 1,170,836        | \$ 1,205,434        | \$ 1,181,247        | \$ 1,173,686        |          |
| Other revenues                  | \$ 114,768          | \$ 58,271           | \$ 47,525           | \$ 39,664           | \$ 34,813           | \$ 18,078           |          |
| Grant Income                    | \$ 6,202            | \$ 493,798          |                     |                     |                     |                     |          |
| <b>Total Operating Revenues</b> | <b>\$ 1,282,059</b> | <b>\$ 1,684,000</b> | <b>\$ 1,218,361</b> | <b>\$ 1,245,098</b> | <b>\$ 1,216,060</b> | <b>\$ 1,191,764</b> |          |
| <b>Total Operating Expenses</b> | <b>\$ 1,109,992</b> | <b>\$ 1,165,782</b> | <b>\$ 1,213,818</b> | <b>\$ 1,192,519</b> | <b>\$ 1,248,097</b> | <b>\$ 1,248,146</b> |          |
| Operating Income                | \$ 172,067          | \$ 518,218          | \$ 4,543            | \$ 52,579           | \$ (32,037)         | \$ (56,382)         |          |
| Interest Expense                | \$ 36,399           | \$ 34,754           | \$ 33,324           | \$ 33,035           | \$ 31,655           | \$ 28,411           |          |
| <b>Change in Net Position</b>   | <b>\$ 135,668</b>   | <b>\$ 483,464</b>   | <b>\$ (28,781)</b>  | <b>\$ 19,544</b>    | <b>\$ (63,692)</b>  | <b>\$ (84,793)</b>  |          |
| <u>Supplemental Information</u> |                     |                     |                     |                     |                     |                     |          |
| Principal payment               | \$ 22,753           | \$ 24,268           | \$ 25,198           | \$ 22,559           | \$ 17,101           | \$ 693,469          |          |
| Depreciation                    | \$ 236,279          | \$ 229,876          | \$ 244,168          | \$ 260,269          | \$ 273,041          | \$ 273,234          |          |
| <b>Water Rates</b>              |                     |                     |                     |                     |                     |                     | Mar-13   |
| Per 2,000 gallons               | \$ 10.00            | \$ 10.00            | \$ -                | \$ -                | \$ 10.00            | \$ 10.00            | \$ 11.00 |
| All Over                        | \$ 4.50             | \$ 4.50             | \$ -                | \$ -                | \$ 5.25             | \$ 5.25             | \$ 6.00  |
| Customers                       | 3,963               | 3,915               |                     |                     | 3,830               | 3,809               |          |
| <b>Water Loss</b>               | <b>5.86%</b>        | <b>4.79%</b>        | <b>33%</b>          | <b>30%</b>          | <b>28.344%</b>      |                     |          |
| <b>Non-Revenue Water Loss</b>   |                     |                     |                     |                     |                     | <b>9.70%</b>        |          |
| <b>Validity Score</b>           |                     |                     |                     |                     |                     | <b>69</b>           |          |

**LAUDERDALE COUNTY WATER SYSTEM****550 CENTRAL CURVE RD.****RIPLEY, TN 38063****PHONE 731-635-2711 FAX 731-635-0027**

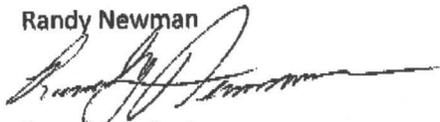
April 10, 2014

Dear Water and Wastewater Financing Board:

Please see attached with this letter our plan to reduce our expenses and raise our income. This plan has been in force for several months and so far has had a positive impact on our income. We are monitoring this very closely and are looking for any other areas to reduce our expenses that won't have a negative impact on our water treatment system. We have made it our goal to keep our finances in a positive position. I have informed my board members that I will be presenting them an agenda to discuss our rates at least once per year. If you need any further information or have any further advice please contact me at the above phone number or 731-612-0196 or [rnewmanlcws@hotmail.com](mailto:rnewmanlcws@hotmail.com).

Thanks

Randy Newman



Superintendent

**EXPENSE REDUCTION PLAN**

1. Layoff 1 employee ( approx. \$25,000 per savings, if it don't create overtime)
2. Repair distribution system lines with the least expensive parts when possible without jeopardizing the quality of the repair.
3. Talked with the guys to make sure they are not traveling in the trucks when it's not necessary. (for example no riding around on lunch break) Possible fuel savings. Change oil between 5,000 and 7,000 miles instead of 3,000.
4. Take extra care of all equipment and tools.
5. Make sure preventive maint plan is followed closely.
6. Look at material and labor cost from other suppliers. (for example electrical work, line repair parts.)
7. Look at possibly turning off master meter at Hwy. 19 east and Durhamville Rd. Possible savings of over \$3,000 per year. I think we can get enough water through the Ross Rd meter. (Base rate is \$251.35 per month for the Durhamville meter.)
8. Look at possibly re-financing loan at a cheaper interest rate.
9. Save all old brass, copper, and meters to sell for scrap. (Have sold old meters as is.)

PROFIT/ (LOSS) SINCE WE RAISED RATES MARCH 2013

MARCH = \$10,302 (LOSS) (Raised rates)

APRIL = \$3,259 (LOSS)

MAY = \$2,808 PROFIT

JUNE = \$19,920 PROFIT

JULY = \$19,364 PROFIT (fiscal year start)

AUGUST = \$12,354 PROFIT

SEPTEMBER = \$13,869 PROFIT

OCTOBER = ZERO LOSS/ZERO PROFIT

NOVEMBER = \$ 13,697 LOSS

DECEMBER = \$7,689 PROFIT

JANUARY 2014 = \$9001 PROFIT

FEBRUARY 2014= \$32,561 PROFIT (rate structure change in effect here)

TOTAL PROFIT SINCE WE RAISED RATES = \$117,566 – (loss \$27,258) = \$90,308 (\$7,525 monthly avg)

TOTAL PROFIT SINCE FIRST OF FISCAL YEAR = \$94,838 – (loss \$13,697) = \$81,141 (\$10,142 monthly avg)

## WATER AND WASTEWATER FINANCING BOARD

### Case Study

Case: City of Munford, Tipton County  
Mayor: Dwayne Cole  
Customers: 3,135 water; 1,929 sewer  
Validity Score: 69  
Non-revenue water: 3.9%

The City of Munford has been experiencing a negative change in net assets in its water and sewer system for three of the last four years according to the information contained in audited financial statements. All financial and rate information is included in the attached history file.

City officials stated the reason for the negative change in net assets is depreciation.

The last rate increase was eight to ten years ago. MTAS has prepared a rate study which reflects that a minimum rate increase of 15% is necessary. A 3% cost of living increase also should be implemented according to the study.

All expenses (except chemicals and depreciation) are divided equally between the water and sewer funds. Approximately 56% of the revenue is derived from the water system.

If the City continues to transfer a payment in lieu of taxes from the utility fund to the general fund, an additional two percent increase in revenue will be necessary.

At its meeting in March 2014, the City board voted to adopt rate changes. The final reading was scheduled for April 28.

**Staff recommends the Board endorse the actions of the City based on the attached information.** Staff will continue to monitor the financial condition of the Town until audited financial statements reflect compliance.

| <b>CITY OF MUNFORD</b>                     |                     |                     |                     |                     |
|--|---------------------|---------------------|---------------------|---------------------|
| <b>HISTORY FILE</b>                        |                     |                     |                     |                     |
|  | <b>Audited</b>      | <b>Audited</b>      | <b>Audited</b>      | <b>Audited</b>      |
| <b>fiscal year ended 6/30</b>              | <b>2009</b>         | <b>2010</b>         | <b>2011</b>         | <b>2012</b>         |
| Water/sewer revenues                       | \$ 1,593,706        | \$ 1,468,596        | \$ 1,484,145        | \$ 1,517,012        |
| Other revenues                             | \$ 45,379           | \$ 46,139           | \$ 93,963           | \$ 89,379           |
| <b>Total Operating Revenues</b>            | <b>\$ 1,639,085</b> | <b>\$ 1,514,735</b> | <b>\$ 1,578,108</b> | <b>\$ 1,606,391</b> |
| <b>Total Operating Expenses</b>            | <b>\$ 1,513,353</b> | <b>\$ 1,477,892</b> | <b>\$ 1,568,156</b> | <b>\$ 1,569,642</b> |
| Operating Income                           | \$ 125,732          | \$ 36,843           | \$ 9,952            | \$ 36,749           |
| Interest Expense                           | \$ 124,686          | \$ 100,261          | \$ 92,660           | \$ 84,540           |
| Transfers out PILOT                        | \$ 50,000           | \$ 49,000           | \$ 55,000           | \$ 56,000           |
| Capital contributions                      |                     | \$ 605,077          | \$ 91,518           | \$ 32,922           |
| <b>change in net assets</b>                | <b>\$ (48,954)</b>  | <b>\$ 492,659</b>   | <b>\$ (46,190)</b>  | <b>\$ (70,869)</b>  |
| <u>Supplemental Information</u>            |                     |                     |                     |                     |
| Principal payment                          | \$ 421,163          | \$ 466,034          | \$ 540,201          | \$ 212,953          |
| Depreciation                               | \$ 411,791          | \$ 414,969          | \$ 453,175          | \$ 503,551          |
| <u>Water rates - inside</u>                |                     |                     |                     |                     |
| First 2,000 gallons                        | \$ 6.00             | \$ 6.00             | \$ 6.00             | \$ 6.00             |
| All over                                   | \$ 1.75             | \$ 1.75             | \$ 1.75             | \$ 1.75             |
| <u>Water rates - outside</u>               |                     |                     |                     |                     |
| First 2,000 gallons                        | \$ 9.00             | \$ 9.00             | \$ 9.00             | \$ 9.00             |
| All over                                   | \$ 2.40             | \$ 2.40             | \$ 2.40             | \$ 2.40             |
| Atoka                                      | \$ 1.20             | \$ 1.87             | \$ 1.87             | \$ 1.87             |
| Water customers                            | 3,134               | 3,136               | 3,118               | 3,135               |
| <u>Sewer rates - inside</u>                |                     |                     |                     |                     |
| Base Charge                                | \$ 6.00             | \$ 6.00             | \$ 6.00             | \$ 6.00             |
| First 2,000 gallons                        | \$ 2.80             | \$ 2.80             | \$ 2.80             | \$ 2.80             |
| 2,001 - 4,000 gallons                      | \$ 3.15             | \$ 3.15             | \$ 3.15             | \$ 3.15             |
| All over                                   | \$ 3.50             | \$ 3.50             | \$ 3.50             | \$ 3.50             |
| <u>Sewer rates - outside</u>               |                     |                     |                     |                     |
| Base Charge                                | \$ 10.00            | \$ 10.00            | \$ 10.00            | \$ 10.00            |
| First 2,000 gallons                        | \$ 3.20             | \$ 3.20             | \$ 3.20             | \$ 3.20             |
| 2,001 - 4,000 gallons                      | \$ 3.60             | \$ 3.60             | \$ 3.60             | \$ 3.60             |
| All over                                   | \$ 4.00             | \$ 4.00             | \$ 4.00             | \$ 4.00             |
| Sewer customers                            | 1,934               | 1,937               | 1,921               | 1,929               |
| <b>Water loss</b>                          | <b>15.900%</b>      | <b>17.800%</b>      | <b>13.870%</b>      |                     |
| <b>Validity Score</b>                      |                     |                     |                     | <b>69</b>           |
| <b>Non-revenue water as % of operating</b> |                     |                     |                     | <b>3.90%</b>        |



City of Munford, Tennessee

1397 Munford Avenue  
Munford, TN 38058  
City Hall (901) 837-0171  
[www.munford.com](http://www.munford.com)  
Dwayne Cole, Mayor

March 31, 2014

Joyce Welborn  
State of Tennessee Water and Wastewater Financing Board  
Suite 1500 James K. Polk State Office Building  
505 Deaderick Street  
Nashville, TN 37243-1402

APR 04 2014

SUBJECT: Increase in City of Munford Water/Sewer Rates

Dear Ms. Welborn:

I'm writing to provide you with a status report on the steps taken by the City of Munford in response to the negative change in assets in our water/wastewater system:

1. MTAS Water/Sewer Rates Study. On Nov. 3, 2013 the City signed an agreement with MTAS for a municipal water/wastewater rate study, by Steve Wyatt (MTAS Utilities Operations Consultant). During the last 5 months, we have worked with Steve to consider many different rate scenarios. The most promising have been reviewed by our utility management and Munford's Board of Mayor and Aldermen ("BOMA").
2. Decision on Rates Increase. As a result, Munford has selected a scenario based on a 19 percent increase in Water/Sewer rates and reducing to 1,000 gallons water the quantity included in the minimum water charge; excluding water and wastewater services provided under contracts to the towns of Atoka and Brighton. This scenario also takes in account increased Atoka wholesale water rates according to a sliding scale being negotiated with Atoka. Steve Wyatt's analysis projects a positive change in net assets for years 2015, 2016 and 2017 (as far forward as the analysis goes). A copy of that analysis is attached.
3. Ordinance Raising Water/Sewer Rates. At its last Board Meeting on March 24, 2014, the Munford Board of Mayor and Aldermen passed unanimously the first reading of Ordinance 2014-03-02 An Ordinance of the City of Munford, Tennessee Establishing New Water and Sewer Rates; attached. Prior to the second reading next month, an additional provision may be added to the Ordinance, providing an option to the City to raise rates by a percentage equal to the Consumer Price Index, once per year.

Joyce Welborn  
State of Tennessee Water and Wastewater Financing Board  
March 31, 2014  
Page 2

At our next BOMA meeting scheduled for April 28<sup>th</sup>, we expect to have the second reading of this ordinance.

Please feel free to contact me if you have any questions regarding the steps our City is taking to operate our water/wastewater utility so that we recover all the costs of the system.

Thanks very much and best regards,

A handwritten signature in black ink, appearing to read "Peter Colin". The signature is fluid and cursive, with a large initial "P" and "C".

Peter Colin  
City Manager

Attachments

## Munford Water and Wastewater Review

March 19, 2014

with 19% increase in rates and min bill only include 1,000 gallons Excluding Atoka water and Brighton/Atoka sewer

| year ending June 30,   | Audit<br>2011    | Audit<br>2012    | Pre<br>2013      | Proj<br>2014     | Proj<br>2015     | Proj<br>2016     | Proj<br>2017     |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| <b>Operating Revenues</b>  |                  |                  |                  |                  |                  |                  |                  |
| metered sales and service  | 1,484,145        | 1,517,012        |                  |                  |                  |                  |                  |
| meters sales from Example E  |                  |                  | 1,233,481        | 1,239,648        |                  |                  |                  |
| estimated sales (excluding Atoka Water)                                  |                  |                  |                  |                  | 1,071,971        | 1,077,331        | 1,082,717        |
| Atoka water sales of 5 million gallons per month at \$2.01 per 1,000     |                  |                  |                  |                  | 120,600          | 121,203          | 121,809          |
| Atoka water sales of 2 million gallons per month at \$ 1.94 per 1,000    |                  |                  |                  |                  | 46,560           | 46,793           | 47,027           |
| <b>Brighton and Atoka sewer fees</b>                                     |                  |                  | 299,499          | 299,499          | 299,499          | 299,499          | 299,499          |
| estimated additional water sales for 2,450 customers at \$2.08 per 1,000 |                  |                  |                  |                  | 61,222           | 61,528           | 61,836           |
| estimated additional sewer sales for 1,541 customers at \$3.33 per 1,000 |                  |                  |                  |                  | 61,610           | 61,918           | 62,228           |
| rate increase of 19% effective July 1, 2014                              |                  |                  |                  |                  | 203,674          | 204,693          | 205,716          |
| penalties held constant at poriject 2014 amount                          | 50,683           | 55,226           | 53,027           | 42,892           | 42,892           | 42,892           | 42,892           |
| other income   | 33,503           | 30,922           | 14,029           | 14,000           | 14,000           | 14,000           | 14,000           |
| <b>Total operating revenues</b>  | <b>1,568,331</b> | <b>1,603,160</b> | <b>1,600,036</b> | <b>1,596,039</b> | <b>1,922,028</b> | <b>1,929,856</b> | <b>1,937,724</b> |
| <b>Operating expenses</b>  |                  |                  |                  |                  |                  |                  |                  |
| operating and transmission salaries                                      | 372,223          | 400,637          | 354,465          | 372,188          | 383,354          | 394,855          | 406,700          |
| fringes  | 142,148          | 113,121          | 110,801          | 116,341          | 119,831          | 123,426          | 127,129          |
| maintenance services and supplies  | 196,327          | 145,966          | 182,267          | 191,380          | 197,122          | 203,035          | 209,126          |
| office supplies  | 44,182           | 46,921           | 51,219           | 53,780           | 55,393           | 57,055           | 58,767           |
| utilities  | 245,116          | 225,899          | 241,364          | 253,432          | 261,035          | 268,866          | 276,932          |
| insurance  | 42,389           | 44,481           | 85,393           | 89,663           | 92,353           | 95,123           | 97,977           |
| depreciation   | 453,175          | 503,551          | 505,638          | 505,638          | 505,638          | 505,638          | 505,638          |
| new depreciation for Giltedge road sewer extension estimate              |                  |                  |                  | 5,000            | 5,000            | 5,000            | 5,000            |
| new depreciation for Pritchett Sewer Lift Station estimate               |                  |                  |                  | 4,000            | 4,000            | 4,000            | 4,000            |
| amortization   | 350              | 350              | 5,600            | 5,880            | 6,056            | 6,238            | 6,425            |
| chemicals  | 40,952           | 43,954           | 41,792           | 43,882           | 45,198           | 46,554           | 47,951           |
| other  | 31,294           | 44,762           | 26,508           | 27,833           | 28,668           | 29,528           | 30,414           |
| <b>Total operating expenses</b>  | <b>1,568,156</b> | <b>1,569,642</b> | <b>1,605,047</b> | <b>1,669,017</b> | <b>1,703,649</b> | <b>1,739,319</b> | <b>1,776,060</b> |
| <b>Operating Income (Loss)</b>   | <b>175</b>       | <b>33,518</b>    | <b>(5,011)</b>   | <b>(72,978)</b>  | <b>218,379</b>   | <b>190,537</b>   | <b>161,664</b>   |
| <b>Nonoperating revenues (expenses)</b>                                  |                  |                  |                  |                  |                  |                  |                  |
| Interest income  | 9,777            | 3,231            | 2,574            | 2,574            | 2,574            | 2,574            | 2,574            |
| gain on disposal of capital assets                                       |                  |                  | 5,971            |                  |                  |                  |                  |
| Patriot bank interest expense Giltedge and Pritchert                     |                  |                  |                  | (7,150)          | (6,635)          | (6,106)          | (5,563)          |
| Interest expense values from 2014 through 2017 from 2011 audit           | (92,660)         | (84,540)         | (91,985)         | (65,506)         | (60,108)         | (54,138)         | (47,906)         |
| <b>Total nonoperating revenues (expenses)</b>                            | <b>(82,883)</b>  | <b>(81,309)</b>  | <b>(83,440)</b>  | <b>(70,082)</b>  | <b>(64,169)</b>  | <b>(57,670)</b>  | <b>(50,895)</b>  |
| <b>Change in net assets before transfers and capital contributions</b>   | <b>(82,708)</b>  | <b>(47,791)</b>  | <b>(88,451)</b>  | <b>(143,060)</b> | <b>154,210</b>   | <b>132,867</b>   | <b>110,769</b>   |
| transfer out -payment in lieu of taxes                                   | (55,000)         | (56,000)         | (53,000)         | (53,000)         | (53,000)         | (53,000)         | (53,000)         |
| capital contributions  | 91,518           | 32,922           |                  |                  |                  |                  |                  |
| <b>Change in Net Assets (Net Position)</b>                               | <b>(46,190)</b>  | <b>(70,869)</b>  | <b>(141,451)</b> | <b>(196,060)</b> | <b>101,210</b>   | <b>79,867</b>    | <b>57,769</b>    |

**ORDINANCE NO. 2014-03-02**

**AN ORDINANCE OF THE CITY OF MUNFORD, TENNESSEE  
ESTABLISHING NEW WATER AND SEWER RATES AND FEES**

WHEREAS, Tennessee Law mandates that a municipal utility shall operate its system so that sufficient rates are charged necessary to recover all costs of the system; and

WHEREAS, the Board of Mayor and Aldermen of the City of Munford, after analyzing its water and sewer rates has determined that an increase is necessary; and

**NOW, THEREFORE: BE IT ORDAINED BY THE BOARD OF MAYOR AND ALDERMEN OF THE CITY OF MUNFORD, TENNESSEE, AS FOLLOWS:**

The rates and fees for the Munford water system and the Munford sewer system shall be increased as per the schedule attached to this Ordinance; and

These increased rates shall apply to the users on the Munford water system and to the users on the Munford sewer system; and

WHEREAS, the rates and fees shall become effective on the July 2014 meter reading (July bills for the period from June 15, 2014 to July 15, 2014); and

**THIS ORDINANCE SHALL TAKE EFFECT FROM AND AFTER ITS PASSAGE, THE WELFARE OF THE CITY REQUIRING IT.**

Passed on 1<sup>st</sup> reading: 3-24-2014 *By*

Passed on 2<sup>nd</sup> reading \_\_\_\_\_

\_\_\_\_\_  
Mayor

\_\_\_\_\_  
City Recorder

UTILITY RATE SCHEDULE

EFFECTIVE JUNE 15, 2014 FOR THE JULY 2014 READING – JULY 2014 BILLS

Rates – Water – Inside

\$ 7.14 Min. up to 1m Gallons – \$2.08/m over 1m

Rates – Water – Outside

\$ 10.71 Min. up to 1m Gallons – \$2.86/m over 1m

Rates – Sewer – Inside

\$ 7.14 minimum plus usage charge as per following schedule

\$ 3.33/1m up to 2,000 Gallons

\$ 3.75/1m from 2,001 Gallons to 4,000 Gallons

\$ 4.17/1m over 4,000 Gallons

Note: m = 1000 gallons

WATER AND WASTEWATER FINANCING BOARD  
Case Study

Case: Town of Huntland, Franklin County  
Mayor: Patrick Matthews  
Customers: 616 water  
Validity Score: 75  
Non-revenue water: 8%

The Town of Huntland has been experiencing a negative change in net position for the last two fiscal years as of June 30, 2013, according to the information contained in audited financial statements.

The utility system is debt free. The last rate increase (15%) was in 2011 when the Town was previously reported to the Board. There are approximately 400 inside and 200 outside customers.

Town officials stated that the reason for the current referral to the Board was the loss of two major users- a hardware store and a grocery. Irrigation at the local athletic fields was also reduced. Electrical and chemical costs have increased recently as well. The water plant, built in 1997 is at a stage when some of the original parts are being replaced causing expenses to increase.

Currently, options are being explored to reduce the insurance expense - which increased approximately 500%. There is a possibility that, because of the problems caused by renters leaving unpaid water bills, a deposit structure may be established for renters. The Town is in the very early stages of exploring the installation of a sewer system.

In March 2014, the Town Council increased the rates 25% with an effective date of July 1, 2014 as reflected in the attached information.

**Staff recommends the Board endorse the actions of the Town. Staff will continue to monitor the case until financial compliance is reached.**

| <b>TOWN OF HUNTLAND</b>         |                   |                    |                   |                    |                   |                    |                    |
|---------------------------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|--------------------|
| <b>HISTORY FILE</b>             |                   |                    |                   |                    |                   |                    |                    |
|                                 | <b>Audited</b>    | <b>Audited</b>     | <b>Audited</b>    | <b>Audited</b>     | <b>Audited</b>    | <b>Audited</b>     | <b>Audited</b>     |
| <b>Fiscal Year 6/30</b>         | <b>2007</b>       | <b>2008</b>        | <b>2009</b>       | <b>2010</b>        | <b>2011</b>       | <b>2012</b>        | <b>2013</b>        |
| Water/Sewer revenues            | \$ 159,832        | \$ 165,152         | \$ 199,045        | \$ 204,285         | \$ 226,799        | \$ 224,593         | \$ 212,136         |
| Other revenues                  | \$ 9,945          | \$ 3,886           | \$ 2,357          | \$ 1,026           | \$ 1,272          | \$ 1,337           | \$ 1,769           |
| <b>Total Operating Revenues</b> | <b>\$ 169,777</b> | <b>\$ 169,038</b>  | <b>\$ 201,402</b> | <b>\$ 205,311</b>  | <b>\$ 228,071</b> | <b>\$ 225,930</b>  | <b>\$ 213,905</b>  |
| <b>Total Operating Expenses</b> | <b>\$ 179,882</b> | <b>\$ 228,520</b>  | <b>\$ 208,673</b> | <b>\$ 215,806</b>  | <b>\$ 214,048</b> | <b>\$ 238,862</b>  | <b>\$ 229,750</b>  |
| Operating Income                | \$ (10,105)       | \$ (59,482)        | \$ (7,271)        | \$ (10,495)        | \$ 14,023         | \$ (12,932)        | \$ (15,845)        |
| Interest Expense                | \$ -              | \$ -               | \$ -              | \$ -               | \$ -              | \$ -               | \$ -               |
| Grants                          | \$ 67,218         |                    | \$ -              | \$ -               | \$ -              | \$ -               | \$ -               |
| <b>Change in Net Assets</b>     | <b>\$ 57,113</b>  | <b>\$ (59,482)</b> | <b>\$ (7,271)</b> | <b>\$ (10,495)</b> | <b>\$ 14,023</b>  | <b>\$ (12,932)</b> | <b>\$ (15,845)</b> |
| <u>Supplemental Information</u> |                   |                    |                   |                    |                   |                    |                    |
| Principal payment               | \$ -              | \$ -               | \$ -              | \$ -               | \$ -              | \$ -               | \$ -               |
| Depreciation                    | \$ 58,610         | \$ 64,497          | \$ 61,582         | \$ 65,810          | \$ 64,302         | \$ 64,265          | \$ 64,581          |
| <b>Water Rates</b>              |                   |                    | effective 6/16/09 |                    |                   |                    |                    |
| First 2,000 gallons             | \$ 8.96           | \$ 8.96            | \$ 12.96          | \$ 12.96           | \$ 14.90          | \$ 14.90           | \$ 14.90           |
| Next 8,000 gallons              | \$ 2.80           | \$ 2.80            | \$ 2.80           | \$ 2.80            | \$ 3.22           | \$ 3.22            | \$ 3.22            |
| Next 90,000 gallons             | \$ 2.10           | \$ 2.10            |                   |                    |                   |                    |                    |
| All over                        | \$ 0.98           | \$ 0.98            | \$ 4.10           | \$ 4.10            | \$ 4.72           | \$ 4.72            | \$ 4.72            |
| <b>Customers</b>                |                   |                    | <b>614</b>        | <b>625</b>         | <b>625</b>        | <b>618</b>         | <b>616</b>         |
| <b>Water Loss</b>               | <b>0.899%</b>     | <b>10.780%</b>     | <b>12.000%</b>    | <b>13.849%</b>     | <b>15.166%</b>    | <b>19.440%</b>     |                    |
| <b>Validity Score</b>           |                   |                    |                   |                    |                   |                    | <b>75</b>          |
| <b>Non-Revenue Water</b>        |                   |                    |                   |                    |                   |                    | <b>8.00%</b>       |

**Patrick Matthews**  
Mayor

**Lealon C. Tapley**  
Vice  
Mayor/Alderman

**David L. Stewart**  
City Attorney

**Bean, Rhoton  
& Kelley, PLLC**

Joyce Welborn  
State of Tennessee  
Division of Local Finance  
Water and Wastewater Board

## ***Town of Huntland***

*P.O. Drawer H  
Huntland, Tennessee 37345*

March 24, 2014

**Aldermen:**  
**Danny C. Benson**  
**Dennis Brewer**  
**Janet Colburn**  
**Clyditha Syler**

**RECEIVED**  
MAR 31 2014  
STATE AND LOCAL FINANCE

MAR 31 2014

Dear Mrs. Welborn,

After our meeting with you on January 31, 2014, all Board members were notified and began to hold workshop sessions to discuss and establish rates for the Town of Huntland Water System. The Board decided that it was best to raise the rates a sufficient amount that would bring in adequate revenue for several years. The Board established a rate increase of 25%, of which the first reading of the Town of Huntland's Water Rate Ordinance will reflect. The first reading of this Ordinance was conducted on Monday, February 24, 2014 meeting. The second and final reading will be conducted at the regular meeting on March 24, 2014. The rates will go in effect on April billing/ May collections. The Town has sold on average this fiscal year \$17,000 in water per month. We estimate that the increase will bring in an additional \$51,000. This amount is basing off of what we know we will collect in minimum bills. This could be more due to the fact that most water customers use more than 2,000 gallons, which is the minimum bill. Also included in the Ordinance, is an added charge for renters that the Town has not imposed before. Because of past problems with renters leaving unpaid bills, a deposit structure was established within the Ordinance to eliminate the problem of renters leaving unpaid bills. The Town feels that these are adequate changes to put the Water System in a positive change in Net Position by June 30, 2015 and will continue to monitor the Water Fund to prevent a loss in the future. A copy of the Ordinance will accompany this letter.

Sincerely,



Patrick A. Matthews

Mayor, Town of Huntland

## Ordinance 2014-43

An Ordinance to amend Ordinance 2010-29, to establish rates and charges for water service in the Town of Huntland, Tennessee.

Whereas, it appears it is in the best interest of the citizens of the Town of Huntland, Tennessee that the water rates and charges for water services in the Town of Huntland should be amended and modified.

Now, therefore, it be ordained, by the Board of Mayor and Aldermen for the Town of Huntland, Tennessee as follows:

Section 1: That the base charge for water inside the Huntland City limits shall be set at \$18.63, this is for the first 2,000 gallons used, which is the minimum bill; 2,100 to 10,000 gallons will be \$4.03 per thousand gallon; over 10,000 gallons shall be set at \$5.90 per thousand.

Section 2: That the base charge for water outside Huntland City limits shall be set at \$21.81, this is for the first 2,000 gallons used, which is the minimum bill; 2,100 gallons to 10,000 gallons shall be set at \$4.31 per thousand gallon; over 10,000 gallons shall be set at \$5.90 per thousand gallon.

Section 3: That the base charge for water on the water extension project (Pleasant Ridge) shall be set at \$30.13, this is for the first 2,000 gallons used, which is the minimum bill; 2,100 gallons to 10,000 gallons shall be set at \$7.34 per thousand gallon; over 10,000 gallons shall be set at \$5.90 per thousand gallon.

Section 4: That the hook-up fees for all customers, other than renters, shall be set at \$50, not to be refunded.

Section 5: That there shall be a \$200 renter's deposit imposed on all renters, to be refunded, only after the final bill is paid in full. This shall be as security payment of final bill for water service at the service address. The \$200 deposit will be repaid upon surrender of receipt after due notice that water is no longer required, providing bill is paid to date in full. THIS DEPOSIT WILL IN NO CASE BE CONSIDERED AS PART PAYMENT OF BILL WHERE CUSTOMER CONTINUES TO USE SERVICE.

Section 6: That the charge for cut-off fee is \$25.00 if water is cut back on during regular business hours and \$50.00 after business hours, weekends, and holidays.

Section 7: That the tap fee inside city limits is \$400.00 plus a \$50.00 hook-up fee plus the cost of needed road bore.

Section 8: That the tap fee for outside city limits is \$500.00 plus a \$50.00 hook-up fee plus the cost of needed road bore.

Section 9: That larger than three quarter inch tap is to be adjusted to cost.

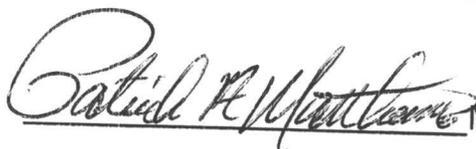
Section 10: That the water sold to contractors, haulers, etc. from fire hydrants metered and charged \$10.00 per thousand gallon plus tax.

Be it further ordained that all Ordinance or parts of Ordinances in conflict herewith be, and the hereby amended and/or repealed.

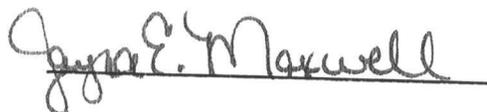
Passed first reading February 24, 2014

Passed second reading March 24, 2014

Signed this 24<sup>th</sup> day of March, 2014.

 Mayor

Attest:

 City Recorder

MORE INFO HAD BEEN REQUESTED

Monroe Ary  
MAYOR  
Donna Stricklin  
RECORDER

# CITY OF SHARON

P.O BOX 235  
SHARON, TN 38255  
PHONE (731) 456-2122  
FAX (731) 456-3045

ALDERMEN  
Stewart Broussard  
Wanda Hamlin  
Jimmy Harris  
Jason Plunk

February 20, 2014

FEB 25 2014

State of Tennessee  
Water and Wastewater Financing Board  
James K. Polk State Office Building, Suite 1500  
505 Deaderick Street  
Nashville, TN 37243-1402

Dear Joyce Welborn:

RE: LEAK DETECTION PROGRAM

In July 2013, our city started having the public works department do the monthly water meter readings. The water meter reading had been contracted out previously. With our workers reading the meters and going house to house we are able to detect water leaks sooner. Also each morning when the workers travel around town to service the lift stations; they are checking ditches for running water. The police department has been asked to contact the Public Works Director if they see unusual water activity, after normal work hours. We also have a public awareness for reporting of any water activity, while citizens are out walking, doing yard work, etc. We have seen a decrease in our monthly water loss.

If more information is needed, please feel free to contact me at (731) 456-2717.

Sincerely,



Greg Evans  
Public Works Director

## WATER AND WASTEWATER FINANCING BOARD

### Status report

Case: Town of Atwood, Carroll County  
Mayor: James Halford  
Customers: 528 water; 465 sewer  
Validity Score: 69  
Non-revenue water: 20.7%

The Town of Atwood has been experiencing a negative change in net position in its water and sewer system for four consecutive years according to the information contained in audited financial statements. All financial and rate information is included in the attached history file.

The Town is debt free and has no property tax. Approximately one-quarter of the customers pay a minimum bill for usage under 2,000 gallons.

Initially, Town officials stated the reason for the first two consecutive negative change in net assets is the repayment of a loan from the General Fund to the water/sewer fund several years ago. That loan was repaid in full (approximately \$44,000.) The last two years, the blame was placed on low interest earnings.

Expenses will be reduced by approximately \$13,000 in FY 14 because some of the assets have been fully depreciated. Fluoride is no longer added to the water, which is expected to reduce expenses another \$2,000. At the end of December 2013, the Town recorder reflected a positive change in net position.

The last rate increase was in 1992. The Mayor is planning on requesting a \$1.00 per month increase in both the water and sewer bills effective July 1, 2014.

The Town still needs to address water losses and part of that is a meter replacement program.

**Staff recommends the Board endorse the actions of the Town but emphasize that if this \$1.00 increase is not sufficient, another one should be implemented before another 20 years lapses.** Staff will continue to monitor the financial condition of the Town until audited financial statements reflect compliance.

| <b>TOWN OF ATWOOD</b>            |                   |                   |                    |                   |                    |
|----------------------------------|-------------------|-------------------|--------------------|-------------------|--------------------|
| <b>HISTORY FILE</b>              |                   |                   |                    |                   |                    |
|                                  | <b>Audited</b>    | <b>Audited</b>    | <b>Audited</b>     | <b>Audited</b>    | <b>Audited</b>     |
| <b>For year ended June 30</b>    | <b>2009</b>       | <b>2010</b>       | <b>2011</b>        | <b>2012</b>       | <b>2013</b>        |
| Water/sewer revenues             | \$ 148,886        | \$ 143,827        | \$ 144,926         | \$ 141,217        | \$ 139,141         |
| Other revenues                   | \$ 19,704         | \$ 18,614         | \$ 16,371          | \$ 18,998         | \$ 14,002          |
| <b>Total Operating Revenues</b>  | <b>\$ 168,590</b> | <b>\$ 162,441</b> | <b>\$ 161,297</b>  | <b>\$ 160,215</b> | <b>\$ 153,143</b>  |
| <b>Total Operating Expenses</b>  | <b>\$ 159,787</b> | <b>\$ 169,147</b> | <b>\$ 172,370</b>  | <b>\$ 163,898</b> | <b>\$ 164,816</b>  |
| Operating Income                 | \$ 8,803          | \$ (6,706)        | \$ (11,073)        | \$ (3,683)        | \$ (11,673)        |
| Interest Expense                 |                   |                   |                    |                   |                    |
| <b>Change in Net assets</b>      | <b>\$ 8,803</b>   | <b>\$ (6,706)</b> | <b>\$ (11,073)</b> | <b>\$ (3,683)</b> | <b>\$ (11,673)</b> |
| <u>Supplemental Information</u>  |                   |                   |                    |                   |                    |
| Principal payment                |                   |                   |                    |                   |                    |
| Depreciation                     | \$ 77,983         | \$ 83,267         | \$ 82,913          | \$ 82,496         | \$ 75,791          |
| <b><u>Water Rates-Inside</u></b> |                   |                   |                    |                   |                    |
| Up to 2,000 gallons              | \$ 8.00           | \$ 8.00           | \$ 8.00            | \$ 8.00           | \$ 8.00            |
| all over                         | \$ 1.50           | \$ 1.50           | \$ 1.50            | \$ 1.50           | \$ 1.50            |
| Sewer rates                      | 100%              | 100%              | 100%               | 100%              | 100%               |
| Water customers                  | 530               | 528               | 528                | 532               | 528                |
| Sewer customers                  | 464               | 458               | 458                | 466               | 465                |
| <b>Water loss</b>                | <b>18.81%</b>     | <b>27.09%</b>     | <b>27.11%</b>      | <b>32.30%</b>     |                    |
| <b>Validity score</b>            |                   |                   |                    |                   | <b>69</b>          |
| <b>Non-revenue water</b>         |                   |                   |                    |                   | <b>20.70%</b>      |

Phone 731.662.7689  
Fax 731.662.4351  
Email townofatwood@tennesseetel.net

February 18, 2014

Joyce Welborn  
Division of Local Government Audit  
Suite 1500 James K Polk Building  
505 Deaderick Street  
Nashville, TN 37243-1402

FEB 27 2014

Re: Water Rate Adjustment

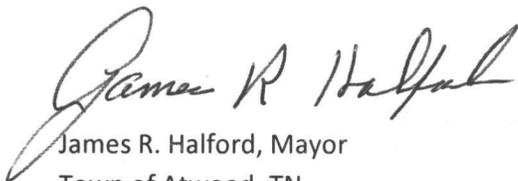
Ms. Welborn:

In a regular business meeting, February 13, 2014, the Mayor and Board of Aldermen, approved the following changes to enhance the financial condition of the water and sewer fund. Ordinance #251 was approved, on the first reading, to increase the base water and sewer rates by \$1.00 each. This will increase the revenue by almost \$12,000.00 per year.

Also, effective the current year, the depreciation expense will be decreased by almost \$13,000.00 due to the fact part of our system has been depreciated completely.

These two items will have a positive impact on our financial statement and should prevent the town from having a decrease in net assets for the next few years.

Sincerely,



James R. Halford, Mayor  
Town of Atwood, TN

**Town of Englewood  
P.O. Box 150  
Englewood, Tn. 37329**

**12/27/2013**

**Water & Wastewater Financing Board,**

**The Mayor and Board of Commissioners met on December 16, 2013 to discuss recommended water rate structures. Upon long discussion the Board agreed to raise inside city rates by an additional 10% bringing the inside total raised by 30% and raised outside by 5% lowering it from 200% to around 195%. The city hall staff also found an oversight within the commercial customer rate codes. Most of the Town's commercial businesses were set up under a residential water rate instead of a commercial rate. This will bring in around \$36,000.00 more per fiscal year. The Town is starting this new rate structure beginning January 1<sup>st</sup>. 2014.**

**Sincerely,**

---

**Tony Hawn, Mayor**

# AWWA WLCC Free Water Audit Software: Reporting Worksheet

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WAS v4.2

[Back to Instructions](#)

Water Audit Report for **City of Westmoreland**  
 Reporting Year: 2013 - 7/2012 - 6/2013

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades.

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

## WATER SUPPLIED

|   |   |     |                |                                 |
|---|---|-----|----------------|---------------------------------|
| Volume from own sources:                              | ? |     |                | Million gallons (US)/yr (MG/yr) |
| Master meter error adjustment (enter positive value): | ? | n/a |                | MG/yr                           |
| Water imported:                                       | ? | 10  | 128.494        | MG/yr                           |
| Water exported:                                       | ? | n/a |                | MG/yr                           |
| <b>WATER SUPPLIED:</b>                                |   |     | <b>128.494</b> | <b>MG/yr</b>                    |

## AUTHORIZED CONSUMPTION

|                                |   |     |               |              |
|--------------------------------|---|-----|---------------|--------------|
| Billed metered:                | ? | 5   | 60.998        | MG/yr        |
| Billed unmetered:              | ? | n/a | 0.000         | MG/yr        |
| Unbilled metered:              | ? | 3   | 7.148         | MG/yr        |
| Unbilled unmetered:            | ? |     | 3.606         | MG/yr        |
| <b>AUTHORIZED CONSUMPTION:</b> |   |     | <b>69.752</b> | <b>MG/yr</b> |

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed.

WATER LOSSES (Water Supplied - Authorized Consumption)

## APPARENT LOSSES

|                                  |   |   |              |              |
|----------------------------------|---|---|--------------|--------------|
| Unauthorized consumption:        | ? |   | 0.321        | MG/yr        |
| Customer metering inaccuracies:  | ? | 3 | 2.570        | MG/yr        |
| Systematic data handling errors: | ? | 4 | 0.500        | MG/yr        |
| <b>Apparent Losses:</b>          |   |   | <b>3.391</b> | <b>MG/yr</b> |

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed.

Real Losses (Current Annual Real Losses or CARL)

|   |   |  |               |              |
|---|---|--|---------------|--------------|
| Real Losses = Water Losses - Apparent Losses: | ? |  | 95.351        | MG/yr        |
| <b>WATER LOSSES:</b>                          |   |  | <b>58.742</b> | <b>MG/yr</b> |

## NON-REVENUE WATER

|   |   |  |        |       |
|---|---|--|--------|-------|
| NON-REVENUE WATER = Total Water Loss + Unbilled Metered + Unbilled Unmetered: | ? |  | 67.498 | MG/yr |
|---|---|--|--------|-------|

## SYSTEM DATA

|  |   |   |       |                 |
|--|---|---|-------|-----------------|
| Length of mains:                                   | ? | 6 | 59.0  | miles           |
| Number of active AND inactive service connections: | ? | 8 | 1,479 | conn./mile main |
| Connection density:                                | ? |   | 25    | conn./mile main |
| Average length of customer service line:           | ? | 1 | 23.0  | ft.             |
| Average operating pressure:                        | ? | 5 | 70.0  | psi             |

## COST DATA

|   |   |   |            |                      |
|---|---|---|------------|----------------------|
| Total annual cost of operating water system:            | ? | 5 | \$733,490  | \$/Year              |
| Customer retail unit cost (applied to Apparent Losses): | ? | 4 | \$4.25     | \$/1000 gallons (US) |
| Variable production cost (applied to Real Losses):      | ? | 3 | \$3,290.00 | \$/Million gallons   |

## PERFORMANCE INDICATORS

### Financial Indicators

|   |           |
|---|-----------|
| Non-revenue water as percent by volume of Water Supplied: | 52.54     |
| Non-revenue water as percent by cost of operating system: | 30.74     |
| Annual cost of Apparent Losses:                           | \$14,433  |
| Annual cost of Real Losses:                               | \$182,103 |

### Operational Efficiency Indicators

|  |          |                            |
|--|----------|----------------------------|
| Apparent Losses per service connection per day:              | 6.28     | gallons/connection/day     |
| Real Losses per service connection per day:                  | N/A      | gallons/connection/day     |
| Real Losses per length of main per day:                      | 2,570.26 | gallons/mile/day           |
| Real Losses per service connection per day per psi pressure: |          | gallons/connection/day/psi |
| Unavoidable Annual Real Losses (UARL):                       | 15.06    | million gallons/year       |
| From Above, Real Losses + Current Annual Real Losses (CARL): | 55.35    | million gallons/year       |
| Infrastructure Leakage Index (ILI) (CARL/UARL):              | 3.68     |                            |

\* ONLY the most applicable of these two indicators will be calculated

## WATER AUDIT DATA VALIDITY SCORE

**\*\*\* YOUR SCORE IS: 61 out of 100 \*\*\***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

### PRIORITY AREAS FOR ATTENTION

Based on the information provided, audit accuracy can be improved by addressing the following components:

- 1: Customer metering inaccuracies
- 2: Variable production cost (applied to Real Losses)
- 3: Billed metered

For more information, click here to see the Grading Matrix worksheet

**Michael Carter**  
Mayor  
(615) 644-2414



**Fredia Carter**  
City Recorder  
(615) 644-3850

February 3, 2013

STATE OF TENNESSEE  
Water and Wastewater Financing Board  
James K. Polk State Office Building  
505 Deaderick St., Suite 1500  
Nashville, Tn. 37243-1402

**RE: UPDATED PLAN TO REDUCE WATER LOSS**

In response to letter dated January 13, 2014 to Mayor Michael Carter, Town of Westmoreland, below is an updated plan on reducing water loss and our responses to the check list.

This Spring a water rehab project for the downtown area as well as other area lines within the service district will be submitted for bids. The funds awarded for this project is in excess of \$1,400,000. The rehab consists of replacing all the old galvanized and polytubing service lines with copper lines. It also includes removing and replacing old 2" galvanized mains. We are planning on installing 2 more isolation meters. This will section our system into 5 zones which will help us to know which direction the largest portion of current and future water loss is isolated. We also plan on getting SCADA to continuously keep up with the GPM going through isolation meters, master meters and water tanks.

**Initial Check List for Addressing Water Loss**

1. Yes
2. Yes
3. Yes
4. We did have but our current contractor that checks the calibration of our large meters has been ill for some time. We are currently searching for someone else to perform this task. Dan Weaver, our leak detection contractor, has been checking some of our large meters.
5. Yes, both 10 years and 1,000,000 gallons.
6. Yes, the court decides. The last case the judge ordered court cost and 2 days in jail.
7. Yes
8. Yes, the billing adjustments are handled by the utility clerk in City Hall. This policy is consistent with all customers.
9. Yes
10. Yes, we have 3 zones now and 5 zones in the next 2 years.
11. Yes
12. Yes, with pressure release valves.
13. Yes, and this is also handled by outside contractor

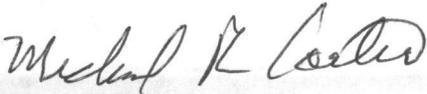
1001 Park Street • PO Box 8 • Westmoreland, TN 37186 • Phone (615) 644-3382 • Fax (615) 644-3950  
westmorelandtn.gov

The City of Westmoreland is an equal opportunity provider and employer

14. Door hangers are placed or we make direct contact with homeowner. This is generated by an edit report that is reviewed for consumption out of range after monthly readings are entered into the computer.
15. Yes
16. Yes, see answer to number 6.
17. The monetary value is \$561.00 per day.
18. We repair all leaks that are found no matter what the cost.

If you have any questions, please feel free to contact me at 615-644-2414.

Sincerely,



Michael R. Carter  
Mayor  
City of Westmoreland

TOWN OF TIPTONVILLE, TENNESSEE  
 UNAUDITED WATER LOSS SCHEDULE - AWWA REPORTING MODEL  
 For the Year Ended June 30, 2013

AWWA WLCC Free Water Audit Software: Reporting Worksheet

[Back to Instructions](#)

[Click to access definition](#)

Water Audit Report for: **Tiptonville Water System**  
 Reporting Year: **2013** **7/2013 - 6/2013**

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

**WATER SUPPLIED**

<< Enter grading in column 'G':

|   |                                  |                                      |                                 |
|---|----------------------------------|--------------------------------------|---------------------------------|
| Volume from own sources:                              | <input type="text" value="3"/>   | <input type="text" value="229.315"/> | Million gallons (MG)/yr (MG/Tr) |
| Master meter error adjustment (enter positive value): | <input type="text" value="3"/>   | <input type="text" value="2.290"/>   | under-registered MG/Tr          |
| Water imported:                                       | <input type="text" value="n/a"/> | <input type="text" value="0.000"/>   | MG/Tr                           |
| Water exported:                                       | <input type="text" value="n/a"/> | <input type="text" value="0.000"/>   | MG/Tr                           |
| <b>WATER SUPPLIED:</b>                                |                                  | <input type="text" value="231.605"/> | MG/Tr                           |

**AUTHORIZED CONSUMPTION**

|                                |                                  |                                      |       |
|--------------------------------|----------------------------------|--------------------------------------|-------|
| Billed metered:                | <input type="text" value="9"/>   | <input type="text" value="125.113"/> | MG/Tr |
| Billed unmetered:              | <input type="text" value="n/a"/> | <input type="text" value="0.000"/>   | MG/Tr |
| Unbilled metered:              | <input type="text" value="n/a"/> | <input type="text" value="0.000"/>   | MG/Tr |
| Unbilled unmetered:            | <input type="text" value="5"/>   | <input type="text" value="2.895"/>   | MG/Tr |
| <b>AUTHORIZED CONSUMPTION:</b> |                                  | <input type="text" value="128.008"/> | MG/Tr |

Click here:  for help using option buttons below

Pcnt:  Value:

Use buttons to select percentage of water supplied OR value

**WATER LOSSES (Water Supplied - Authorized Consumption)**

MG/Tr

**APPARENT LOSSES**

|                                  |                                |                                    |       |
|----------------------------------|--------------------------------|------------------------------------|-------|
| Unauthorized consumption:        | <input type="text" value="5"/> | <input type="text" value="0.579"/> | MG/Tr |
| Customer metering inaccuracies:  | <input type="text" value="7"/> | <input type="text" value="3.869"/> | MG/Tr |
| Systematic data handling errors: | <input type="text" value="7"/> | <input type="text" value="1.250"/> | MG/Tr |
| <b>Apparent Losses:</b>          |                                | <input type="text" value="5.698"/> |       |

Pcnt:  Value:

Pcnt:

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

**Real Losses (Current Annual Real Losses or CARL)**

Real Losses = Water Losses - Apparent Losses:  MG/Tr

**WATER LOSSES:**  MG/Tr

**NON-REVENUE WATER**

NON-REVENUE WATER:  MG/Tr

- Total Water Loss + Unbilled Metered + Unbilled Unmetered

**SYSTEM DATA**

|  |                                 |                                    |   |
|--|---------------------------------|------------------------------------|---|
| Length of mains:                                   | <input type="text" value="7"/>  | <input type="text" value="49.0"/>  | miles   |
| Number of active AND inactive service connections: | <input type="text" value="7"/>  | <input type="text" value="1,087"/> | conn./mile main   |
| Connection density:                                | <input type="text" value="10"/> | <input type="text" value="22"/>    | conn./mile main   |
| Average length of customer service line:           | <input type="text" value="10"/> | <input type="text" value="0.0"/>   | ft (pipe length between curbside and customer meter or property boundary) |
| Average operating pressure:                        | <input type="text" value="7"/>  | <input type="text" value="50.0"/>  | psi   |

**COST DATA**

|   |                                |  |                      |
|---|--------------------------------|--|----------------------|
| Total annual cost of operating water system:            | <input type="text" value="9"/> | <input type="text" value="\$1,386,503"/> | \$/Year              |
| Customer retail unit cost (applied to Apparent Losses): | <input type="text" value="7"/> | <input type="text" value="\$14.20"/>     | \$/1000 gallons (US) |
| Variable production cost (applied to Real Losses):      | <input type="text" value="7"/> | <input type="text" value="\$836.30"/>    | \$/Million gallons   |

**PERFORMANCE INDICATORS**

**Financial Indicators**

|   |                                       |
|---|---------------------------------------|
| Non-revenue water as percent by volume of Water Supplied: | <input type="text" value="46.0%"/>    |
| Non-revenue water as percent by cost of operating system: | <input type="text" value="11.9%"/>    |
| Annual cost of Apparent Losses:                           | <input type="text" value="\$80,919"/> |
| Annual cost of Real Losses:                               | <input type="text" value="\$81,872"/> |

**Operational Efficiency Indicators**

|  |  |                            |
|--|--|----------------------------|
| Apparent Losses per service connection per day:              | <input type="text" value="14.36"/>     | gallons/connection/day     |
| Real Losses per service connection per day:                  | <input type="text" value="N/A"/>       | gallons/connection/day     |
| Real Losses per length of main per day:                      | <input type="text" value="5,473.77"/>  | gallons/mile/day           |
| Real Losses per service connection per day per psi pressure: | <input type="text" value="Not Valid"/> | gallons/connection/day/psi |
| Unavoidable Annual Real Losses (UARL):                       | <input type="text" value="Not Valid"/> |                            |

\*\*\* UARL cannot be calculated as either average pressure, number of connections or length of mains is too small. SEE UARL DEFINITION \*\*\*

From Above, Real Losses - Current Annual Real Losses (CARL):

Infrastructure Leakage Index (ILI) (CARL/UARL):

\* only the most applicable of these two indicators will be calculated

**WATER AUDIT DATA VALIDITY SCORE:**

\*\*\* YOUR SCORE IS: 58 out of 100 \*\*\*

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

**PRIORITY AREAS FOR ATTENTION:**

Based on the information provided, audit accuracy can be improved by addressing the following components:

- 1: Volume from own sources
- 2: Master meter error adjustment
- 3: Unauthorized consumption

For more information, click here to see the Grading Matrix worksheet.

Danny Cook  
Mayor



## CITY OF TIPTONVILLE

Dewayne Haggard  
Mario Montgomery  
Daisy Parks  
Richard Perkins  
Sarah J. Woods  
Reid Yates

130 South Court Street  
Tiptonville, Tennessee 38079  
731-253-9922

Fran Hearn, City Treasurer

April 4, 2014

APR 08 2014

Ms. Joyce Welborn  
State of Tennessee  
Water and Wastewater Financing Board  
505 Deaderick Street, Suite 1500  
James K. Polk State Office Building  
Nashville, Tennessee 37243-1402

Re: Tiptonville's Validity Score

Dear Ms. Welborn:

Please find attached the initial check list for addressing water loss. Also, I have attached other information regarding Tiptonville's response to water loss. I checked with the City Engineer, Bruce Spaulding to make sure if a meter replacement for the water plant is in the application for Rural Development I spoke with you about. Tiptonville is expecting approval of this grant and loan with Rural Development within the next few months. A new meter which can be read and calibrated is included in the application.

If you have any other questions regarding this matter, please call me at 731-253-9922.

Sincerely,

Fran Hearn  
City Clerk/Treasurer

1. **Yes, all City departments are currently receiving a monthly water bill with the exception of two departments and we are in the process of getting this installed.**
2. **Yes**
3. **Yes**
4. **We do not recalibrate meters, they are replaced as needed.**
5. **Yes, we have a meter replacement policy. When a meter slows down or quits working it is replaced as soon as possible.**
6. **Theft of Service is a criminal offense.**
7. **We do not have detection program in place but we have a company that we call in that specializes in leak detections. See attachment.**
8. **Our adjustment policy is that we adjust sewer only. All adjustments are approved by City Board and only one adjustment per customer per year.**
9. **Fire chief records all usage on each fire report.**
10. **Rural area is zoned but only part of the city is zoned.**
11. **Yes. The routes are ridden daily.**
12. **Yes**
13. **We do not have equipment but when needed we call Rye Engineering Co**
14. **Door knockers and personal phone calls.**
15. **We do not have a policy but due to Tiptonville being a small town any time there is any kind of water leak it is reported by several individuals.**
16. **Notice at City Hall warning that criminal charges will be filed for water theft.**
17. **N / A**
18. **Yes**

TIPTONVILLE, TENNESSEE WATER LOSS ANALYSIS JULY 1, 2012 - JUNE 30, 2013

| <u>MONTH</u> | <u>GALLONS<br/>TREATED</u> | <u>GALLONS<br/>SOLD TOWN</u> | <u>GALLONS<br/>SOLD PRISON</u> | <u>GALLONS<br/>TOTAL SOLD</u> | <u>GALLONS<br/>LOSS</u> | <u>PERCENT<br/>% LOSS</u> |
|--------------|----------------------------|------------------------------|--------------------------------|-------------------------------|-------------------------|---------------------------|
| 7/12         | 21,052,000                 | 7,035,200                    | 10,831,600                     | 17,866,800                    | 3,185,200               | 15.1%                     |
| 8/12         | 22,348,000                 | 6,834,200                    | 13,313,900                     | 20,148,100                    | 2,199,900               | 9.8%                      |
| 9/12         | 20,007,000                 | 7,524,600                    | 9,982,900                      | 17,507,500                    | 2,499,500               | 12.5%                     |
| 10/12        | 19,724,000                 | 5,444,200                    | 9,675,500                      | 15,119,700                    | 4,604,300               | 23.3%                     |
| 11/12        | 18,938,000                 | 5,856,600                    | 9,650,500                      | 15,507,100                    | 3,430,900               | 18.1%                     |
| 12/12        | 20,070,000                 | 6,532,100                    | 9,090,200                      | 15,622,300                    | 4,447,700               | 22.2%                     |
| 1/13         | 20,950,000                 | 6,941,000                    | 8,866,700                      | 15,807,700                    | 5,142,300               | 24.5%                     |
| 2/13         | 19,285,000                 | 6,157,000                    | 7,921,200                      | 14,078,200                    | 5,206,800               | 27.0%                     |
| 3/13         | 22,555,000                 | 5,351,900                    | 8,914,400                      | 14,266,300                    | 8,288,700               | 36.7%                     |
| 4/13         | 20,474,000                 | 5,653,800                    | 8,865,600                      | 14,519,400                    | 5,954,600               | 29.1%                     |
| 5/13         | 20,187,000                 | 6,107,400                    | 10,173,700                     | 16,281,100                    | 3,905,900               | 19.3%                     |
| 6/13         | <u>21,625,000</u>          | 6,074,800                    | 8,946,200                      | 15,021,000                    | <u>6,604,000</u>        | <u>30.5%</u>              |
|              | 247,215,000                |                              |                                |                               | 55,469,800              | 22.4%                     |

RYE ENGINEERING PLC  
4210 West Main Street  
Erin, TN 37061

INVOICE

Invoice #: 181  
Invoice Date: 2/3/2014  
Due Date: 2/3/2014  
Project:

Bill To:

Tiptonville Water & Sewer  
Stacy Rivers  
130 South Court  
Tiptonville, TN 38079  
ATTN: Brenda

| Description  | Hours/Qty | Rate   | Amount   |
|--|-----------|--------|----------|
| Emergency Leak Detection (8 hr. minimum; 2-person crew; 1/12/2014) | 8         | 325.00 | 2,600.00 |
| Leak Detection Services (2-person crew; 1/13/2014; 1/14/2014)      | 12        | 225.00 | 2,700.00 |

Thank you for your business.

**Total** \$5,300.00

**Payments/Credits** \$0.00

**Balance Due** \$5,300.00

**AWWA WLCC Free Water Audit Software: Reporting Worksheet**  
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Water Audit Report for: **Jellico Electric & Water System**  
 Reporting Year: **2013** / 7/2012 - 6/2013

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the gra

**All volumes to be entered as: MILLION GALLONS (US) PER YEAR**

---

**WATER SUPPLIED** << Enter grading in column 'E'

|   |     |                |                                 |
|---|-----|----------------|---------------------------------|
| Volume from own sources:                              | 10  | 255.946        | Million gallons (US)/yr (MG/Yr) |
| Master meter error adjustment (enter positive value): | 1   | 0.000          | over-registered MG/Yr           |
| Water imported:                                       | n/a | 0.000          | MG/Yr                           |
| Water exported:                                       | 8   | 40.487         | MG/Yr                           |
| <b>WATER SUPPLIED:</b>                                |     | <b>215.459</b> | <b>MG/Yr</b>                    |

---

**AUTHORIZED CONSUMPTION**

|                                |     |                |              |
|--------------------------------|-----|----------------|--------------|
| Billed metered:                | 7   | 135.252        | MG/Yr        |
| Billed unmetered:              | n/a | 0.000          | MG/Yr        |
| Unbilled metered:              | 7   | 12.425         | MG/Yr        |
| Unbilled unmetered:            | 6   | 8.551          | MG/Yr        |
| <b>AUTHORIZED CONSUMPTION:</b> |     | <b>156.228</b> | <b>MG/Yr</b> |

Click here: [?](#) for help using option buttons below

Pcnt:  1.25%  Value:

Use buttons to select percentage of water supplied OR value

---

**WATER LOSSES (Water Supplied - Authorized Consumption)** 59.232 MG/Yr

**Apparent Losses**

|  |   |              |       |
|--|---|--------------|-------|
| Unauthorized consumption:  | 7 | 0.539        | MG/Yr |
| Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed |   |              |       |
| Customer metering inaccuracies:  | 1 | 7.772        | MG/Yr |
| Systematic data handling errors:   | 6 | 0.500        | MG/Yr |
| <b>Apparent Losses:</b>  |   | <b>8.811</b> |       |

Pcnt:  0.25%  Value:

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

---

**Real Losses (Current Annual Real Losses or CARL)**

|   |   |               |              |
|---|---|---------------|--------------|
| Real Losses = Water Losses - Apparent Losses: | 7 | 50.420        | MG/Yr        |
| <b>WATER LOSSES:</b>                          |   | <b>59.232</b> | <b>MG/Yr</b> |

---

**NON-REVENUE WATER**

|                    |   |        |       |
|--------------------|---|--------|-------|
| NON-REVENUE WATER: | 7 | 80.207 | MG/Yr |
|--------------------|---|--------|-------|

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

---

**SYSTEM DATA**

|  |   |       |   |
|--|---|-------|---|
| Length of mains:                                   | 3 | 128.0 | miles   |
| Number of active AND inactive service connections: | 1 | 2,000 |   |
| Connection density:                                |   | 16    | conn./mile main   |
| Average length of customer service line:           | 1 | 20.0  | ft (pipe length between curbstop and customer meter or property boundary) |
| Average operating pressure:                        | 3 | 45.0  | psi   |

---

**COST DATA**

|   |   |            |                      |
|---|---|------------|----------------------|
| Total annual cost of operating water system:            | 9 | \$642,659  | \$/Year              |
| Customer retail unit cost (applied to Apparent Losses): | 9 | \$5.80     | \$/1000 gallons (US) |
| Variable production cost (applied to Real Losses):      | 6 | \$2,185.00 | \$/Million gallons   |

---

**PERFORMANCE INDICATORS**

Financial Indicators

|   |           |
|---|-----------|
| Non-revenue water as percent by volume of Water Supplied: | 37.2%     |
| Non-revenue water as percent by cost of operating system: | 32.2%     |
| Annual cost of Apparent Losses:                           | \$51,104  |
| Annual cost of Real Losses:                               | \$110,169 |

Operational Efficiency Indicators

|  |          |                            |
|--|----------|----------------------------|
| Apparent Losses per service connection per day:              | 12.07    | gallons/connection/day     |
| Real Losses per service connection per day*:                 | N/A      | gallons/connection/day     |
| Real Losses per length of main per day*:                     | 1,079.21 | gallons/mile/day           |
| Real Losses per service connection per day per psi pressure: |          | gallons/connection/day/psi |
| Unavoidable Annual Real Losses (UARL):                       | 17.23    | million gallons/year       |
| From Above, Real Losses = Current Annual Real Losses (CARL): | 50.42    | million gallons/year       |
| Infrastructure Leakage Index (ILI) {CARL/UARL}:              | 2.93     |                            |

\* only the most applicable of these two indicators will be calculated

---

**WATER AUDIT DATA VALIDITY SCORE:**

**\*\*\* YOUR SCORE IS: 74 out of 100 \*\*\***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

**PRIORITY AREAS FOR ATTENTION:**

Based on the information provided, audit accuracy can be improved by addressing the following components:

- 1: Customer metering inaccuracies
- 2: Billed metered
- 3: Variable production cost (applied to Real Losses)

[For more information, click here to see the Grading Matrix worksheet](#)



P.O. Box 510  
Jellico, TN 37762  
(423) 784-8431 Fax (423) 784-3742

Joyce Welborn, Board Coordinator  
Water and Wastewater Financing Board  
James K. Polk State Office Building  
505 Deaderick Street, Suite 1600  
Nashville, Tennessee 37243-1402

Re: Water Loss Reduction Plan Update  
City of Jellico / Jellico Electric and Water System

Dear Ms. Welborn,

The City of Jellico submitted a Water Loss Reduction Plan (WLRP) to the Water and Wastewater Financing Board on March 30, 2011 and an update of that plan on November 7, 2011. At that time the annual water loss from the system was approximately 45-50%. With the efforts of the WLRP and other system improvements, the water loss has been greatly reduced to approximately 32%, as referenced in your February 16, 2014 letter. While the reported water loss is improved, it is not yet compliant with the 30% requirement established by the Board. This letter will serve as an update to the ongoing and proposed activities of the City of Jellico to further reduce the amount of unaccounted-for-water.

The following is an overview of the progress made by Jellico detailing the four WLRP components that were specified in the Plan:

- Leakage Detection Program (LDP) - The LDP program began in January 2011 and focused on older water lines and known problem areas. The findings of the program and the subsequent repairs are recorded and transferred to the Water System Maps. In 2011, Jellico purchased a Digital Leak Detector and numerous leaks have been detected using the new equipment. The utility staff has noted that the Digital Leak Detector works very well for ductile iron, cast iron and galvanized piping but has proven ineffective for PVC or HDPE water lines. The majority of the system water lines are cast iron and galvanized piping, however Jellico has acquired funding in order to replace older pipe lines with newer PVC and HDPE water lines.
- Water Line Replacement Program (WLRP) - Jellico has utilized the information obtained by the LDP to annually prioritize and rank the water loss areas of their system. One of the highest priority areas identified by the program was located along Coal Street, Hill Street and Kentucky Avenue. Many repairs have been made in these areas and in 2013 Jellico was successful in obtaining \$850,000 from the Appalachian Regional Commission and the Abandoned Mine Land program to replace approximately 9,500 linear feet of water line. The water lines in these areas are mainly galvanized and asbestos/cement pipe that are prone to leaks. Many leaks will be eliminated by the project and a reduction in water loss is expected.
- Water Meter Testing, Calibration & Repair Program (CWMP)- Jellico is continuing to update the water system maps and database. Each meter will be assigned a number that corresponds with

the billing department and the utility master mapping. The databases will be updated to include installation year, calibration year, type, manufacturer, etc. The actual testing, calibration and repair of meters is an ongoing maintenance function and has begun since the 2011 update. Approximately 250 meters have been replaced to date. In 2013 Jellico obtained a grant from the Community Development Block Grant Program to replace all the meters in the system with a new Automatic Meter Read system. This project will not only replace all old meters, but will also utilize the radio reading technology to better measure water sales and to make meter reading more efficient. This project is set to begin in June 2014. Water loss is expected to significantly decrease with the use of the new meter system.

The 18 question Initial Check List for Addressing Water Loss provided to Jellico in October 2011 is addressed and updated as follows:

1. Are you billing for all general government water use? Examples: City Hall, Parks, Community Centers, etc?

***Jellico currently bills all general government water usage to all departments at the same water rate as its other domestic customers.***

2. Are you accounting for the water used by the water and/or sewer department?

***Water usage by the water and sewer departments is metered. The Wastewater Treatment Plant uses its own effluent water for its belt filter press operations and for its cleaning operations.***

3. Do you periodically check or inspect all 2-inch and larger meters?

***Jellico currently has 25 water meters that are 2-inch and larger in its system. All 25 are visually inspected each month when those meters are read for billing.***

4. Do you have a recalibration policy and procedure in place?

***A draft meter calibration process is being developed and has not been implemented at this time.***

5. Do you have a meter replacement policy? Is the trigger based on age (length of time in service) or on gallons?

***A draft meter replacement process is being developed and has not been implemented at this time.***

6. Do you have a process to inspect for unauthorized consumption? What are the consequences if unauthorized consumption is discovered?

***Yes, a written process exists but it is vague. Jellico plans to update their policies with language more specific and easier to enforce.***

7. Do you have a leak detection program currently in place?

***Yes, a leak detection program is in place.***

8. Do you have written policies, including a policy for billing adjustments? Are these written policies followed correctly by all levels of staff?

***Jellico does have a written policy for billing adjustments. The formal document effective date was December 1, 2008 and is administered and adhered to correctly by all levels of staff.***

9. Do you have authorized non-customer users (volunteer fire departments, etc)? Do you account for the use? Do you have a method for the user to report the water usage?

***The Jellico Fire Department is the only authorized non-customer in the Jellico system. All water is accounted for by the utility through a monthly report from the fire department that records the date and the quantity of water used by this entity for all of their uses.***

10. Is your system "zoned" to isolate water loss?

***Jellico 's water system is set up into zones, but the poor condition of the valves that isolate some of these zones hamper water loss investigation. Valve replacements will be part of the WLRP projects.***

11. Do you search for leaks at night when there is little traffic and small household usage?

***Jellico does perform most, but not all water loss investigations at night during low traffic volumes and when customer demand is low. The system is at or near its highest pressure levels as well due to water storage tanks being filled while the system demands are low.***

12. Do you or can you control pressure surges?

***Jellico can control some pressure surges in the system by adjusting tank levels and utilizing variable frequency drives (VFD's) on pumps. Some pumps at the Water Treatment Plant and inside the distribution system are not equipped with VFD's currently. It is Jellico's intent to eventually install VFD's on all pumps in their system.***

13. Do you have access to leak detection equipment?

***Jellico purchased leak detection equipment earlier this year prior to implementing its Water Loss Detection Program.***

14. What is your policy for notifying customers they have a leak?

***Jellico currently notifies customers of water leaks on their services by placing cards on their doors.***

15. Do you have a public relations program to encourage citizens to report leaks?

***Jellico currently does not have a public relations program encouraging water leak reporting.***

16. Do you have a policy to prosecute water theft or meter tampering/damage?

***Jellico has a written policy that addressed tampering and damage of its property which includes meters. The formal documents effective date was December 1, 2008. Both fines and criminal prosecution are mentioned but more specific language will be added in the future.***

17. What is the monetary value of the lost water?

**The average annual water loss is estimated to be \$51,000.**

18. Is the cost to repair a water leak justified based on the amount of water being lost?

***This is currently so based on the leaks found and repaired to date. This justification may change in the future but at this time all found leaks are repaired regardless of cost justification.***

Thank you for your assistance. If there are any questions or the need for additional information, please do not hesitate to contact me.

Jellico Electric & Water System

Billy Rowe  
Utility Manager

A handwritten signature in black ink, appearing to read "Billy Rowe". The signature is written in a cursive style with a large, prominent initial "B".

**AWWA WCCO Free Water Audit Software - Reporting Worksheet**

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Click to access definition

Water Audit Report for: **McMinnville Water System**  
 Reporting Year: **2013** | 7/2012 - 6/2013

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grade.

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

**WATER SUPPLIED** << Enter grading in column "B"

|   |                                 |                                      |                                   |
|---|---------------------------------|--------------------------------------|-----------------------------------|
| Volume from own sources:                              | <input type="text" value="9"/>  | <input type="text" value="628.765"/> | Million gallons (US)/yr. (MG/yr.) |
| Master meter error adjustment (enter positive value): | <input type="text" value="8"/>  | <input type="text" value="12.575"/>  | over-registered MG/yr.            |
| Water imported:                                       | <input type="text" value="10"/> | <input type="text" value="0.000"/>   | MG/yr.                            |
| Water exported:                                       | <input type="text" value="10"/> | <input type="text" value="0.000"/>   | MG/yr.                            |
| <b>WATER SUPPLIED:</b>                                |                                 | <b>616.190</b>                       | <b>MG/yr.</b>                     |

**AUTHORIZED CONSUMPTION**

|                                |                                |                                      |               |
|--------------------------------|--------------------------------|--------------------------------------|---------------|
| Billed metered:                | <input type="text" value="8"/> | <input type="text" value="396.090"/> | MG/yr.        |
| Billed unmetered:              | <input type="text" value=""/>  | <input type="text" value=""/>        | MG/yr.        |
| Unbilled metered:              | <input type="text" value=""/>  | <input type="text" value="0.000"/>   | MG/yr.        |
| Unbilled unmetered:            | <input type="text" value=""/>  | <input type="text" value="7.702"/>   | MG/yr.        |
| <b>AUTHORIZED CONSUMPTION:</b> |                                | <b>403.792</b>                       | <b>MG/yr.</b> |

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

**WATER LOSSES (Water Supplied - Authorized Consumption)**  MG/yr.

**Apparent Losses**

|                                  |                                |                                    |        |
|----------------------------------|--------------------------------|------------------------------------|--------|
| Unauthorized consumption:        | <input type="text" value="8"/> | <input type="text" value="1.540"/> | MG/yr. |
| Customer metering inaccuracies:  | <input type="text" value="4"/> | <input type="text" value="8.083"/> | MG/yr. |
| Systematic data handling errors: | <input type="text" value="8"/> | <input type="text" value="0.020"/> | MG/yr. |
| <b>Apparent Losses:</b>          |                                | <b>9.644</b>                       |        |

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

**Real Losses (Current Annual Real Losses or CARL)**

|   |                                |                                      |               |
|---|--------------------------------|--------------------------------------|---------------|
| Real Losses - Water Losses - Apparent Losses: | <input type="text" value="8"/> | <input type="text" value="202.753"/> | MG/yr.        |
| <b>WATER LOSSES:</b>                          |                                | <b>212.397</b>                       | <b>MG/yr.</b> |

**NON-REVENUE WATER**

|                    |                                |                                      |        |
|--------------------|--------------------------------|--------------------------------------|--------|
| NON-REVENUE WATER: | <input type="text" value="8"/> | <input type="text" value="220.100"/> | MG/yr. |
|--------------------|--------------------------------|--------------------------------------|--------|

Total Water Loss = Unbilled Metered + Unbilled Unmetered

**SYSTEM DATA**

|  |                                 |                                    |  |
|--|---------------------------------|------------------------------------|--|
| Length of mains:                                   | <input type="text" value="6"/>  | <input type="text" value="115.8"/> | miles  |
| Number of active and inactive service connections: | <input type="text" value="6"/>  | <input type="text" value="5,120"/> | conn./mile main  |
| Average length of customer service line:           | <input type="text" value="10"/> | <input type="text" value="0.0"/>   | ft. (pipe length between curbstop and customer meter or property boundary) |
| Average operating pressure:                        | <input type="text" value="7"/>  | <input type="text" value="60.0"/>  | psi.   |

**COST DATA**

|   |                                 |  |                      |
|---|---------------------------------|--|----------------------|
| Total annual cost of operating water system:            | <input type="text" value="10"/> | <input type="text" value="\$1,948,086"/> | \$/year              |
| Customer retail unit cost (applied to Apparent Losses): | <input type="text" value="8"/>  | <input type="text" value="\$5.00"/>      | \$/1000 gallons (US) |
| Variable production cost (applied to Real Losses):      | <input type="text" value="8"/>  | <input type="text" value="\$3,162.00"/>  | \$/million gallons   |

**PERFORMANCE INDICATORS**

**Financial Indicators**

|   |  |
|---|--|
| Non-revenue water as percent by volume of Water Supplied: | <input type="text" value="35.74"/>     |
| Non-revenue water as percent by cost of operating system: | <input type="text" value="36.83"/>     |
| Annual cost of Apparent Losses:                           | <input type="text" value="\$48,220"/>  |
| Annual cost of Real Losses:                               | <input type="text" value="\$641,105"/> |

**Operational Efficiency Indicators**

|  |                                     |                            |
|--|-------------------------------------|----------------------------|
| Apparent Losses per service connection per day:              | <input type="text" value="4.32"/>   | gallons/connection/day     |
| Real Losses per service connection per day:                  | <input type="text" value="90.77"/>  | gallons/connection/day     |
| Real Losses per length of main per day:                      | <input type="text" value="N/A"/>    |                            |
| Real Losses per service connection per day per psi pressure: | <input type="text" value="1.51"/>   | gallons/connection/day/psi |
| Unavoidable Annual Real Losses (UARL):                       | <input type="text" value="33.82"/>  | million gallons/year       |
| From Above, Real Losses - Current Annual Real Losses (CARL): | <input type="text" value="202.75"/> | million gallons/year       |
| Infrastructure Leakage Index (ILI) (CARL/UARL):              | <input type="text" value="5.99"/>   |                            |

**WATER AUDIT DATA VALIDITY SCORE:**

**\*\*\* YOUR SCORE IS: 82 out of 100 \*\*\***

A weighted score for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score.

**PRIORITY AREAS FOR ATTENTION:**

Based on the information provided, audit accuracy can be improved by addressing the following components:

- 1: Volume from own sources
- 2: Unauthorized consumption
- 3: Master meter error adjustment

[For more information, click here to see the Grading Matrix worksheet](#)



101 East Main Street  
P. O. Box 7088  
McMinnville, TN 37111  
Tel: 931.473.1200  
Fax: 931.473.1202  
www.mcminnvilletenn.com

April 11, 2014

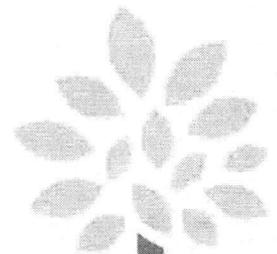
Ms. Joyce Welborn  
Water & Wastewater Financing Board  
505 Deaderick Street, Suite 1500  
James K. Polk State Office Building  
Nashville, Tennessee 37243-1402

Dear Ms. Welborn,

The City of McMinnville Water & Wastewater Department has received your letter in regard to our potentially high water loss issue. Please find the included information requested by the Water & Wastewater Financing Board. If we can be of any further assistance please let us know.

Sincerely,

Paul Williamson  
Construction/Maintenance Supervisor  
McMinnville Water & Wastewater Department



1. All departments including Parks and Recreation, Fire and Police stations, Public Works as well as Sanitation are metered.
2. All branches of the Water & Wastewater facilities are metered. Including Backwash at the Water Treatment Plant.
3. Annually we have Southeast Meter Repair test accuracy for our 2" and Larger Meters.
4. We do not have a calibration policy in place; we use AWWA guidelines or manufacturer suggestions.
5. We have an unwritten policy of replacement in place based on percent of accuracy. If the meter bench tests at +/- 4% the meter is replaced.
6. Semi-Annually we have our Codes Enforcement office and a representative of the Water Department visually inspect our industries and commercial establishments. If a problem exists we give them the opportunity to correct the issue. If they do not comply service is disconnected.
7. Semi-Annually we send crews out at night to listen to valves, service connections and Hydrants.
8. We do have a billing adjustment policy, if the customer brings in proof of a repair the sewer is then adjusted unless the problem was associated with the toilet. Only the billing department enforces the current policy.
9. We do have Volunteer Fire departments that use our system and they were notified by letter to notify our Department whenever they connect to our Hydrants. Location of hydrant, date and amount of time connected and gallons pumped if available.
10. We do not have Metered Zones. Our system consists of many loops and dead ends. And does not allow for zoned metering.
11. We primarily search for leaks at night and during times of least traffic both vehicle and foot. And after Restaurants have closed for the evening.
12. Our system is pressurized mainly by an elevated tank and a ground tank with overflow elevation of 1126' above sea level. The hydraulics of these tanks pressurizes our system. There are only three booster stations and those are for elevation changes. So we cannot control surges.
13. We have two leak detection listening devices that are used for our leak detection survey.
14. If our meter reader or other employee finds a leak on the customer side of the meter that employee tries to make contact with the resident or leaves a note explaining what was discovered and contact information if the customer has more questions.
15. We do not have a program to encourage citizens to report leaks. We do generally have good co-operation from the public.

16. We do not have a written policy on theft; normally the Supervisor that oversees water maintenance will follow up on thefts by getting warrants to charge with theft of service. If any damage has been found, the customer of that account is responsible for all cost to repair or replace the meter and/or appurtenances.

17. According to our current rate the 36.6% loss equals \$89,123.00. Our water loss has become more of a problem than anticipated since all our figures with water pumped, sold and leaks comes up to 23.5%. The 36.6% has created a new puzzle that we will address with a more in-depth leak survey.

18. We repair all leaks that are reported some will be prioritized more urgent than others for instance a 12" main would be addressed as soon as possible whereas a 2" main may be put off to the next business day as long as freezing on a roadway doesn't become a factor.

**AWWA WLCC Free Water Audit Software: Reporting Worksheet**

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Water Audit Report for: **Tellico Plains**

Reporting Year: **2013** 7/2012 - 6/2013

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: **MILLION GALLONS (US) PER YEAR**

**WATER SUPPLIED**

<< Enter grading in column 'E'

|   |   |     |                |                                 |
|---|---|-----|----------------|---------------------------------|
| Volume from own sources:                              | ? | 2   | 235.804        | Million gallons (US)/yr (MG/Yr) |
| Master meter error adjustment (enter positive value): | ? | 2   | 7.600          | under-registered MG/Yr          |
| Water imported:                                       | ? | n/a | 0.000          | MG/Yr                           |
| Water exported:                                       | ? | n/a | 0.000          | MG/Yr                           |
| <b>WATER SUPPLIED:</b>                                |   |     | <b>243.404</b> | <b>MG/Yr</b>                    |

**AUTHORIZED CONSUMPTION**

|                     |   |    |         |       |
|---------------------|---|----|---------|-------|
| Billed metered:     | ? | 10 | 113.603 | MG/Yr |
| Billed unmetered:   | ? | 7  | 2.690   | MG/Yr |
| Unbilled metered:   | ? | 10 | 1.100   | MG/Yr |
| Unbilled unmetered: | ? | 10 | 5.000   | MG/Yr |

**AUTHORIZED CONSUMPTION:** ? 122.393 MG/Yr

Click here: ? for help using option buttons below

Pcmt: 1.25% Value: 0.000

Use buttons to select percentage of water supplied OR value

**WATER LOSSES (Water Supplied - Authorized Consumption)**

121.011 MG/Yr

**Apparent Losses**

|                                  |   |    |              |       |
|----------------------------------|---|----|--------------|-------|
| Unauthorized consumption:        | ? |    | 0.609        | MG/Yr |
| Customer metering inaccuracies:  | ? | 10 | 1.159        | MG/Yr |
| Systematic data handling errors: | ? | 2  | 1.220        | MG/Yr |
| <b>Apparent Losses:</b>          | ? |    | <b>2.987</b> |       |

Pcmt: 0.25% Value: 1.00%

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

**Real Losses (Current Annual Real Losses or CARL)**

|   |   |  |                |              |
|---|---|--|----------------|--------------|
| Real Losses = Water Losses - Apparent Losses: | ? |  | 118.024        | MG/Yr        |
| <b>WATER LOSSES:</b>                          |   |  | <b>121.011</b> | <b>MG/Yr</b> |

**NON-REVENUE WATER**

**NON-REVENUE WATER:** ? 127.111 MG/Yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

**SYSTEM DATA**

|  |   |    |       |   |
|--|---|----|-------|---|
| Length of mains:                                   | ? | 10 | 154.0 | miles   |
| Number of active AND inactive service connections: | ? | 3  | 3,200 |   |
| Connection density:                                |   |    | 21    | conn./mile main   |
| Average length of customer service line:           | ? | 7  | 0.0   | ft (pipe length between curbside and customer meter or property boundary) |
| Average operating pressure:                        | ? | 8  | 50.0  | psi   |

**COST DATA**

|   |   |   |           |                      |
|---|---|---|-----------|----------------------|
| Total annual cost of operating water system:            | ? | 9 | \$550,949 | \$/Year              |
| Customer retail unit cost (applied to Apparent Losses): | ? | 8 | \$5.99    | \$/1000 gallons (US) |
| Variable production cost (applied to Real Losses):      | ? | 7 | \$226.00  | \$/Million gallons   |

**PERFORMANCE INDICATORS**

**Financial Indicators**

|   |          |
|---|----------|
| Non-revenue water as percent by volume of Water Supplied: | 52.2%    |
| Non-revenue water as percent by cost of operating system: | 8.3%     |
| Annual cost of Apparent Losses:                           | \$17,893 |
| Annual cost of Real Losses:                               | \$26,673 |

**Operational Efficiency Indicators**

|  |          |                            |
|--|----------|----------------------------|
| Apparent Losses per service connection per day:              | 2.56     | gallons/connection/day     |
| Real Losses per service connection per day*:                 | N/A      | gallons/connection/day     |
| Real Losses per length of main per day*:                     | 2,099.69 | gallons/mile/day           |
| Real Losses per service connection per day per psi pressure: |          | gallons/connection/day/psi |
| Unavoidable Annual Real Losses (UARL):                       | 23.96    | million gallons/year       |
| From Above, Real Losses = Current Annual Real Losses (CARL): | 118.02   | million gallons/year       |
| Infrastructure Leakage Index (ILI) (CARL/UARL):              | 4.92     |                            |

\* only the most applicable of these two indicators will be calculated

**WATER AUDIT DATA VALIDITY SCORE:**

**\*\*\* YOUR SCORE IS: 60 out of 100 \*\*\***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

**PRIORITY AREAS FOR ATTENTION:**

Based on the information provided, audit accuracy can be improved by addressing the following components:

- 1: Volume from own sources
- 2: Master meter error adjustment
- 3: Systematic data handling errors

[For more information, click here to see the Grading Matrix worksheet](#)



RECEIVED

APR 14 2014

STATE AND LOCAL FINANCE

April 3, 2014

Joyce Welborn

Board Coordinator

State of Tennessee

Comptroller of the treasury

Office of State and Local Finance

James K. Polk State Office Building

505 Deaderick Street, Suite 1600

Nashville, TN 37243-1402

Dear Joyce Welborne;

Tellico Plains Water Department has made great strides to address the water loss our system is experiencing. We have invested some \$630,000 in a meter replacement along with a state of the art monitoring and control package to better serve our tank and pump controls to reduce tank overflows and cut down on response time when larger main ruptures occur. We have taken a very aggressive leak repair approach that has yielded over 150 line repairs.

As to date, all known services are being metered. The larger meters that have been in place are being properly sized to justify this is the proper meter for their application; the meters that are not sized

properly are being replaced with the appropriate sized meter. Procedures and written policies are in place for billing adjustments, as well as for theft and vandalism of services.

All volunteer fire departments have been instructed to report all water usage used for fire protection.

With the new technology of our recent replaced amr meters we have the capability to generate leak reports. This is to better serve our customers of leaks within their service connections. Notification is being done either by home visit or phone calls to better serve customers.

We have in place, a program to notify customers with a mailed cut off notice and also a hand delivered notice that past due accounts service will be terminated due to nonpayment.

With some of the preliminary numbers we have gathered so far, we have reduced our water loss to around 13 to 16 %. However we are still striving to correct our problem even farther in the future. This will be conducted by the ongoing effort to resize larger meters. Continue an aggressive leak repair program, along with the replacement of faulty service lines.

We have applied for the ARC grant to address the condition of our water plant. We are looking to make repairs on our contact tanks along with a more accurate meter system for our main plant, as well as more efficient VFD finished water pumps.

Tellico Plains Water Department has set this as our goal to improve every aspect of our system, and to ensure we provide the best quality of water with the upmost cost efficient system possible.

If you have any questions regarding this issue please feel free to contact me at (423)836-5018 or Mayor Patrick Hawkins at (423) 261-5608

Sincerely

A handwritten signature in cursive script that reads "Robert Patty".

Robert Patty

Tellico Plains Utilities Manager

**AWWA WLCC Free Water Audit Software: Reporting Worksheet**

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Water Audit Report for: **BOHENWALD WATER SYSTEM** JULY 2012-JUNE 2013  
 Reporting Year: **2013** 7/2012 - 6/2013

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades.

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

**WATER SUPPLIED**

<< Enter grading in column 'E'

|   |     |                |                                 |
|---|-----|----------------|---------------------------------|
| Volume from own sources:                              | 5   | 421.100        | Million gallons (US)/yr (MG/yr) |
| Master meter error adjustment (enter positive value): | n/a | 0.000          | MG/yr                           |
| Water imported:                                       | n/a | 0.000          | MG/yr                           |
| Water exported:                                       | n/a | 0.000          | MG/yr                           |
| <b>WATER SUPPLIED:</b>                                |     | <b>421.100</b> | <b>MG/yr</b>                    |

**AUTHORIZED CONSUMPTION**

|                                |     |                |              |
|--------------------------------|-----|----------------|--------------|
| Billed metered:                | 8   | 229.200        | MG/yr        |
| Billed unmetered:              | n/a | 0.000          | MG/yr        |
| Unbilled metered:              | n/a | 0.000          | MG/yr        |
| Unbilled unmetered:            | 5   | 5.264          | MG/yr        |
| <b>AUTHORIZED CONSUMPTION:</b> |     | <b>234.464</b> | <b>MG/yr</b> |

Click here: [?](#) for help using option buttons below

Pcnt:  Value:

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

Use buttons to select percentage of water supplied OR value

**WATER LOSSES (Water Supplied - Authorized Consumption)**

186.636 MG/yr

**Apparent Losses**

|                                  |   |              |       |
|----------------------------------|---|--------------|-------|
| Unauthorized consumption:        | 5 | 1.053        | MG/yr |
| Customer metering inaccuracies:  | 1 | 7.089        | MG/yr |
| Systematic data handling errors: | 7 | 1.200        | MG/yr |
| <b>Apparent Losses:</b>          |   | <b>9.341</b> |       |

Pcnt:  Value:

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

**Real Losses (Current Annual Real Losses or CARL)**

Real Losses = Water Losses - Apparent Losses: 177.295 MG/yr  
**WATER LOSSES:** 186.636 MG/yr

**NON-REVENUE WATER**

NON-REVENUE WATER: 191.900 MG/yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

**SYSTEM DATA**

|  |    |       |  |
|--|----|-------|--|
| Length of mains:                                   | 4  | 650.0 | miles  |
| Number of active AND inactive service connections: | 6  | 4,093 |  |
| Connection density:                                |    | 6     | conn./mile main  |
| Average length of customer service line:           | 10 | 0.0   | ft. (pipe length between curbstop and customer meter or property boundary) |
| Average operating pressure:                        | 4  | 55.0  | psi  |

**COST DATA**

|   |   |             |                      |
|---|---|-------------|----------------------|
| Total annual cost of operating water system:            | 5 | \$1,290,801 | \$/Year              |
| Customer retail unit cost (applied to Apparent Losses): | 5 | \$6.25      | \$/1000 gallons (US) |
| Variable production cost (applied to Real Losses):      | 5 | \$3,073.60  | \$/Million gallons   |

**PERFORMANCE INDICATORS**

**Financial Indicators**

|   |           |
|---|-----------|
| Non-revenue water as percent by volume of Water Supplied: | 45.6%     |
| Non-revenue water as percent by cost of operating system: | 48.0%     |
| Annual cost of Apparent Losses:                           | \$58,564  |
| Annual cost of Real Losses:                               | \$544,827 |

**Operational Efficiency Indicators**

|  |        |                            |
|--|--------|----------------------------|
| Apparent Losses per service connection per day:              | 6.25   | gallons/connection/day     |
| Real Losses per service connection per day:                  | N/A    | gallons/connection/day     |
| Real Losses per length of main per day:                      | 747.29 | gallons/mile/day           |
| Real Losses per service connection per day per psi pressure: |        | gallons/connection/day/psi |
| Unavoidable Annual Real Losses (UARL):                       | 82.92  | million gallons/year       |
| From Above, Real Losses - Current Annual Real Losses (CARL): | 177.29 | million gallons/year       |
| Infrastructure Leakage Index (ILI) (CARL/UARL):              | 2.14   |                            |

\* Only the most applicable of these two indicators will be calculated.

**WATER AUDIT DATA VALIDITY SCORE:**

**\*\*\* YOUR SCORE IS: 81 out of 100 \*\*\***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score.

**PRIORITY AREAS FOR ATTENTION:**

Based on the information provided, audit accuracy can be improved by addressing the following components:

- 1: Volume from own sources
- 2: Unauthorized consumption
- 3: Customer metering inaccuracies

For more information, click here to see the Grading Matrix worksheet

City of Hohenwald  
118 W. Linden Avenue  
Hohenwald, Tennessee 38462  
(931) 796-2231



Johnny Clayton - Mayor  
Dr. Dustin Flowers, Vice-Mayor  
Mike Hinson, Councilman  
Bill Lawson, Councilman  
Raymond Runions, Councilman

April 14, 2014

APR 16 2014

Joyce Welborn, Utilities Board Manager  
State of Tennessee  
Water and Wastewater Financing Board  
James K. Polk State Office Building, Suite 1500  
505 Deaderick Street  
Nashville, Tennessee 37243

RE: Excessive Non-Revenue Water

Dear Ms. Wellborn:

I have attempted to answer all of your questions below:

1. Are you billing for all general government water use?  
Yes, we are billing every government location both City and County.
2. Are you accounting for the water used by the water and/or sewer department?  
Yes we are using meters to account for any water that is being used by these departments.
3. Do you periodically check or inspect all 2" and larger meters?  
Yes, but not to the extent we would like too, due to budget constraints and shortage of personnel.
4. Do you have a recalibration policy and procedure in place?  
Yes, for all master meters. We do not have one in place for service meters at this time.
5. Do you have a meter replacement policy?  
No, but we are contemplating the best procedure to implement by the end of the year.

April 14, 2014

Joyce Welborn, Utilities Board Manager

Page 2

6. Do you have a process to inspect for authorized consumption? What are the consequences if unauthorized consumption is discovered?

Yes, all accounts are reviewed on a monthly basis. The consequences are charges of theft being filed against them with law enforcement.

7. Do you have a leak detection program currently in place?

No. Although we look for leaks when we can, and we have used third party people on multiple occasions, we do not have an actual leak detection program in place.

8. Do you have written policies, including a policy for billing adjustments? Are the written policies followed correctly by all levels of staff?

No, however we are currently considering putting a policy in place to address the issues.

9. Do you have authorized non-customer uses (volunteer fire departments, etc.)? Do you account for the use? Do you have a method for the user to report water usage?

Yes, the volunteer fire department reports estimated usage per month. We have a meter with a backflow installed at the water department for all others to use to get water.

10. Is your system "zoned" to isolate water loss?

No, it is not. We have had several new valves installed in the last couple of years and have located 47 valves that were forgotten in the last six years, which has helped in isolating areas.

11. Do you search for leaks at night when there is little traffic or small household usage?

No, we do not currently have an in-house detection program, however, we have had third party companies do it in times past.

12. Do you or can you control pressure surges?

We do not have surges because all of our water is gravity fed.

13. Do you have or have access to leak detection equipment?

We currently have two listening devices being used by our men.

14. What is your policy for notifying customers they have a leak?

Although there is no written policy, it is customary to contact the customer by phone if a leak is discovered.

April 14, 2014

Joyce Welborn, Utilities Board Manager

Page 3

15. Do you have a public relations program to encourage citizens to report leaks?

Although we have no written program, encouragement has been placed in our local newspaper and also on the monthly utility bills.

16. Do you have a policy to prosecute water theft or meter tampering/damage?

We do not have a written policy, but if someone is caught doing the above items, they are turned over to law enforcement.

17. What is the monetary value of the lost water?

According to our annual audit, the cost is \$6.28 per 1,000 gallons.

18. Is the cost to repair the leak justified based on the water being lost?

No, we repair leaks as soon as we discover them.

If you have any further questions, please let me know.

Sincerely,

A handwritten signature in black ink, appearing to read "Johnny Clayton", with a long horizontal flourish extending to the right.

Johnny Clayton

Mayor

JC:rt

Water and Wastewater Financing Board

Compliance Reports

May 8, 2014

|                        |  |
|------------------------|--|
| Town of Ashland City   | Validity Score 77, Non-revenue water 26.8%<br>Change in net position \$443,456                 |
| Town of Benton         | Validity Score 76; not-revenue water 15.2%<br>Change in net position \$10,288                  |
| Town of Big Sandy      | Validity Score 75, Non-revenue water 8.7%<br>Change in net position \$130,202 (grants 143,157) |
| Town of Carthage       | Validity Score 80, Non-revenue water 14.6%<br>Change in net position \$103,428                 |
| Town of Cumberland Gap | Validity Score 82; Non-revenue water 26.4%<br>Utility operated from General Fund               |
| Town of Decaturville   | Validity Score 67; Non-revenue water 13.6%<br>Change in net position (\$12,930) First year     |
| City of Decherd        | Validity score 79: Non-revenue water 20.2%<br>Change in net position \$136,173                 |
| City of Elizabethton   | Validity Score 77, Non-revenue 18.7%<br>Change in net position \$647,269 (grants \$590,609)    |
| City of Greeneville    | Validity Score 90; Non-revenue water 12.6%<br>Change in net position \$1,041,431               |
| City of Harriman       | Validity Score 79, Non-revenue water 20.7%<br>Change in net position \$85,866                  |

|                      |   |
|----------------------|---|
| City of Henry        | Validity Score 75; Non-revenue water 20.3%                  |
|                      | Change in net position \$701,696 (grants \$420,069)         |
| Town of Hollow Rock  | Validity Score 73; Non-revenue water 6.7%                   |
|                      | Change in net position \$2,006                              |
| Town of Hornbeak     | Change in net position \$422,724 (grants (\$471,347)        |
| Town of Jasper       | Validity Score 74; non-revenue water 11.2%                  |
|                      | Change in net position \$2,574 water                        |
|                      | Change in net position \$\$707,042 sewer                    |
| Town of Jonesborough | Validity Score 75, Non-revenue water 12.0                   |
|                      | Change in net position \$1,662,109 (grants\$1,514,240)      |
| Town of Kimball      | Change in net position \$58,905                             |
| City of Lake City    | Validity Score 79, Non-revenue water 23.0%                  |
|                      | Change in net position \$5,798 (grants \$209,720)           |
| City of Lakeland     | Change in net position \$7,474                              |
| Lincoln County       | Validity Score 68, Non-revenue water 15.9%                  |
|                      | Change in net position; \$239,795                           |
| City of Lobelville   | Validity Score 85, Non-revenue water 3.0%                   |
|                      | Change in net position \$654,157 (grants \$495,602)         |
| City of McKenzie     | Validity Score 73; Non-revenue water 15.1%                  |
|                      | Change in net position \$170,177                            |
| Town of Monterey     | Validity Score 81, Non-revenue water 1.5%                   |
|                      | Change in net position \$302,528                            |
| Town of Mosheim      | Validity Score 68; Non-revenue water 29.1%                  |
|                      | Change in net position water \$57,328                       |
|                      | Change in net position sewer \$\$473,855 (grants \$486,035) |

|  |   |
|--|---|
| Town of Mountain City                  | Validity Score 70, Non-revenue water 10.7%                    |
|  | Change in net position \$371,159 (grants \$240,489)           |
| City of New Johnsonville               | Validity score 81; Non-revenue water 28.5%                    |
|  | Change in net position 361,062 (grants \$535,064)             |
| City of Niota, June 30 2011            | Validity Score 77, Non-revenue water 15.9%                    |
|  | Change in net position \$594,110 (grants \$767,150)           |
| Town of Oliver Springs                 | Validity score 73; Non-revenue water 6.3%                     |
|  | Change in net position \$134,389                              |
| Town of Petersburg                     | Validity Score 79; non-revenue water 5.1%                     |
|  | Change in net position \$2,916                                |
| Town of Sardis                         | Validity Score 72, Non-revenue water 8.2%                     |
|  | Change in net position \$22,806                               |
| City of Spencer                        | Validity score 77; Non-revenue water 11.7%                    |
|  | Change in net position \$1,229,874 (grants \$1,525,088)       |
| Town of Wartrace                       | Validity Score 77, Non-revenue water 20.1%                    |
|  | Change in net position \$177,450 (grants \$158,736)           |
| Watauga River Regional Water Authority | Validity Score 86 Non-revenue water 5.9%                      |
|  | Change in net position \$376,345 (grants \$502,380)           |
| City of Watertown                      | Validity Score 81; Non-revenue water 2.8%                     |
|  | Change in net position \$55,033                               |
| City of Waverly                        | Validity score 76; Non-revenue water 16.5%                    |
|  | Change in net position (\$72,371) first year (grant \$41,216) |
| Town of Whiteville                     | Validity score 67; Non-revenue water 26.2%                    |
|  | Change in net position \$73,131                               |

| <b>Systems under the WWFB May 2014</b> |                 |                   |
|--|-----------------|-------------------|
| <b>SYSTEM</b>                          | <b>COUNTY</b>   | <b>LAST AUDIT</b> |
| Town of Alexandria                     | DeKalb          | 2013              |
| Town of Atwood                         | Carroll         | 2013              |
| City of Bradford                       | Gibson          | 2013              |
| City of Bolivar                        | Hardeman        | 2013              |
| Coffee County WTA                      | Coffee          | 2013              |
| City of Collinwood                     | Wayne           | 2011              |
| Town of Decatur                        | Meigs           | 2013              |
| City of Dunlap WL                      | Sequatchie      | 2013              |
| Town of Englewood                      | McMinn          | 2013              |
| City of Erin                           | Houston         | 2013              |
| City of Friendship                     | Crockett        | 2012              |
| City of Friendsville WL                | Blount          | 2012              |
| Town of Gainesboro                     | Jackson         | 2013              |
| City of Grand Junction                 | Fayette         | 2013              |
| Town of Halls WL                       | Lauderdale      | 2013              |
| Town of Henning                        | Lauderdale      | 2013              |
| City of Hohenwald WL                   | Lewis           | 2013              |
| Town of Hornsby                        | Hardeman        | 2013              |
| Humphreys County                       | Humphreys       | 2013              |
| Town of Huntland                       | Franklin        | 2013              |
| Town of Huntsville                     | Scott           | 2013              |
| City of Jellico WL                     | Campbell        | 2013              |
| City of Kenton WL                      | Gibson/Obion    | 2012              |
| Lauderdale County Water                | Lauderdale      | 2013              |
| City of Lenoir City WL                 | Loudon          | 2012              |
| City of McMinnville WL                 | Warren          | 2013              |
| City of Michie                         | McNairy         | 2012              |
| City of Middleton                      | Hardeman        | 2013              |
| City of Millington WL                  | Shelby          | 2013              |
| City of Munford                        | Tipton          | 2013              |
| Town of Obion                          | Obion           | 2012              |
| Town of Oneida                         | Scott           | 2013              |
| City of Puryear                        | Henry           | 2013              |
| City of Ramer                          | McNairy         | 2012              |
| City of Red Boiling Springs            | Macon           | 2013              |
| Town of Rutledge                       | Grainger        | 2013              |
| Scott County Sewer System              | Scott           | 2012              |
| Town of Sharon                         | Weakley         | 2013              |
| City of Springfield WL                 | Robertson       | 2013              |
| Town of Stanton                        | Haywood         | 2013              |
| City of Sunbright                      | Morgan          | 2013              |
| Town of Tellico Plains WL              | Monroe          | 2013              |
| Town of Tennessee Ridge                | Houston/Stewart | 2013              |
| Town of Trezevant WL                   | Carroll         | 2012              |
| Town of Vonore                         | Blount/Monroe   | 2013              |
| City of Wartburg                       | Morgan          | 2012              |
| City of Westmoreland WL                | Sumner          | 2013              |
| Town of Woodbury WL                    | Cannon          | 2013              |

| <b>WATER LOSS STATUS</b> |                            |                                     |                            |                               |                            |                               |                            |                               |
|--------------------------|----------------------------|-------------------------------------|----------------------------|-------------------------------|----------------------------|-------------------------------|----------------------------|-------------------------------|
| <u>Utility system</u>    | <u>original referral %</u> | <u>original audit referral date</u> | <u>subsequent review %</u> | <u>subsequent review date</u> | <u>subsequent review %</u> | <u>subsequent review date</u> | <u>subsequent review %</u> | <u>subsequent review date</u> |
| Collinwood               | 45.96%                     | 6/30/2009                           | 51.30%                     | 6/30/2010                     | 51.30%                     | 6/30/2011                     |                            |                               |
| Dunlap                   |                            |                                     |                            |                               |                            |                               | 64/10.8%                   | 6/30/2013                     |
| Erin                     | 51.00%                     | 6/30/2010                           | 49.76%                     | 6/30/2011                     | 42.54%                     | 6/30/2012                     |                            |                               |
| Friendsville             | 40.35%                     | 6/30/2010                           | 38.05%                     | 6/30/2011                     | 62/28.4%                   | 6/30/2012                     |                            |                               |
| Grand Junction           | 45.55%                     | 6/30/2010                           | not included               | 6/30/2011                     | not included               | 6/30/2012                     | not included               | 6/30/2013                     |
| Halls                    | 35.10%                     | 6/30/2011                           | 36.67%                     | 6/30/2012                     |                            |                               |                            |                               |
| Hohenwald                | 46.00%                     | 6/30/2010                           | 36.00%                     | 6/30/2011                     | 36.00%                     | 6/30/2012                     |                            |                               |
| Jellico                  | 43.76%                     | 6/30/2010                           | 40.25%                     | 6/30/2011                     | 38.96%                     | 6/30/2012                     |                            |                               |
| Kenton                   | 48.80%                     | 6/30/2010                           | 46.40%                     | 6/30/2011                     | 1.37%                      | 6/30/2012                     |                            |                               |
| Lenoir City              | 34.62%                     | 6/30/2010                           | 37.70%                     | 6/30/2011                     | 38.60%                     | 6/30/2012                     |                            |                               |
| Springfield              | 38.10%                     | 6/30/2010                           | 38.03%                     | 6/30/2011                     | 39.30%                     | 6/30/2012                     |                            |                               |
| Tellico Plains           | 52.88%                     | 6/30/2010                           | 51.24%                     | 6/30/2011                     | 46.33%                     | 6/30/2012                     |                            |                               |
| Trezevant                | 48.30%                     | 6/30/2007                           | 57.41%                     | 6/30/2010                     | 52.82%                     | 6/30/2011                     | 43.99%                     | 6/30/2012                     |
| Waverly                  | 47.64%                     | 6/30/2010                           | 52.00%                     | 6/30/2011                     | 51.06%                     | 6/30/2012                     |                            |                               |
| Westmoreland             | 42.00%                     | 6/30/2010                           | 46.00%                     | 6/30/2011                     | 40.00%                     | 6/30/2012                     |                            |                               |
| Woodbury                 | 46.00%                     | 6/30/2010                           | 44.06%                     | 6/30/2011                     | 36.00%                     | 6/30/2012                     |                            |                               |



STATE OF TENNESSEE  
COMPTROLLER OF THE TREASURY  
DEPARTMENT OF AUDIT  
DIVISION OF LOCAL GOVERNMENT AUDIT

SUITE 1500

JAMES K. POLK STATE OFFICE BUILDING  
NASHVILLE, TENNESSEE 37243-1402  
PHONE (615) 401-7841

January 31, 2014

**MEMORANDUM**

**TO:** Lieutenant Governor Ron Ramsey  
Speaker of the Senate

Representative Beth Harwell  
Speaker of the House of Representatives

**FROM:** Jim Arnette, Director  
Division of Local Government Audit

**SUBJECT:** Water Loss Filing per Section 7-82-401(i) and 68-221-1010 (d)(3),  
*Tennessee Code Annotated*

Beginning in January 2013, the Utility Management Review Board and the Water and Wastewater Financing Board began requiring utility districts, cities and other water systems to use a water loss evaluation tool developed by the American Water Works Association (AWWA). This tool produces a number of performance indicators and calculates a "validity score" based on information entered by system personnel.

The attached spreadsheet presents one of these performance indicators and the validity score for each financial report submitted between January 1, 2013 and December 31, 2013.

Additional information regarding the spreadsheet is included as an attachment within this reporting package.

If you have any questions or need additional information, please contact me.

Enclosure

xc: Mr. Justin P. Wilson  
Comptroller of the Treasury

Senator Steve Southerland, Chair  
Senate Standing Committee - Energy, Agriculture and Natural Resources

Representative Curtis Halford, Chair  
House Standing Committee - Agriculture and Natural Resources

### **Non-Revenue Water as Percent by Cost of Operating System**

Non-Revenue water is defined as: the cost of water that is produced and/or purchased that does not produce any revenue for the system (non-revenue water). It includes apparent losses, real losses, unbilled meter and unbilled unmetered amounts.

Cost to operate the system is defined as: costs for operations, maintenance and any annually incurred costs for long-term upkeep of the system, such as repayment of capital bonds for infrastructure expansion or improvement. Typical costs include employee salaries and benefits, materials, equipment, insurance, fees, administrative costs and all other costs that exist to sustain the drinking water supply. These costs should not include any costs to operate wastewater, biosolids or other systems outside of drinking water.

The performance indicator “non-revenue water as a percent by cost of operating system” is determined by:

- (1) converting the non-revenue water, which is expressed in million gallons, to a monetary amount; and
- (2) calculating the cost to operate the system;
- (3) expressing the monetary cost of non-revenue water as a percentage of the cost to operate the system.

### **Validity Score**

The validity score helps assess the reliability of the data that was used to produce the performance indicator. The maximum validity score is 100. The validity score is calculated based on data entered by system personnel. The input data ranks the reliability input items based on specific criteria established by the American Water Works Association (AWWA).

### **Excessive Water Loss**

The Utility Management Review Board and the Water and Wastewater Financing Board developed and adopted a phase-in schedule related to the definition of excessive water loss. For the 2013 calendar year, a water system is deemed to have excessive water loss if it has (1) a validity score of 65 or less or (2) non-revenue water as a percent by cost of operating system is 30% or more. These designated levels will change every other year until 2020, when a validity score of 80 or less or non-revenue water as a percent by cost of operating system of 20% will be considered indicative of excessive water loss.

Unaccounted For Water Loss Report  
 Audit Reports Received From January 1, 2013 through December 31, 2013  
 TCA Filing Date: February 1, 2014

| System Name                                  | Fiscal Year End    | Non-Revenue Water as Percent by Cost of Operating System | Validity Score (Maximum is 100) | Unaccounted For Water Loss Schedule - Status (blank indicates financial report schedule was in compliance) |
|--|--------------------|--|---------------------------------|--|
| Adams-Cedar Hill Water System                | June 30, 2013      | 3.7  | 82                              |  |
| Alamo  | June 30, 2012      | 11.2   | 67                              |  |
| Alcoa  | June 30, 2012      | 3.0  | 84                              |  |
| Alexandria                                   | June 30, 2013      | 25.6   | 83                              |  |
| Algood                                       | June 30, 2013      | 9.2  | 82                              |  |
| Allardt                                      | June 30, 2013      | 19.1   | 79                              |  |
| Alpha-Talbott Utility District               | December 31, 2012  | 17.2   | 87                              |  |
| Anderson County Water Authority              | June 30, 2013      | 7.3  | 84                              |  |
| Arthur-Shawnee Utility District              | June 30, 2013      | 15.9   | 71                              |  |
| Athens                                       | June 30, 2013      | 8.7  | 94                              |  |
| Atoka  | June 30, 2012      | 1.2  | 94                              |  |
| Atwood                                       | June 30, 2013      | 20.7   | 69                              |  |
| Bangham Utility District                     | May 31, 2013       | 19.3   | 80                              |  |
| Bartlett                                     | June 30, 2013      | 3.8  | 82                              |  |
| Baxter                                       | June 30, 2013      | 8.6  | 78                              |  |
| Bedford County Utility District              | June 30, 2013      | 6.7  | 81                              |  |
| Bell Buckle                                  | June 30, 2013      | 2.3  | 79                              |  |
| Belvidere Rural Utility District             | September 30, 2012 | 8.5  | 67                              |  |
| Benton                                       | June 30, 2012      | 9.7  | 58                              |  |
| Big Creek Utility District                   | February 28, 2013  | 6.9  | 78                              |  |
| Big Sandy                                    | June 30, 2013      | 8.7  | 75                              |  |
| Blountville Utility District                 | June 30, 2013      | 9.6  | 85                              |  |
| Bluff City                                   | June 30, 2012      | 5.7  | 72                              |  |
| Bolivar                                      | June 30, 2012      |  |                                 | Schedule Not Included in Report  |
| Bon Aqua-Lyles Utility District              | August 31, 2012    |  |                                 | Schedule Incomplete or inaccurate  |
| Bon De Croft Utility District                | June 30, 2013      | 3.0  | 75                              |  |
| Brentwood                                    | June 30, 2013      | 17.2   | 85                              |  |
| Brighton                                     | June 30, 2012      | 7.0  | 66                              |  |
| Bristol                                      | June 30, 2012      |  |                                 | Schedule Included in Report Old Format   |
| Bristol-Bluff City Suburban Utility District | July 31, 2012      | 20.2   | 82                              |  |
| Brownlow Utility District                    | June 30, 2013      | 1.7  | 84                              |  |
| Brownsville Energy Authority                 | June 30, 2013      | 0.4  | 100                             |  |
| Bruceton                                     | June 30, 2012      |  |                                 | Schedule Included in Report Old Format   |
| Cagle-Fredonia Utility District              | December 31, 2012  | 6.8  | 83                              |  |
| Calhoun-Charleston Utility District          | September 30, 2012 | 14.6   | 79                              |  |

Unaccounted For Water Loss Report  
 Audit Reports Received From January 1, 2013 through December 31, 2013  
 TCA Filing Date: February 1, 2014

| System Name  | Fiscal Year End    | Non-Revenue Water as Percent by Cost of Operating System | Validity Score (Maximum is 100) | Unaccounted For Water Loss Schedule - Status (blank indicates financial report schedule was in compliance) |
|--|--------------------|--|---------------------------------|--|
| Camden   | June 30, 2013      | 19.3   | 84                              |  |
| Carderview Utility District                        | June 30, 2012      | 3.3  | 71                              | Incorrect Schedule Included in Report - Data from separate AWWA file                                       |
| Carthage   | June 30, 2013      | 14.6   | 80                              |  |
| Caryville-Jacksboro Utility Commission             | June 30, 2013      | 2.1  | 95                              |  |
| Castalian Springs-Bethpage Utility District        | August 31, 2013    | 13.8   | 80                              |  |
| Celina   | June 30, 2013      | 4.0  | 83                              |  |
| Center Grove-Winchester Springs Utility District   | September 30, 2012 | 16.1   | 83                              |  |
| Centerville  | June 30, 2013      | 1.6  | 82                              |  |
| Chanute Pall Mall Utility District                 | June 30, 2013      | 13.8   | 83                              |  |
| Cherokee Hills Utility District                    | December 31, 2012  |  |                                 | Schedule Not Included in Report  |
| Clarksburg Utility District                        | December 31, 2012  | 4.8  | 71                              |  |
| Clarksville  | June 30, 2013      | 7.9  | 87                              |  |
| Clearfork Utility District                         | December 31, 2012  | 16.6   | 59                              |  |
| Cleveland  | June 30, 2013      | 7.8  | 82                              |  |
| Clifton  | June 30, 2013      | 15.3   | 81                              |  |
| Clinton  | June 30, 2013      | 8.1  | 87                              |  |
| Cold Springs Utility District                      | August 31, 2013    | 4.5  | 81                              |  |
| Collinwood   | June 30, 2011      |  |                                 | Schedule Included in Report Old Format   |
| Columbia   | June 30, 2013      | 6.6  | 78                              |  |
| Consolidated Utility District of Rutherford County | September 30, 2013 | 5.6  | 83                              |  |
| Cookeville   | June 30, 2013      | 11.7   | 83                              |  |
| Cookeville Boat Dock Utility District              | December 31, 2012  | 13.7   | 84                              |  |
| Cookeville Boat Dock Utility District              | December 31, 2011  | 19.8   | 84                              |  |
| Cordell Hull Utility District                      | December 31, 2012  | 8.1  | 84                              |  |
| County Wide Utility District                       | December 31, 2012  | 4.6  | 69                              |  |
| Cowan  | June 30, 2013      | 16.3   | 75                              |  |
| Crab Orchard Utility District                      | December 31, 2012  | 10.2   | 67                              |  |
| Crockett Mills Utility District                    | December 31, 2012  | 12.4   | 67                              |  |
| Cumberland City                                    | June 30, 2013      | 12.8   | 75                              |  |
| Cumberland Gap                                     | June 30, 2012      | 42.3   | 66                              |  |
| Cumberland Heights Utility District                | July 31, 2013      | 10.5   | 83                              |  |
| Cumberland Utility District                        | September 30, 2012 | 14.7   | 91                              |  |
| Cunningham Utility District                        | December 31, 2012  | .1   | 93                              |  |
| Cunningham-East Montgomery Water Treatment Plant   | December 31, 2012  | 0.0  | 97                              |  |

Unaccounted For Water Loss Report  
 Audit Reports Received From January 1, 2013 through December 31, 2013  
 TCA Filing Date: February 1, 2014

| System Name                         | Fiscal Year End    | Non-Revenue Water as Percent by Cost of Operating System | Validity Score (Maximum is 100) | Unaccounted For Water Loss Schedule - Status (blank indicates financial report schedule was in compliance) |
|-------------------------------------|--------------------|--|---------------------------------|--|
| Dandridge                           | June 30, 2012      | 7.9  | 80                              |  |
| Dayton                              | June 30, 2012      | 12.2   | 88                              |  |
| Decatur                             | June 30, 2012      | 9.1  | 75                              |  |
| Decatur                             | June 30, 2013      | 5.7  | 77                              |  |
| Decaturville                        | June 30, 2013      | 13.6   | 67                              |  |
| Decherd                             | June 30, 2012      |  |                                 | Schedule Included in Report Old Format   |
| Dekalb Utility District             | June 30, 2013      | 11.8   | 85                              |  |
| Dewwhite Utility District           | December 31, 2012  | 19.8   | 77                              |  |
| Double Springs Utility District     | April 30, 2013     | 9.8  | 83                              |  |
| Dover                               | June 30, 2013      | 9.1  | 84                              |  |
| Dowelltown-Liberty Waterworks       | June 30, 2013      | 0.6  | 85                              |  |
| Dresden                             | June 30, 2012      | 8.6  | 71                              |  |
| Dry Run Utility District            | September 30, 2013 | 37.9   | 75                              |  |
| Duck River Utility Commission       | June 30, 2013      | 0  | 72                              |  |
| Duck River Utility Commission       | June 30, 2012      |  |                                 | Schedule Included in Report Old Format   |
| Dunlap                              | June 30, 2012      |  | 54                              | Schedule Included in Report Old Format - Data from separate AWWA file                                      |
| Dyersburg                           | June 30, 2012      | 1.0  | 76                              |  |
| Dyersburg Suburban Utility District | January 31, 2013   | 10.9   | 66                              |  |
| Dyersburg Suburban Utility District | January 31, 2012   | 10.9   | 66                              |  |
| East Fork Utility District          | December 31, 2012  | 7.6  | 73                              |  |
| East Montgomery Utility District    | December 31, 2012  | 10.7   | 94                              |  |
| East Sevier County Utility District | June 30, 2012      | 52.5   | 58                              |  |
| Eastside Utility District           | October 31, 2012   | 14.6   | 82                              |  |
| Elizabethton                        | June 30, 2013      | 18.7   | 77                              |  |
| Englewood                           | June 30, 2013      | 15.5   | 69                              |  |
| Englewood                           | June 30, 2012      | 0  |                                 | Schedule Incomplete or inaccurate  |
| Erin                                | June 30, 2013      | 32.3   | 80                              |  |
| Erwin                               | June 30, 2013      | 6.8  | 86                              |  |
| Etowah                              | June 30, 2012      |  |                                 | Schedule Not Included in Report  |
| Fairview Utility District           | December 31, 2012  | 9.0  | 79                              |  |
| Fall Creek Falls Utility District   | December 31, 2012  | 14.0   | 83                              |  |
| Fall River Utility District         | December 31, 2012  | 12.7   | 78                              |  |
| Fayetteville                        | June 30, 2013      | 17.2   | 81                              |  |
| Fentress County Utility District    | June 30, 2013      | 1.0  | 80                              |  |

**Unaccounted For Water Loss Report**  
**Audit Reports Received From January 1, 2013 through December 31, 2013**  
**TCA Filing Date: February 1, 2014**

| <b>System Name</b>                       | <b>Fiscal Year End</b> | <b>Non-Revenue Water as Percent by Cost of Operating System</b> | <b>Validity Score (Maximum is 100)</b> | <b>Unaccounted For Water Loss Schedule - Status (blank indicates financial report schedule was in compliance)</b> |
|--|------------------------|---|--|---|
| First Utility District of Carter County  | October 31, 2012       | 10316080.2  | 81                                     | Schedule Incomplete or inaccurate   |
| First Utility District of Hardin County  | March 31, 2013         | 15.2  | 77                                     |   |
| First Utility District of Knox County    | December 31, 2012      | 6.7   | 75                                     |   |
| First Utility District of Tipton County  | December 31, 2012      | 5.3   | 75                                     |   |
| Foster Falls Utility District            | December 31, 2011      |   |  | Schedule Not Included in Report   |
| Franklin                                 | June 30, 2013          | 17.9  | 84                                     |   |
| Friendsville                             | June 30, 2012          | 28.4  | 62                                     |   |
| Gallatin                                 | June 30, 2013          | 4.4   | 79                                     |   |
| Galloway                                 | June 30, 2013          |   |  | Schedule Included in Report Old Format  |
| Gatlinburg                               | June 30, 2013          | 12.6  | 71                                     |   |
| Germantown                               | June 30, 2013          | 3.6   | 80                                     |   |
| Gibson                                   | June 30, 2012          |   |  | Schedule Included in Report Old Format  |
| Gibson County Municipal Water District   | November 30, 2012      | 6.2   | 74                                     |   |
| Gladeville Utility District              | December 31, 2012      | 7.9   | 77                                     |   |
| Gleason                                  | June 30, 2012          | 8.6   | 71                                     |   |
| Glen Hills Utility District              | June 30, 2013          | 4.8   | 90                                     |   |
| Grand Junction                           | June 30, 2012          |   |  | Schedule Not Included in Report   |
| Grandview Utility District               | December 31, 2012      | 7.8   | 67                                     |   |
| Graysville                               | June 30, 2012          |   |  | Schedule Not Included in Report   |
| Greeneville                              | June 30, 2013          | 12.6  | 90                                     |   |
| Griffith Creek Utility District          | December 31, 2012      | 5.2   | 79                                     |   |
| H.B. and T.S. Utility District           | September 30, 2012     | 10.0  | 85                                     |   |
| Hallsdale-Powell Utility District        | March 31, 2013         | 12.4  | 72                                     |   |
| Hampton Utility District                 | November 30, 2012      | 40.9  | 63                                     |   |
| Harbor Utility District                  | June 30, 2013          | 4.7   | 71                                     |   |
| Harpeth Valley Utility District          | December 31, 2012      | 4.5   | 68                                     |   |
| Harriman                                 | June 30, 2013          | 20.7  | 79                                     |   |
| Hartsville/Trousdale County Utility Fund | June 30, 2012          | 19.0  | 69                                     |   |
| Haywood County Utility District          | June 30, 2013          | 31.4  | 97                                     |   |
| Haywood County Utility District          | June 30, 2012          | 29.7  | 97                                     |   |
| Henderson                                | June 30, 2013          | 14.7  | 71                                     |   |
| Hendersonville Utility District          | June 30, 2013          | 4.4   | 95                                     |   |
| Henning                                  | June 30, 2012          | 1.3   | 42                                     |   |
| Henry                                    | June 30, 2012          | 18.4  | 73                                     |   |
| Hillsville Utility District              | December 31, 2012      | 14.9  | 73                                     |   |

**Unaccounted For Water Loss Report**  
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| System Name                     | Fiscal Year End   | Non-Revenue Water as Percent by Cost of Operating System | Validity Score (Maximum is 100) | Unaccounted For Water Loss Schedule - Status (blank indicates financial report schedule was in compliance) |
|---------------------------------|-------------------|--|---------------------------------|--|
| Hixson Utility District         | April 30, 2013    | 4.2  | 81                              |  |
| Hohenwald                       | June 30, 2013     | 48   | 81                              |  |
| Hollow Rock                     | June 30, 2012     | 6.8  | 72                              | Schedule Included in Report Old Format - Data from separate AWWA file                                      |
| Hollow Rock                     | June 30, 2013     | 6.7  | 73                              |  |
| Holston Utility District        | February 28, 2013 | 9.6  | 82                              |  |
| Hornbeak Utility District       | April 30, 2013    | 1.9  | 78                              |  |
| Hornsby                         | June 30, 2012     |  |                                 | Schedule Included in Report Old Format   |
| Humboldt                        | June 30, 2013     | 2.7  | 76                              |  |
| Huntingdon                      | June 30, 2012     | 8.4  | 74                              |  |
| Huntland                        | June 30, 2013     | 8  | 75                              |  |
| Huntsville Utility District     | August 31, 2012   | 6.9  | 73                              | Schedule Included in Report Old Format - Data from separate AWWA file                                      |
| Huntsville Utility District     | August 31, 2013   | 8.3  | 84                              |  |
| Intermont Utility District      | December 31, 2012 | 15.1   | 83                              |  |
| Iron City Utility District      | December 31, 2012 | .7   | 86                              |  |
| Jackson County Utility District | December 31, 2012 | 13.9   | 75                              |  |
| Jackson County Utility District | December 31, 2011 | 15.3   | 75                              | Schedule Included in Report Old Format - Data from separate AWWA file                                      |
| Jackson Energy Authority        | June 30, 2013     | 5.9  | 90                              |  |
| Jefferson City                  | June 30, 2012     | 0  | 71                              | Schedule Not Included in Report - Data from separate AWWA file   |
| Jellico                         | June 30, 2013     | 32.2   | 74                              |  |
| Johnson City                    | June 30, 2013     | 8.5  | 77                              |  |
| Jonesborough                    | June 30, 2013     | 12   | 75                              |  |
| Kenton                          | June 30, 2012     | 30   | 41                              |  |
| Kingsport                       | June 30, 2013     | 7.9  | 78                              |  |
| Kingston                        | June 30, 2013     | 15.7   | 94                              |  |
| Knox-Chapman Utility District   | February 28, 2013 | 14.2   | 82                              |  |
| Knoxville                       | June 30, 2013     | 10.4   | 88                              |  |
| Lafayette                       | June 30, 2013     | 28.3   | 68                              |  |
| LaFollette                      | June 30, 2013     | 11.9   | 82                              |  |
| LaGrange                        | June 30, 2012     | 14.1   | 67                              |  |
| Laguardo Utility District       | December 31, 2012 | 7.8  | 80                              |  |
| Lake City                       | June 30, 2012     | 23   | 79                              |  |
| Lakeview Utility District       | December 31, 2012 | 3.8  | 74                              |  |

**Unaccounted For Water Loss Report**  
**Audit Reports Received From January 1, 2013 through December 31, 2013**  
**TCA Filing Date: February 1, 2014**

| System Name   | Fiscal Year End    | Non-Revenue Water as Percent by Cost of Operating System | Validity Score (Maximum is 100) | Unaccounted For Water Loss Schedule - Status (blank indicates financial report schedule was in compliance) |
|---|--------------------|--|---------------------------------|--|
| LaVergne  | June 30, 2013      | 3.4  | 71                              |  |
| Lawrenceburg  | June 30, 2013      | 28.2   | 83                              |  |
| Lebanon   | June 30, 2012      | 12.8   | 71                              | Schedule Included in Report Old Format - Data from separate AWWA file                                      |
| Lenoir City   | June 30, 2012      | 15.3   | 62                              |  |
| Leoma Utility District                                  | December 31, 2012  |  |                                 | Schedule Included in Report Old Format   |
| Lexington   | June 30, 2012      | 2.1  | 83                              |  |
| Lincoln County Board of Public Utilities                | June 30, 2012      | 19.8   | 74                              | Schedule Included in Report Old Format - Data from separate AWWA file                                      |
| Linden  | June 30, 2013      | 4.5  | 82                              |  |
| Livingston  | June 30, 2012      | 1.5  | 78                              | Schedule Included in Report Old Format - Data from separate AWWA file                                      |
| Lobelville  | June 30, 2013      | 3  | 85                              |  |
| Lone Oak Utility District                               | December 31, 2012  | 15.6   | 87                              |  |
| Loretto   | June 30, 2012      | 11.4   | 73                              | Schedule Included in Report Old Format - Data from separate AWWA file                                      |
| Loudon  | June 30, 2012      | 15.0   | 78                              |  |
| Lynnville   | June 30, 2013      | 21.7   | 82                              |  |
| Madisonville  | June 30, 2012      | 0.4  | 69                              |  |
| Manchester  | June 30, 2012      | 20.5   | 92                              |  |
| Martel Utility District                                 | December 31, 2012  | 5.6  | 91                              | Schedule Included in Report Old Format - Data from separate AWWA file                                      |
| Martin  | June 30, 2012      |  |                                 | Schedule Included in Report Old Format   |
| Maryville   | June 30, 2013      | 5.6  | 70                              |  |
| Maury County Board of Public Utilities                  | June 30, 2013      | 7.3  | 73                              |  |
| Maynardville  | June 30, 2013      | 8.9  | 85                              |  |
| Maynardville  | June 30, 2012      | 12   | 85                              |  |
| McEwen  | June 30, 2012      | 18.6   | 73                              |  |
| McKenzie  | June 30, 2013      | 15.1   | 73                              |  |
| McMinnville   | June 30, 2013      | 36.6   | 82                              |  |
| Memphis   | June 30, 2013      | 3.8  | 78                              |  |
| Metro Moore County-Lynchburg Water and Sewer Department | June 30, 2013      | 8.9  | 71                              |  |
| Middleton   | June 30, 2013      | 4.3  | 69                              |  |
| Mid-Hawkins County Utility District                     | June 30, 2013      | 3.7  | 77                              |  |
| Milan   | June 30, 2013      | 7.2  | 77                              |  |
| Milcrofton Utility District                             | September 30, 2012 | 10.0   | 94                              |  |
| Millington  | June 30, 2013      | 2.2  | 61                              |  |

Unaccounted For Water Loss Report  
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| System Name   | Fiscal Year End    | Non-Revenue Water as Percent by Cost of Operating System | Validity Score (Maximum is 100) | Unaccounted For Water Loss Schedule - Status (blank indicates financial report schedule was in compliance) |
|---|--------------------|--|---------------------------------|--|
| Monterey  | June 30, 2013      | 1.5  | 81                              |  |
| Mooresburg Utility District                           | December 31, 2012  |  |                                 | Schedule Included in Report Old Format   |
| Morristown  | June 30, 2013      | 16   | 83                              |  |
| Moscow  | June 30, 2012      |  |                                 | Schedule Included in Report Old Format   |
| Mount Pleasant  | June 30, 2012      | 9.8  | 86                              |  |
| Mountain City   | June 30, 2013      | 10.7   | 70                              |  |
| Mowbray Utility District                              | May 31, 2013       | 26.5   | 80                              |  |
| Munford   | June 30, 2012      | 3.9  | 69                              |  |
| Murfreesboro  | June 30, 2013      | 14.7   | 73                              |  |
| New Canton Utility District                           | December 31, 2013  | 16.3   | 83                              |  |
| New Johnsonville                                      | June 30, 2012      | 38.0   | 84                              |  |
| New Market Utility District                           | December 31, 2012  | 13.8   | 82                              |  |
| Newport   | June 30, 2013      | 5.0  | 76                              |  |
| Niota   | June 30, 2011      | 15.9   | 77                              |  |
| Nolensville-College Grove Utility District            | September 30, 2012 | 9.8  | 83                              |  |
| Norris  | June 30, 2013      | 10.7   | 85                              |  |
| North Overton Utility District                        | May 31, 2013       | 17.2   | 83                              |  |
| North Stewart Utility District                        | May 31, 2013       | 11.2   | 71                              |  |
| North Utility District of Decatur and Benton Counties | March 31, 2013     | 9.9  | 70                              |  |
| North Utility District of Rhea County                 | September 30, 2012 | 6.6  | 67                              |  |
| Northeast Knox Utility District                       | January 31, 2013   | 4.1  | 82                              |  |
| Northeast Lawrence Utility District                   | December 31, 2012  | 14.4   | 76                              |  |
| Northwest Clay Utility District                       | August 31, 2012    | 12.4   | 68                              |  |
| Northwest Dyersburg Utility District                  | June 30, 2013      | 6.4  | 69                              |  |
| Northwest Henry Utility District                      | June 30, 2013      | 8.3  | 72                              |  |
| Oak Ridge   | June 30, 2012      | 11.5   | 75                              |  |
| Obion   | June 30, 2012      | 10.6   | 74                              |  |
| Ocoee Utility District                                | June 30, 2012      | 9.2  | 88                              |  |
| O'Connor Utility District                             | December 31, 2012  | 16.6   | 80                              |  |
| Old Gainesboro Road Utility District                  | December 31, 2012  | 9.2  | 90                              |  |
| Old Hickory Utility District                          | June 30, 2013      |  |                                 | Merged with Nashville  |
| Oliver Springs  | June 30, 2012      | 9.7  | 69                              |  |
| Oneida  | June 30, 2013      | 15.2   | 68                              |  |
| Paris   | June 30, 2013      | 14.3   | 78                              |  |
| Parsons   | June 30, 2013      | 26.3   | 85                              |  |

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| System Name                              | Fiscal Year End   | Non-Revenue Water as Percent by Cost of Operating System | Validity Score (Maximum is 100) | Unaccounted For Water Loss Schedule - Status (blank indicates financial report schedule was in compliance) |
|--|-------------------|--|---------------------------------|--|
| Perryville Utility District              | December 31, 2012 | 6.5  | 82                              |  |
| Persia Utility District                  | December 31, 2012 | 4.8  | 97                              |  |
| Petersburg                               | June 30, 2011     | 7.5  | 78                              |  |
| Pigeon Forge                             | June 30, 2013     | 13.7   | 81                              |  |
| Pikeville                                | June 30, 2012     | 15.6   | 68                              |  |
| Pikeville                                | June 30, 2013     | 22.8   | 83                              |  |
| Piperton                                 | June 30, 2012     | 9.3  | 79                              | Schedule Included in Report Old Format - Data from separate AWWA file                                      |
| Piperton                                 | June 30, 2013     |  |                                 | Schedule Included in Report Old Format   |
| Plateau Utility District                 | June 30, 2013     | 4.4  | 76                              |  |
| Pleasant View Utility District           | November 30, 2012 | 11.1   | 75                              |  |
| Portland                                 | June 30, 2012     | 1.5  | 78                              | Schedule Included in Report Old Format - Data from separate AWWA file                                      |
| Portland                                 | June 30, 2013     | 41.8   | 80                              |  |
| Puryear                                  | June 30, 2013     | 10.1   | 70                              |  |
| Quebeck-Walling Utility District         | December 31, 2012 | 10.8   | 80                              |  |
| Ramer                                    | June 30, 2012     | 12.7   | 67                              |  |
| Reelfoot Utility District                | June 30, 2012     | 1.8  | 69                              |  |
| Riceville Utility District               | June 30, 2013     | 8.7  | 83                              |  |
| Ridgely                                  | June 30, 2013     | 12.9   | 67                              |  |
| River Road Utility District              | June 30, 2013     | 10.6   | 94                              |  |
| Roan Mountain Utility District           | March 31, 2013    | 40.9   | 63                              |  |
| Roane Central Utility District           | June 30, 2012     | 13.5   | 84                              |  |
| Rockwood                                 | June 30, 2013     | 33.6   | 82                              |  |
| Rockwood                                 | June 30, 2012     | 14.7   | 83                              |  |
| Rogersville                              | June 30, 2012     | 2.4  | 80                              |  |
| Rossville                                | June 30, 2012     | 7.1  | 75                              | Schedule Included in Report Old Format - Data from separate AWWA file                                      |
| Russellville-Whitesburg Utility District | June 30, 2013     | 13.6   | 89                              |  |
| Rutherford                               | June 30, 2012     | 7.9  | 66                              |  |
| Rutledge                                 | June 30, 2013     | 519.7  | 78                              | Schedule Incomplete or inaccurate  |
| Rutledge                                 | June 30, 2012     |  |                                 | Schedule Included in Report Old Format   |
| Saint Joseph                             | June 30, 2012     |  |                                 | Schedule Included in Report Old Format   |
| Sale Creek Utility District              | May 31, 2013      | 6.2  | 71                              |  |
| Saltillo Utility District                | October 31, 2012  | 8.7  | 66                              |  |
| Samburg Utility District                 | January 31, 2013  | 32.5   | 65                              |  |

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|--|-------------------|--|---------------------------------|--|
| Sardis   | June 30, 2013     | 8.2  | 72                              |  |
| Savannah Valley Utility District                 | April 30, 2013    | 18.5   | 84                              |  |
| Scotts Hill                                      | June 30, 2013     | 12   | 70                              |  |
| Second South Cheatham Utility District           | July 31, 2013     | 5.6  | 88                              |  |
| Selmer   | June 30, 2013     | 8.8  | 74                              |  |
| Sevierville                                      | June 30, 2012     | 5.0  | 84                              |  |
| Sevierville                                      | June 30, 2013     | 4.0  | 86                              |  |
| Sewanee Utility District                         | December 31, 2012 | 11.2   | 77                              |  |
| Shelbyville                                      | June 30, 2013     | 24.9   | 79                              |  |
| Siam Utility District                            | January 31, 2013  | 14.9   | 72                              |  |
| Signal Mountain                                  | June 30, 2013     | 11.4   | 80                              |  |
| Smith Utility District                           | December 31, 2012 | 2.8  | 81                              |  |
| Sneedville Utility District                      | March 31, 2012    |  |                                 | Schedule Included in Report Old Format   |
| Somerville                                       | June 30, 2012     | 9.2  | 73                              |  |
| South Blount Utility District                    | June 30, 2013     | 3.1  | 96                              |  |
| South Bristol-Weaver Pike Utility District       | November 30, 2012 | 17   | 82                              |  |
| South Cumberland Utility District                | December 31, 2012 | 9.6  | 79                              |  |
| South Elizabethton Utility District              | February 28, 2013 | 17.4   | 73                              |  |
| South Giles Utility District                     | December 31, 2012 | 17.8   | 69                              |  |
| South Giles Utility District                     | December 31, 2011 | 24.7   | 78                              |  |
| South Side Utility District                      | December 31, 2012 | 0.9  | 69                              |  |
| Sparta   | June 30, 2012     | 2.4  | 77                              |  |
| Spring City                                      | June 30, 2012     | 9.5  | 73                              |  |
| Spring Creek Utility District of Hardeman County | June 30, 2013     | 7.9  | 54                              |  |
| Spring Hill                                      | June 30, 2012     | 11.2   | 75                              |  |
| Springfield                                      | June 30, 2013     | 38   | 67                              |  |
| Stanton  | June 30, 2012     |  |                                 | Schedule Included in Report Old Format   |
| Striggersville Utility District                  | December 31, 2012 |  |                                 | Schedule Not Included in Report  |
| Summertown Utility District                      | June 30, 2012     | 8.6  | 68                              | Schedule Included in Report Old Format - Data from separate AWWA file                                      |
| Summertown Utility District                      | June 30, 2013     | 21.1   | 70                              |  |
| Surgoinsville Utility District                   | April 30, 2013    | 12.1   | 66                              |  |
| Sweetwater                                       | June 30, 2013     | 7.8  | 83                              |  |
| Sylvia Tennessee City Pond Utility District      | December 31, 2012 | 15.9   | 86                              |  |
| Tarpley Shop Utility District                    | June 30, 2013     | 23.1   | 83                              |  |

**Unaccounted For Water Loss Report**  
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| System Name                            | Fiscal Year End    | Non-Revenue Water as Percent by Cost of Operating System | Validity Score (Maximum is 100) | Unaccounted For Water Loss Schedule - Status (blank indicates financial report schedule was in compliance) |
|--|--------------------|--|---------------------------------|--|
| Tellico Area Services System           | June 30, 2013      | 3.8  | 92                              |  |
| Tellico Plains                         | June 30, 2013      | 8.3  | 60                              |  |
| Toone                                  | June 30, 2013      | 10.6   | 68                              |  |
| Toone                                  | June 30, 2012      | 10.6   | 68                              |  |
| Tracy City                             | June 30, 2012      | 5.5  | 60                              | Schedule Included in Report Old Format - Data from separate AWWA file                                      |
| Trenton                                | June 30, 2013      | 15.6   | 76                              |  |
| Trimble                                | June 30, 2012      |  |                                 | Schedule Included in Report Old Format   |
| Tuckaleechee Utility District          | June 30, 2012      | 20.2   | 84                              |  |
| Tullahoma                              | June 30, 2012      | 10.2   | 88                              | Schedule Included in Report Old Format - Data from separate AWWA file                                      |
| Twenty Five Utility District           | December 31, 2012  | 16.1   | 81                              |  |
| Unicoi Water Utility District          | September 30, 2013 | 15.8   | 88                              |  |
| Unicoi Water Utility District          | September 30, 2012 |  |                                 | Schedule Included in Report Old Format   |
| Union City                             | June 30, 2012      | 7.0  | 71                              |  |
| Vanleer                                | June 30, 2013      | 32.5   | 83                              |  |
| Warren County Utility District         | June 30, 2013      | 4.8  | 86                              |  |
| Wartrace                               | June 30, 2013      | 20.1   | 77                              |  |
| Watauga River Regional Water Authority | June 30, 2012      | 3.7  | 83                              |  |
| Water Authority of Dickson County      | June 30, 2012      | 18.1   | 83                              |  |
| Watertown                              | June 30, 2010      | 7.9  | 84                              | Schedule Included in Report Old Format - Data from separate AWWA file                                      |
| Watts Bar Utility District             | September 30, 2012 | 3.3  | 67                              | Schedule Not Included in Report - Data from separate AWWA file   |
| Watts Bar Utility District             | September 30, 2013 | 4.2  | 67                              |  |
| Waynesboro                             | June 30, 2013      | 29.7   | 75                              |  |
| Waynesboro                             | June 30, 2012      | 37.2   | 86                              |  |
| West Cumberland Utility District       | June 30, 2013      | 13   | 86                              |  |
| West Knox Utility District             | June 30, 2013      | 4.5  | 89                              |  |
| West Overton Utility District          | December 31, 2012  | 2.0  | 94                              |  |
| West Point Utility District            | December 31, 2012  | 20   | 76                              |  |
| West Warren-Viola Utility District     | December 31, 2012  | 3.0  | 83                              |  |
| West Wilson Utility District           | May 31, 2013       | 4.3  | 81                              |  |
| Westmoreland                           | June 30, 2013      | 30.7   | 61                              |  |
| White House Utility District           | December 31, 2012  | 11.2   | 90                              |  |
| Winchester                             | June 30, 2012      | 28.7   | 88                              |  |

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| <b>System Name</b>        | <b>Fiscal Year End</b> | <b>Non-Revenue Water<br/>as Percent by Cost of<br/>Operating System</b> | <b>Validity Score<br/>(Maximum is 100)</b> | <b>Unaccounted For Water Loss Schedule -<br/>Status<br/>(blank indicates financial report<br/>schedule was in compliance)</b> |
|---------------------------|------------------------|---|--|---|
| Witt Utility District     | September 30, 2012     | 10.3  | 74   |   |
| Woodbury                  | June 30, 2013          | 41.3  | 82   |   |
| Woodlawn Utility District | December 31, 2012      | 8.8   | 85   |   |