

**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**IN THE MATTER OF:**

**ELECTRONIC INVESTIGATION INTO )  
EXCESSIVE WATER LOSS BY KENTUCKY’S ) Case No. 2019-00041  
JURISDICTIONAL WATER UTILITIES )**

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**WEST CARROLL WATER DISTRICT’S RESPONSE TO REQUESTS FOR  
INFORMATION CONTAINED IN APPENDIX C TO THE COMMISSION’S ORDER  
ENTERED MARCH 12, 2019**

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**Filed April 12, 2019**

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

1. Provide the utility's monthly unaccounted for loss water loss percentage report with associated underlying data from January 1, 2018, to the date of the issuance of this Order.

**Response:** Please see attached.

**WEST CARROLL WATER**

										-----12 MONTHS ENDING-----	
MONTH	MASTER METER	ACCOUNTED FOR LOSS	FLUSHING Fire Dept.	BILLED+misc GALLONS	TOTAL ACCT'D FOR GALLONS	TOT.UN/ACCT LOSS/(GAIN)	Reportable Loss	TOT.UN/ACCT LOSS/(GAIN)	Reportable Loss		
January	8,203,799	1,202,240	10,000	5,536,400	6,748,640	1,455,159	32%	18,862,199	37%		
February	5,389,620	1,212,960	600	3,727,500	4,941,060	448,560	31%	17,808,239	37%		
March	5,423,803	674,520	1,200	3,303,100	3,978,820	1,444,983	39%	18,164,195	37%		
April	4,798,750	597,360	30,000	3,200,500	3,827,860	970,890	33%	17,802,324	36%		
<b>2</b> May	5,893,983	234,960	159,600	3,867,800	4,262,360	1,631,623	32%	16,746,510	36%		
<b>0</b> June	5,951,612	497,100	24,000	4,897,200	5,418,300	533,312	17%	16,011,120	34%		
<b>1</b> July	5,358,265	223,200	1,500	3,798,700	4,023,400	1,334,865	29%	16,100,089	34%		
<b>8</b> August	6,150,810	1,004,040	1,000	4,128,400	5,133,440	1,017,370	33%	15,494,267	34%		
September	5,846,094	504,640	6,000	3,740,300	4,250,940	1,595,154	36%	15,476,391	34%		
October	4,920,117	488,160	-	3,194,200	3,682,360	1,237,757	35%	15,018,775	34%		
November	6,178,934	77,760	-	3,909,200	3,986,960	2,191,974	37%	15,236,507	33%		
December	5,836,290	312,480	-	3,345,300	3,657,780	2,178,510	43%	16,040,157	33%		
<b>TOTAL</b>	<b>69,952,077</b>	<b>7,029,420</b>	<b>233,900</b>	<b>46,648,600</b>	<b>53,911,920</b>	<b>16,040,157</b>					
January	6,652,194	2,263,920	45,000	3,832,300	6,141,220	510,974	42%	15,095,972	34%		
February	7,449,366	820,800	0	3,727,500	4,548,300	2,901,066	50%	17,548,478	36%		
<b>TOTAL</b>	<b>14101560</b>	<b>3084720</b>	<b>45000</b>	<b>7559800</b>	<b>10689520</b>	<b>3412040</b>					

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2. Describe in detail the procedure utilized in preparing monthly water use and loss reports, including, but not limited to, the following:
  - a. How the utility calculates water loss, water treatment plant usage, system flushing, and disinfection byproduct flushing.
  - b. Identify by name and job title employees who prepare or assist in the preparation of the reports.
  - c. What is included in the water loss category. Specifically, state whether the utility includes water loss from known leaks and breaks in the water loss category.

**Response:**

- a. The reportable loss is the sum of accounted for loss such as leaks, line breaks, tank over flows, etc., plus the unaccounted for loss divided by the total water purchased. It is mathematically the same as the difference between the total water purchased minus the sum of the water billed to customers plus used for flushing and firefighting divided by the total water purchased. West Carroll does not have a water treatment plant.
- b. Amy Dermon, Utility Billing Supervisor is responsible for preparing the reports.
- c. All water not billed to customers, used for firefighting or flushing is included in the loss. Water from known breaks and leaks are part of the reported loss.

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3. State whether the water utility has completed a water loss detection plan.
  - a. If the answer is yes, provide a copy of the last completed water loss detection plan.
  - b. If the answer is no, explain why a water loss detection plan has not been completed.

**Response:**

- a. Please see attached.

## **West Carroll Water District**

### **Water Loss Prevention and Leak Detection Program**

The West Carroll Water District (WCWD) has been plagued with high and increasing water loss over the years. Water loss and leaks have been due mainly to rocky conditions, poor installation methods, and varying pressure zones. The District is committed to finding and fixing every leak as soon as possible and to identifying the root causes of the water loss and leaks.

The District's water loss has averaged above 30% for the past couple of years and triggered PSC to require WCWD to modify its Loss Prevention / Leak Detection Program. This document will summarize ongoing and new efforts by WCWD and Carrollton Utilities (CU).

#### **I. Routine Practices**

- A. Meetings: WCWD personnel meet weekly with CU management and engineering staff to discuss the water loss and leak detection efforts carried out and planned. Additionally the WCWD Board is briefed on the leaks and actions taken on a monthly basis with the Manager's Report.
- B. Master Meters: The District is served by 4 master meters.
  - 4" compound meter with Carrollton Utilities – This meter has downloadable flow data history available in intervals down to the minute for leak detection. This data is reviewed weekly to look for trends in water use. This meter covers the area with the majority of the districts loss.
  - 3" compound meter with Carrollton Utilities – This meter serves the southern portion of the District and is read weekly on Friday. This meter also has downloadable flow history which is reviewed weekly.
  - 2" meter with Henry Co. Water District – This meter is read weekly on Friday. This meter only has 10 customers and loss is generally low for this area.

- 2” meter with the City of Milton – The Milton master meter only serves 30 customers in the WCWD and the water loss is generally low in this area however it is read every week on Friday also.
- C. Meter Reading: The District is rural with meters set far apart and in areas difficult to reach. At times in the past, the days in the billing cycle has fluctuated making it difficult to track water loss. Therefore the District:
- Continuing a program to read the water meters at a more consistent pace and time.
  - Require meter reading training to ensure meter readers understood the meter types and how to catch reading problems before they start.
  - Reduce number of meter readings that are estimated in any given month.
  - Minimizing the wide swing in billing cycle days.
- D. Field and Office Personnel: District and CU field personnel and CU office staff are committed to immediately reporting any identified water leaks including customer reported problems like leaks or pressure problems, tank overflows and irregular tank readings, SCADA issues, or other concerns that may indicate a leak in the District. Work orders will be issued for the reports and the District is committed to finding and fixing the problem as soon as possible. CU personnel will assist WCWD in repairing leaks as necessary and water plant personnel will communicate with WCWD changes in tank levels and pumping rates that may be a sign of leakage. Once identified leaks are prioritized by severity of the leak. Any leak that results in loss of service, or pressures lower than regulations allow shall be immediately repaired. All other leaks are then repaired in order based off severity. If there are multiple leaks known at the same time additional personnel shall be called upon to aid in repairs.

E. Recording Data / Data Analysis: Daily, weekly and monthly records will be logged for history and for use in data analysis while looking for trends in water use versus water purchased. Records will include:

- Daily and weekly master meter readings
- Pump station run times
- Estimated water losses from line breaks, tank overflows, etc.
- Metered customer water sales by master meter, route and leak detection zones (see Section F)
- Unmetered usage
- Water production from CU and purchase amounts
- Use by fire departments

This information will be used to identify leaks more quickly and then to narrow the search for leaks down into smaller areas.

F. Focus on Distribution System Zones: The District is currently served by 4 master meters which can be read to determine purchased water amounts. Additionally the District has 35 existing leak detection meters which can be read to narrow down usage. The following information and procedures will be used to maximize the zones for leak detection:

- Master meter readings
- Tank use
- Pump station run times
- Monthly water loss reports
- Normal Customer usage by master meter area, route and per leak detection zone

Data analysis will be focused on water usage and loss in each zone to prioritize leak detection efforts based on potential loss in each area.

G. GIS Mapping: The District has maps of its system but some of the maps don't indicate exact locations of the lines or the area has changed and the reference locations are no longer valid. WCWD will work with the CU GIS staff in:



- Updating waterline locations during routine maintenance, 811 locates and fixing leaks by letting them know when the line is exposed or located so that GPS coordinates can be taken and then accurately mapped.
- Completed a Leak Detection meter zone map showing the location of leak detection meters and leaks. This map will be used to identify areas of the system that may need additional metering.
- Use GIS mapping and PVA data to identify that all homes that exist are accounted for in water usage, number the customers on each route and in each leak detection meter zone.
- Use CIS to GIS app to show updated customer usage on the mapping.

H. Meter Testing and Replacement: WCWD follows PSC regulations for testing / replacement of customer meters. The District will work with the master meter utilities to have their meters tested in accordance with the regulations. The District will continue to change out and test meters in accordance with the regulations and begin replacements for the “lead-free” meter requirements that went into effect Jan. 1, 2014. The system is currently at 80% lead free. As of 2019 Carrollton Utilities acquired a certified meter test bench and will be testing all residential meter for West Carroll Water District.

## **II. Leak Detection/Loss Prevention Procedures**

A. The District has begun a more regimented system and schedule of leak detection utilizing the above information. A routine will be established for nighttime leak detection activities, or installing data logging meters when necessary. District personnel will use the leak detection sound meters, data logging radio read meters, other system information and leak detection devices to detect leaks or abnormal flows. Work will begin immediately in areas of known water loss or identified by master meter, route or zone readings and usage.

- B. The District works closely with the Kentucky Rural Water and other loss prevention professionals to work on refining its leak detection process and identifying areas of loss and leaks that may have been previously overlooked. WCWD will continue to call on outside resources when necessary.

### III. Capital Improvements

The District has partnered with Carrollton Utilities on three projects that utilized KIA funds to make improvements, eliminate underserved areas and serve new customers. Additional improvements will be identified, prioritized and funded as monies are available.

- Countywide Underserved Project – This project is complete. It benefited WCWD by:
  - Replacing approximately 6500 LF of line in the Gilgal Road area that had over 30 leaks in recent years.
  - Replacing the Gilgal Road pump station with a more efficient station capable of being monitored for usage.
  - Adding a new pump station on Kings Ridge Road which allow the District to fill the Bells Ridge water storage tank more effectively and track water pumped.
  - Adding SCADA to its water storage tanks and pump stations so that operators can be alerted more quickly to abnormal levels or usage.
- Carroll Co. Interconnect Project – This project is complete. The project was done in conjunction with CU and Carroll Co. Water District #1 that will allow the District to connect discrete parts of its system together allowing for emergency use with the City of Milton, adding necessary valves and giving customers more consistent supply and softened water.

- Focus on Core Mission & Infrastructure Project – This project is complete and added additional SCADA to the WCWD tanks and replaced the aging PRV / master meter station with Henry Co. Water. It also included VFD drives and or soft start contactors for all pumps in the system. Part of the CU portion of the project added a dedicated transmission line to CU tanks, which in turn benefitted WCWD by providing a lower constant pressure without the fluctuations seen from pumping, thus lowering the pressure to a constant 95 psi from 125 psi during the day.
- Valves – The District does not have enough valves and valves in locations beneficial to leak detection. Personnel will continue to identify appropriate locations and has begun installing valves on a priority basis.
- Leak Detection meters – The District will is currently utilizing the GIS mapping system to prioritize locations for additional leak detection meters and install these in priority areas based on number of customers or known leak areas.
- Replacement of Mains – The District will continue to track areas and waterlines that experience multiple leaks and has begun a priority list of main replacements.

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4. State whether the water utility has completed a comprehensive unaccounted-for water loss reduction plan.
  - a. If the answer is yes, provide a copy of the last completed comprehensive unaccounted-for water loss reduction plan.
  - b. If the answer is no, explain why a comprehensive unaccounted-for water loss reduction plan has not been completed.

**Response:**

- a. Please see the attachment filed in response to Request 3 above.

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5. Describe and provide the results of all water loss reduction projects that the water utility has initiated from January 1, 2015, to the date of the issuance of this Order.

**Response:**

The following are the water loss reduction projects that West Carroll has initiated since January 1, 2015.

- Countywide Underserved Project has been completed. Benefits include:
  - Replaced approximately 6500 LF of line in the Gilgal Road area that had over thirty (30) leaks in recent years.
  - Replaced the Gilgal Road pump station with a more efficient station capable of being monitored for usage.
  - Added a new pump station on Kings Ridge Road which allows the District to fill the Bells Ridge water storage tank more effectively and track water pumped.
  - Added SCADA to its water storage tanks and pump stations so that operators can be alerted more quickly to abnormal levels or usage.
- Carroll County Interconnect Project has been completed. Benefits include:
  - Allowed the District to connect discrete parts of its system together allowing for emergency use with the City of Milton, adding necessary valves and giving customers more consistent supply and softened water.
- Focus on Core Mission & Infrastructure Project has been completed. Benefits include:
  - Added additional SCADA to the WCWD tanks and replaced the aging PRV/master meter station with Henry County Water.
  - Added Variable Frequency Drives (VFD) and or soft start contractors for all pumps in the system.
  - Lower and more consistent operating system pressure (95 psi vs. 125 psi) in a major area of the distribution system.
- Little Kentucky River Crossing has been completed. Benefits included:
  - Installing a new main under the Little Kentucky River by horizontal

directional drill. The new main replaced the main that was attached to the US 42 bridge which was prone to leaks.

- Covehill Baptist Church Main Replacement has been completed. This project included installing approximately 400 LF of new 3-inch PVC water main. The new PVC water main replaced and relocated a section of line which had a confirmed 35 gallons per minute (“GPM”) leak under the church parking lot.
- Highway 36 Main Replacement has been completed. This project included installing 380 LF of new 3-inch PVC main in a new location. This new PVC main replaced and relocated a section of line with a confirmed 30 GPM leak that was flowing underground into the river and never surfacing on the ground. It also included installing 500 LF of new 3-inch PVC main in an area of a known 50 GPM leak. The main throughout this area had also had additional fill added over the years making the line too deep to safely operate and maintain.
- Notch Lick Main Replacement has been completed. This project included installing 200 LF of new 3-inch main to replace a section of HDPE main with history of leaks. The District had experienced six leaks on this line prior to the replacement, each of the leaks averaged 20 GPM or more.
- Hardy Creek Valve Project has been completed. This project included installing four new valves and monitoring meters in the Hardy Creek area. This area has been plagued with leaks in the past but the karst region never allowed the leaks to surface, making it almost impossible for operators to locate and repair leaks. With the addition of new valves and monitoring meters alongside new acoustic listening devices, the operators now have the ability to locate leaks for repair in a timelier manner.
- West Carroll is continually adding mainline valves and monitoring meters to

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6. Provide a copy of the utility's most recent and updated annual and long-range Capital Improvement Plans.

**Response:**

West Carroll has participated in three multi-jurisdictional projects over the last five years. These projects are as follows:

- Countywide Underserved Project
- Carroll County Interconnect Project
- Focus on Core Mission Project

West Carroll is also pursuing the Hardy Creek Extension to provide service to five homes that currently do not have access to public water.

Please see attached for the project profiles for each of these projects.



## Drinking Water Project Profile

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Legal Applicant: <b>West Carroll Water District</b>	
Project Title: <b>Hardy Creek Extension</b>	
Project Number: <b>WX21041007</b>	View Map
Funding Status: <b>Not Funded</b>	Submitted By: <b>NKADD</b>
Project Status: <b>Approved</b>	Primary County: <b>Carroll</b>
Project Schedule: <b>0-2 Years</b>	Planning Unit: <b>Carroll</b>
E-Clearinghouse SAI:	Multi-County: <b>No</b>
Applicant Entity Type: <b>Water District (KRS 74)</b>	ECH Status:
Date Approved (AWMPC): <b>12-13-2018</b>	ADD WMC Contact: <b>Jeff Burt</b>

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**Project Description:**

**West Carroll Water District (WCWD) will run a 3" SDR 21 PVC extension to serve 4 unserved homes at the end of Hardy Creek Road. A flush plug will be installed on the end of the line to assist in flushing the line when maintenance is required.**

**Need for Project:**

*Briefly describe how this project promotes public health or achieves and/or maintains compliance with the Clean Water Act or Safe Drinking Water Act:*  
**The unserved customers have been asking WCWD for water for several years.**

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**Project Alternatives:**

Alternate A:

**Don't extend to the unserved homes.**

Alternate B:

**Break the project into smaller sections to be more affordable.**

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**Legal Applicant:**

Entity Type: **Water District (KRS 74)** PSC Group ID: **31900**

Entity Name: **West Carroll Water District**

Web URL:

Office EMail: **bosborne@carrolltonutilities.com**

Office Phone: **502-732-7055** Toll Free: Fax:

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Mail Address Line 1: **225 6Th St** Phys Address Line 1:

Mail Address Line 2: Phys Address Line 2:

Mail City, State Zip: **Carrollton, KY 41008** Phys City, State Zip:

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Contact: **Bill Osborne** Financial Contact: Auth Official: **Bill Osborne**

Contact Title: Financial Contact Title: Auth Official Title:

Contact EMail: **bosborne@carrolltonutilities.com** Financial Contact EMail: Auth Official EMail: **bosborne@carrolltonutilities.com**

Contact Phone: **502-732-7055** Financial Contact Phone: Auth Official Phone: **502-732-7055**

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Data Source: **Kentucky Infrastructure Authority** Date Last Modified: **01.05.2011**





## Drinking Water Project Profile

WX21041007 - West Carroll Water District  
Hardy Creek Extension

### Project Administrator (PA) Information

Name: Sarah Hudgins  
 Title: Director of Finance  
 Organization: Carrollton Utilities  
 Address Line 1: 900 Clay St  
 Address Line 2:  
 City: Carrollton State: KY Zip: 41008  
 Phone: 502-732-1216 Fax: 502-732-7058

### Applicant Contact (AC) Information

Name: Vickie Edwards  
 Title: Chair - West Carroll Water District  
 Organization: West Carroll Water District  
 Address Line 1: 900 Clay St  
 Address Line 2:  
 City: Carrollton State: KY Zip: 41008  
 Phone: 502-732-7055 Fax: 502-732-7058

### Project Engineer (PE) Information:

- This project requires a licensed Professional Engineer.
- A Professional Engineer has been procured for this project.

#### Project Engineer Information:

License No: PE 17165  
 PE Name: Terry A. Roach  
 Phone: 502-732-7055 Fax:  
 E-Mail: troach@carrolltonutilities.com  
 Firm Name:  
 Addr Line 1: Carrollton Utilities  
 Addr Line 2: PO Box 269  
 Addr Line 3: 225 6th Street  
 City: Carrollton State: KY Zip: 41008  
 Status: Current Disciplinary Actions: NO  
 Issued: 01-22-1992 Expires: 06-30-2020

### Estimated Budget

#### Project Cost Categories:

Cost Category	Cost
Administrative Expenses:	\$ 10,000
Legal Expenses:	\$ 2,500
Land, Appraisals, Easements:	
Relocation Expenses & Repayments:	
Planning:	
Engineering Fees - Design:	\$ 12,124
Engineering Fees - Construction:	
Engineering Fees - Inspection:	\$ 11,258
Engineering Fees - Other:	
Construction:	\$ 86,600
Equipment:	
Miscellaneous:	
Contingencies:	\$ 8,660
<b>Total Project Cost:</b>	<b>\$ 131,142</b>

#### Construction Cost Categories:

Cost Category	Cost
Treatment:	
Transmission & Distribution:	\$ 86,600
Source:	
Storage:	
Purchase of Systems:	
Restructuring:	
Land Acquisition:	
Non-Categorized:	
<b>Total Construction Cost:</b>	<b>\$ 86,600</b>

#### Total Sustainable Infrastructure Costs:

Note: Total Sustainability Infrastructure Costs are included within construction and other costs reported in this section. This breakout is provided for SRF review purposes.



## Drinking Water Project Profile

WX21041007 - West Carroll Water District  
Hardy Creek Extension

### Project Funding Sources:

Total Project Cost: **\$131,142**  
 Total Committed Funding: **\$0**  
 Funding Gap: **\$131,142 (Not Funded)**

### Estimated Project Schedule:

Est. Environmental Review Submittal Date: **04-01-2019**  
 Estimated Bid Date: **06-27-2019**  
 Estimated Construction Start Date: **07-25-2019**  
 Estimated Construction Completion Date: **10-25-2019**

This project will be requesting SRF funding for fiscal year 2020.

Funding Source	Loan or Grant ID	Fiscal Year	Amount	Status	Applicable Date
KIA SRF Fund F Loan (DW)	F20-030	2020	\$131,142	Ranked	4/4/2019
<b>Total Committed</b>					

### Funding Source Notes:

The following systems are beneficiaries of this project:

**KY0210008 West Carroll Water District - Carrollton**

Note: Check mark indicates primary system for this project.

### Project Ranking by AWMPC:

Regional Ranking(s): **NKADD 13**  
 Planning Unit Ranking: **3**  
 Total Points: **20**

- Plans and specs have been sent to DOW.
- Plans and specs have been reviewed by DOW.
- Plans and specs have been sent to PSC.
- Plans and specs have been reviewed by PSC.

### Economic, Demographic and Geographic Impacts

Economic Impacts	
Jobs Created:	
Jobs Retained:	

*Demographic Impacts (GIS Census Overlay)			
Serviceable Demographic	Project Area	Included Systems	Included Utilities
Population:		2,377	2,471
Households:		1,048	1,098
MHI:		\$44,515	*\$44,598
MHI MOE		\$7,196	*\$7,180
MOE as Pct:		16.0%	16.0%
**NSRL:		1	1

Population and household counts are based on 2010 census block values from the SF1 (100%) dataset.

MHI Source is from the American Community Survey 2012-2016 5Yr Estimates (Table B19013) \*(for the primary system operated by the above listed beneficiary utilities).

MHI MOE = Med HH Income Margin of Error.

\*\* NSRL (Non-Standard Rate Levels):

- 0 = Income above Kentucky MHI (KMHI).
- 1 = Income between 80% KMHI and KMHI.
- 2 = Income less than or equal to 80% KMHI.
- KMHI = \$44,811
- 80% KMHI = \$35,849

New Customers	
New Residential Customers:	4
New Commercial Customers:	

Geographic Impacts For Project Area	
<b>Counties</b>	
Trimble	
<b>Legislative Districts</b>	
District Name	Legislator
House 047	Rick Rand
Senate 20	Paul Hornback
Congressional 4	Thomas Massie
<b>Groundwater Sensitivity Zones</b>	
<b>HUC 10 Watersheds</b>	
HUC Code	Watershed Name
0514010101	Little Kentucky River

Geographic Impacts For Included System(s)	
<b>Counties</b>	
Carroll	
Henry	
Trimble	
<b>Legislative Districts</b>	
District Name	Legislator
House 047	Rick Rand
Senate 20	Paul Hornback
Congressional 4	Thomas Massie



**Drinking Water Project Profile**  
WX21041007 - West Carroll Water District  
Hardy Creek Extension

New Institutional Customers:	
New Industrial Customers:	

New or Improved Service		
Service Demographic	Survey Based	Census Overlay*
To Unserved Households:	4	
To Underserved Households:		
To Total Households:	4	
** Cost Per Household:	\$32,786	

\* GIS Census block overlay figures are estimates of population and households potentially served by systems and projects based on a proximity analysis of relevant service lines to census block boundaries.

\*\* Cost per household is based on surveyed household counts, not GIS overlay values.



## Drinking Water Project Profile

WX21041007 - West Carroll Water District  
 Hardy Creek Extension

### DW Specific Impacts:

- This project relates to a public health emergency.
- This project will assist a non-compliant system to achieve compliance.
- This project will assist a compliant system to meet future requirements
- This project will provide assistance not compliance related.
- This project is necessary to achieve full or partial compliance with a court order, agreed order, or a judicial or administrative consent decree.
- Primary system has not received any SDWA Notices of Violation within the previous state fiscal year-July through June, i.e. July 2014 – June 2015).

### Project Inventory (Mapped Features):

Mapped Line Features						
DOW Permit ID	Line Type	Purpose	Activity	Size (in.)	Material	Length (LF)
KY0210008	WATER LINE: FINISHED	DISTRIBUTION	EXTENSION	3.00	PVC	2,308
					Total Length	2,308

### Administrative Components:

- Planning                     
  Design                                     
  Construction                                     
  Management

### Regionalization Components:

#### Public Water Systems Eliminated:

- this project includes the elimination of public water system(s) through merger or acquisition.

#### Water Treatment Plants Eliminated:

- This project includes the elimination of water treatment plant(s) through interconnect(s).

#### Supplementation of Raw Water Supply:

- This project includes supplementing the existing raw water supply.

#### Supplementation of Potable Water Supply:

- This project includes supplementing the existing potable water supply.

#### Emergency Only Water Supply:

- This project provides emergency only water supply.

### Water Source Protection:

- This project includes land acquisition for water source protection.



## Drinking Water Project Profile

WX21041007 - West Carroll Water District  
Hardy Creek Extension

### Water Treatment Components:

- This project includes water treatment components

#### Treatment Activities:

- This project includes a new water treatment plant.
- This project includes an expansion of an existing water treatment plant.
- This project includes rehabilitation of an existing water treatment plant.
- This project includes upgrades to an existing water treatment plant.
- This project includes emergency power generators for treatment activities.
- This project includes redundant treatment processes.

#### Acute Public Health Risk:

- This project includes infrastructure options to meet Cryptosporidium removal/inactivation requirements.
- This project includes infrastructure options to meet CT inactivation requirements.

#### Chronic Public Health Risk:

- This project includes treatment modifications to meet the Disinfectants/Disinfection Byproducts Rule at the water treatment plant.
- This project will provide treatment modifications for VOCs, IOC, SOC, or Radionuclides.

#### Secondary Contaminants:

- This project includes treatment modifications to address Secondary Contaminants.

#### Security:

- This project includes security components for water treatment facilities.

### Water Distribution and Storage:

- This project includes water distribution and/or storage components.

#### Water Line Extensions:

- This project includes water line extension(s).

Length of extensions: **2,308 LF**

Number of new connections:

#### Redundancy Components:

- This project includes emergency power generators for distribution and/or storage activities.

Number of units provided: **0**

- This project includes redundant distribution and/or storage processes.



## Drinking Water Project Profile

WX21041007 - West Carroll Water District  
Hardy Creek Extension

**Finished Water Quality:**

- This project includes infrastructure to address inadequate water turnover and disinfection byproducts (DBPs).
- This project includes infrastructure to address inability to maintain disinfection residual.

**Water Line Replacement:**

- This project replaces problem water lines (breaks, leaks, or restrictive flows due to age), water lines consisting of lead and/or asbestos-cement (AC), and/or inadequately sized water lines.

**Water Storage and Pressure Components:**

- This project includes the construction of new water tank(s).
- This project includes the replacement of existing water tank(s).
- This project includes the rehabilitation of existing water tank(s).
- This project includes the construction of new pump station(s).
- This project includes the rehabilitation of existing pump station(s).

**Security:**

- This project includes security components for water distribution infrastructure.

**Sustainable Infrastructure - Green Infrastructure:**

*Green stormwater infrastructure includes a wide array of practices at multiple scales that manage wet weather and that maintains and restores natural hydrology by infiltrating, evapotranspiring and harvesting and using stormwater. On a regional scale, green infrastructure is the preservation and restoration of natural landscape features, such as forests, floodplains, and wetlands, coupled with policies such as infill and redevelopment that reduce overall imperviousness in a watershed. On the local scale, green infrastructure consists of site and neighborhood-specific practices, such as:*

Component	Cost
<input type="checkbox"/> Bioretention	
<input type="checkbox"/> Trees	
<input type="checkbox"/> Green Roofs	
<input type="checkbox"/> Permeable Pavement	
<input type="checkbox"/> Cisterns	
<b>Total Green Infrastructure Cost:</b>	<b>\$0</b>

*There are no Green Infrastructure components specified for this project.*



## Drinking Water Project Profile

WX21041007 - West Carroll Water District  
Hardy Creek Extension

### Sustainable Infrastructure - Water Efficiency:

*The use of improved technologies and practices to deliver equal or better services with less water. Water efficiency encompasses conservation and reuse efforts, as well as water loss reduction and prevention, to protect water resources for the future. Examples include:*

Component	Cost
<input type="checkbox"/> Installing or retrofitting water efficient devices such as plumbing fixtures and appliances (toilets, showerheads, urinals).	
<input type="checkbox"/> Installing any type of water meter in previously unmetered areas (can include backflow prevention if in conjunction with meter replacement).	
<input type="checkbox"/> Replacing existing broken/malfunctioning water meters with AMR or smart meters, meters with leak detection, backflow prevention.	
<input type="checkbox"/> Retrofitting/adding AMR capabilities or leak equipment to existing meters.	
<input type="checkbox"/> Conducting water utility audits, leak detection studies, and water use efficiency baseline studies, which are reasonably expected to result in a capital project or in a reduction in demand to alleviate the need for additional capital investment.	
<input type="checkbox"/> Developing conservation plans/programs reasonable expected to result in a water conserving capital project or in a reduction in demand to alleviate the need for capital investment.	
<input type="checkbox"/> Recycling and water reuse projects that replace potable sources with non-potable sources (Gray water, condensate, and wastewater effluent reuse systems, extra treatment or distribution costs associated with water reuse).	
<input type="checkbox"/> Retrofit or replacement of existing landscape irrigation systems to more efficient landscape irrigation systems.	
<input type="checkbox"/> Water meter replacement with traditional water meters.*	
<input type="checkbox"/> Distribution pipe replacement or rehabilitation to reduce water loss and prevent water main breaks.*	
<input type="checkbox"/> Storage tank replacement/rehabilitation to reduce water loss.*	
<input type="checkbox"/> New water efficient landscape irrigation system, where there currently is not one.*	
<b>Total Water Efficiency Cost:</b>	<b>\$0</b>

*\* Indicates a business case may be required for this item.*

***There are no Water Efficiency components specified for this project.***

### Sustainable Infrastructure - Energy Efficiency:

*Energy efficiency is the use of improved technologies and practices to reduce the energy consumption of water projects, use energy in a more efficient way, and/or produce/utilize renewable energy. Examples include:*

Component	Cost
<input type="checkbox"/> Renewable energy projects, which are part of a public health project, such as wind, solar, geothermal, and micro-hydroelectric that provides power to a utility.	
<input type="checkbox"/> Utility-owned or publicly-owned renewable energy projects.	
<input type="checkbox"/> Utility energy management planning, including energy assessments, energy audits, optimization studies, and sub-metering of individual processes to determine high energy use areas.	
<input type="checkbox"/> Energy efficient retrofits, upgrades, or new pumping systems and treatment processes (including variable frequency drives (VFDs)).*	
<input type="checkbox"/> Pump refurbishment to optimize pump efficiency.*	
<input type="checkbox"/> Projects that result from an energy efficient related assessment.*	
<input type="checkbox"/> Projects that cost effectively eliminate pumps or pumping stations.*	
<input type="checkbox"/> Projects that achieve the remaining increments of energy efficiency in a system that is already very efficient.*	
<input type="checkbox"/> Upgrade of lighting to energy efficient sources.*	
<input type="checkbox"/> Automated and remote control systems (SCADA) that achieve substantial energy savings.*	
<b>Total Energy Efficiency Cost:</b>	<b>\$0</b>

*\* Indicates a business case may be required for this item.*

***There are no Energy Efficiency components specified for this project.***



**Drinking Water Project Profile**  
WX21041007 - West Carroll Water District  
Hardy Creek Extension

**Sustainable Infrastructure - Environmentally Innovative:**

*Environmentally innovative projects include those that demonstrate new and/or innovative approaches to delivering services or managing water resources in a more sustainable way. Examples include:*

Component	Cost
<input type="checkbox"/> Total integrated water resources management planning, or other planning framework where project life cycle costs are minimized, which enables communities to adopt more efficient and cost-effective infrastructure solutions.	
<input type="checkbox"/> Plans to improve water quantity and quality associated with water system technical, financial, and managerial capacity.	
<input type="checkbox"/> Source water protection planning (delineation, monitoring, modeling).	
<input type="checkbox"/> Planning activities to prepare for adaptation to the long-term effects of climate change and/or extreme weather.	
<input type="checkbox"/> Utility sustainability plan consistent with EPA's sustainability policy.	
<input type="checkbox"/> Greenhouse gas inventory or mitigation plan and submission of a GHG inventory to a registry as long as it is being done for an SRF eligible facility.	
<input type="checkbox"/> Construction of US Building Council LEED certified buildings, or renovation of an existing building.	
<input type="checkbox"/> Projects that significantly reduce or eliminate the use of chemicals in water treatment.*	
<input type="checkbox"/> Treatment technologies or approaches that significantly reduce the volume of residuals, minimize the generation of residuals, or lower the amount of chemicals in the residuals.*	
<input type="checkbox"/> Trenchless or low impact construction technology.*	
<input type="checkbox"/> Using recycled materials or re-using materials on-site.*	
<input type="checkbox"/> Educational activities and demonstration projects for water or energy efficiency (such as rain gardens).*	
<input type="checkbox"/> Projects that achieve the goals/objectives of utility asset management plans.*	
<b>Total Environmentally Innovative Cost:</b>	<b>\$0</b>

*\* Indicates a business case may be required for this item.*

***There are no Environmentally Innovative components specified for this project.***

**Sustainable Infrastructure - Asset Management:**

*If a category is selected, the applicant must provide proof to substantiate claims. The documents must be submitted to Anshu Singh (Anshu.Singh@ky.gov) for CW projects*

Component
Last Rate Adjustment Date: <b>07-01-2015</b> <b>Download Fee Schedule</b>
Rate Adjustment Age: <b>42 months</b>
System's monthly water bill, based on 4,000 gallons, as a percentage of MHI: <b>1.05%</b>
<input type="checkbox"/> The system(s) has a Capital Improvement Plan or similar planning document.
<input type="checkbox"/> The system(s) involved in this project have specifically allocated funds for the rehabilitation and replacement of aging and deteriorating infrastructure.

**Project Status:** Approved Date Approved: 12-13-2018    Date Revised:





## Drinking Water Project Profile

Legal Applicant: <b>City of Carrollton</b>		
Project Title: <b>Carroll County Interconnect Project</b>		
Project Number: <b>WX21041001</b>	View Map	Submitted By: <b>NKADD</b>
Funding Status: <b>Over Funded</b>		Primary County: <b>Carroll</b>
Project Status: <b>Under Construction</b>		Planning Unit: <b>Carroll</b>
Project Schedule: <b>0-2 Years</b>		Multi-County: <b>Yes</b>
E-Clearinghouse SAI: <b>KY201311211128</b>		ECH Status: <b>Approved</b>
Applicant Entity Type: <b>Incorporated City</b>		ADD WMC Contact: <b>Jeff Burt</b>
Date Approved (AWMPC): <b>04-26-2012</b>		

**Project Description:**

The project will provide two interconnections between CU and the CCWD, an interconnection between the CCWD and Gallatin County Water District, and will close a gap between a portion of the WCWD that is currently served by the City of Milton and the rest of the WCWD system. Infrastructure components that are specific to each utility include:

**CCWD** – Construct an emergency interconnect with the Gallatin Co. Water District near Old KY1130 also known as the HWY 1130 Spur. Additionally 2,300 linear feet (LF) of asbestos cement water line will be replaced along KY 467 near Worthville.

**WCWD** - Construct a booster pump station and install approximately 1700 LF of water line to tie discrete sections of the WCWD system together.

**CU** - Construct new groundwater well and associated piping and purchase an emergency generator to support the water treatment plant and interconnections discussed above.

**Highland Ave. (U.S. 42) Waterline Replacement:** This replacement project covers approximately 4200 LF and will replace the 4” to 6” cast iron, lead-joint waterline installed nearly 100 years ago. Since the existing waterline now sits in the traffic lane of one of the busiest roads in Carrollton the new line will be moved outside the curb line. This new waterline will allow CU to abandon the line and remove a potential source of lead in the drinking water.

**General Butler Transmission Line:** The existing 10” transmission line to the CU General Butler water storage tanks was installed around 1960. CU is looking for some redundancy and potentially additional volume available to fill the General Butler tanks. Final route selection could be a parallel line or a different route utilizing the new Schuerman Road right-of-way and the electric easement to the tank.

**Need for Project:**

*Briefly describe how this project promotes public health or achieves and/or maintains compliance with the Clean Water Act or Safe Drinking Water Act:*

This project will enable the adjoining systems the ability to provide water to each other in times of emergency, provides for consistent water supply with a new well and emergency power generation.

**Project Alternatives:**

Alternate A:

Each utility could have its own project.

Alternate B:

No action.

**Legal Applicant:**

Entity Type: <b>Incorporated City</b>	PSC Group ID: <b>30002116</b>
Entity Name: <b>City of Carrollton</b>	
Web URL:	
Office EMail: <b>mmore@carrolltonky.net</b>	
Office Phone: <b>502-732-7060</b>	Toll Free: Fax: <b>502-732-6738</b>

Mail Address Line 1: <b>PO Box 156</b>	Phys Address Line 1:
Mail Address Line 2:	Phys Address Line 2:
Mail City, State Zip: <b>Carrollton, KY 41008</b>	Phys City, State Zip:

Contact: <b>Melinda Wright-Moore</b>	Financial Contact:	Auth Official: <b>Robb W. Adams</b>
Contact Title: <b>City Clerk</b>	Financial Contact Title:	Auth Official Title: <b>Mayor</b>
Contact EMail: <b>mmore@carrolltonky.net</b>	Financial Contact EMail:	Auth Official EMail: <b>radams@carrolltonky.net</b>
Contact Phone: <b>502-732-7060</b>	Financial Contact Phone:	Auth Official Phone: <b>502-732-7051</b>

Data Source: **Kentucky Department for Local Government**

Date Last Modified: **04.05.2019**



## Drinking Water Project Profile

WX21041001 - City of Carrollton  
Carroll County Interconnect Project

### Project Administrator (PA) Information

Name: **Chas Robbins**  
 Title: **Finance Officer**  
 Organization: **Carrollton Utilities**  
 Address Line 1: **225 6th Street**  
 Address Line 2:  
 City: **Carrollton** State: **KY** Zip: **41008**  
 Phone: **502-732-7055** Fax: **502-732-7058**

### Applicant Contact (AC) Information

Name: **Bill R Osborne**  
 Title: **General Manager**  
 Organization: **Carrollton Utilities**  
 Address Line 1: **225 Sixth St**  
 Address Line 2: **PO Box 269**  
 City: **Carrollton** State: **KY** Zip: **41008**  
 Phone: **502-732-7055** Fax: **502-732-7058**

### Project Engineer (PE) Information:

- This project requires a licensed Professional Engineer.
- A Professional Engineer has been procured for this project.

#### Project Engineer Information:

License No: **PE 17165**  
 PE Name: **Terry A. Roach**  
 Phone: **502-732-7055** Fax:  
 E-Mail: **troach@carrolltonutilities.com**  
 Firm Name:  
 Addr Line 1: **Carrollton Utilities**  
 Addr Line 2: **PO Box 269**  
 Addr Line 3: **225 6th Street**  
 City: **Carrollton** State: **KY** Zip: **41008**  
 Status: **Current** Disciplinary Actions: **NO**  
 Issued: **01-22-1992** Expires: **06-30-2020**

### Estimated Budget

#### Project Cost Categories:

Cost Category	Cost
Administrative Expenses:	\$ 12,000
Legal Expenses:	\$ 2,500
Land, Appraisals, Easements:	
Relocation Expenses & Repayments:	
Planning:	\$ 20,000
Engineering Fees - Design:	\$ 100,557
Engineering Fees - Construction:	
Engineering Fees - Inspection:	\$ 63,177
Engineering Fees - Other:	\$ 29,700
Construction:	\$ 1,191,712
Equipment:	
Miscellaneous:	
Contingencies:	\$ 119,171
<b>Total Project Cost:</b>	<b>\$ 1,538,817</b>

#### Construction Cost Categories:

Cost Category	Cost
Treatment:	\$ 160,000
Transmission & Distribution:	\$ 859,712
Source:	\$ 170,000
Storage:	
Purchase of Systems:	
Restructuring:	
Land Acquisition:	\$ 2,000
Non-Categorized:	
<b>Total Construction Cost:</b>	<b>\$ 1,191,712</b>
<b>Total Sustainable Infrastructure Costs:</b>	

Note: Total Sustainability Infrastructure Costs are included within construction and other costs reported in this section. This breakout is provided for SRF review purposes.



## Drinking Water Project Profile

WX21041001 - City of Carrollton  
Carroll County Interconnect Project

### Project Funding Sources:

Total Project Cost: **\$1,538,817**  
 Total Committed Funding: **\$1,657,988**  
 Funding Gap: **(\$119,171) (Over Funded)**

### Estimated Project Schedule:

Est. Environmental Review Submittal Date:  
 Estimated Bid Date:  
 Estimated Construction Start Date:  
 Estimated Construction Completion Date:

This project will be requesting SRF funding for fiscal year 2020.

Funding Source	Loan or Grant ID	Fiscal Year	Amount	Status	Applicable Date
KIA SRF Fund F Loan (DW)	F13-007	2013	\$1,657,988	Committed	5/2/2013
<b>Total Committed</b>			<b>\$1,657,988</b>		

### Funding Source Notes:

The following systems are beneficiaries of this project:

- KY0210067 Carrollton Utilities**
- KY0210066 Carroll County Water District #1**
- KY0210008 West Carroll Water District - Carrollton**
- KY0210637 West Carroll Water District - Milton**

Note: Check mark indicates primary system for this project.

### Project Ranking by AWMPC:

Regional Ranking(s):  
 Planning Unit Ranking:  
 Total Points:

- Plans and specs have been sent to DOW.
- Plans and specs have been reviewed by DOW.
- Plans and specs have been sent to PSC.
- Plans and specs have been reviewed by PSC.

Date: 05/05/2009

### Economic, Demographic and Geographic Impacts

Economic Impacts	
Jobs Created:	
Jobs Retained:	

*Demographic Impacts (GIS Census Overlay)			
Serviceable Demographic	Project Area	Included Systems	Included Utilities
Population:	182	4,629	4,629
Households:	88	1,971	1,971
MHI:	\$35,019	\$35,485	*\$35,485
MHI MOE	\$13,276	\$13,091	*\$13,091
MOE as Pct:	38%	37.0%	37.0%
**NSRL:		2	2

Population and household counts are based on 2010 census block values from the SF1 (100%) dataset.

MHI Source is from the American Community Survey 2012-2016 5Yr Estimates (Table B19013) \*(for the primary system operated by the above listed beneficiary utilities).

MHI MOE = Med HH Income Margin of Error.

\*\* NSRL (Non-Standard Rate Levels):  
 0 = Income above Kentucky MHI (KMHI).  
 1 = Income between 80% KMHI and KMHI.  
 2 = Income less than or equal to 80% KMHI.  
 - KMHI = \$44,811  
 - 80% KHMI = \$35,849

Geographic Impacts For Project Area	
<b>Counties</b>	
Carroll	
Gallatin	
<b>Legislative Districts</b>	
District Name	Legislator
House 047	Rick Rand
Senate 07	Julian M. Carroll
Senate 20	Paul Hornback
Congressional 4	Thomas Massie
<b>Groundwater Sensitivity Zones</b>	
<b>HUC 10 Watersheds</b>	
HUC Code	Watershed Name
0509020310	Big Bone Creek-Ohio River
0510020514	Lower Eagle Creek
0510020515	Cedar Creek-Kentucky River
0514010103	Corn Creek-Ohio River

Geographic Impacts For Included System(s)	
<b>Counties</b>	
Carroll	
Gallatin	
Henry	
Owen	
Trimble	
<b>Legislative Districts</b>	
District Name	Legislator
House 047	Rick Rand
House 062	Phillip Pratt
Senate 07	Julian M. Carroll
Senate 20	Paul Hornback
Congressional 4	Thomas Massie



## Drinking Water Project Profile

WX21041001 - City of Carrollton  
Carroll County Interconnect Project

New Customers	
New Residential Customers:	
New Commercial Customers:	
New Institutional Customers:	
New Industrial Customers:	

New or Improved Service		
Service Demographic	Survey Based	Census Overlay*
To Unserved Households:		4
To Underserved Households:	20	84
To Total Households:	20	88
** Cost Per Household:	\$76,941	

\* GIS Census block overlay figures are estimates of population and households potentially served by systems and projects based on a proximity analysis of relevant service lines to census block boundaries.

\*\* Cost per household is based on surveyed household counts, not GIS overlay values.



## Drinking Water Project Profile

WX21041001 - City of Carrollton  
Carroll County Interconnect Project

### DW Specific Impacts:

- This project relates to a public health emergency.
- This project will assist a non-compliant system to achieve compliance.
- This project will assist a compliant system to meet future requirements
- This project will provide assistance not compliance related.
- This project is necessary to achieve full or partial compliance with a court order, agreed order, or a judicial or administrative consent decree.
- Primary system has not received any SDWA Notices of Violation within the previous state fiscal year-July through June, i.e. July 2014 – June 2015).

### Project Inventory (Mapped Features):

Mapped Point Features							
DOW Permit ID	Count	FeatureType	Purpose	Status	Existing Capacity	Proposed Capacity	Units
KY0210067	1	PUMP STATION	PUMP - BOOST PRESSURE	NEW			GPM
KY0210067	1	GENERATOR	GENERATOR - DISTRIBUTION SYSTEM	NEW			EA
KY0210067	1	INTERCONNECT METER	METER - EMERGENCY ONLY INTERCONNECT	NEW			EA
KY0210067	3	INTERCONNECT METER	METER - FINISHED WATER INTERCONNECT	NEW			EA
KY0210067	1	WELL SOURCE	NEW WATER SUPPLY	NEW			EA

Mapped Line Features							
DOW Permit ID	Line Type	Purpose	Activity	Size (in.)	Material	Length (LF)	
KY0210067	WATER LINE: FINISHED	DISTRIBUTION	EXTENSION - FINISHED WATER INTERCONNECT	4.00	PVC	3,160	
KY0210067	WATER LINE: FINISHED	DISTRIBUTION	EXTENSION - FINISHED WATER INTERCONNECT	8.00	PVC	335	
KY0210067	WATER LINE: FINISHED	DISTRIBUTION	REHAB - REPLACE LEAD AND/OR ASBESTOS-CEMENT LINES	6.00	PVC	4,428	
KY0210067	WATER LINE: FINISHED	DISTRIBUTION	REHAB - REPLACE LEAD AND/OR ASBESTOS-CEMENT LINES	8.00	PVC	2,704	
KY0210067	WATER LINE: FINISHED	TRANSMISSION	EXTENSION	10.00	PVC	2,391	
KY0210067	WATER LINE: RAW	TRANSMISSION	EXTENSION	6.00	PVC	1,254	
					Total Length	14,272	

### Administrative Components:

- Planning     
  Design     
  Construction     
  Management

### Regionalization Components:

#### Public Water Systems Eliminated:

- this project includes the elimination of public water system(s) through merger or acquisition.

#### Water Treatment Plants Eliminated:



## Drinking Water Project Profile

WX21041001 - City of Carrollton  
Carroll County Interconnect Project

- This project includes the elimination of water treatment plant(s) through interconnect(s).

### Supplementation of Raw Water Supply:

- This project includes supplementing the existing raw water supply.

#### Source Name

Ohio River

### Supplementation of Potable Water Supply:

- This project includes supplementing the existing potable water supply.

#### DOW Permit ID

#### System Name

KY0210066	Carroll County Water District #1
KY0210067	Carrollton Utilities
KY0390130	Gallatin County Water District

### Emergency Only Water Supply:

- This project provides emergency only water supply.

### Water Source Protection:

- This project includes land acquisition for water source protection.

### Water Treatment Components:

- This project includes water treatment components

#### Treatment Activities:

- This project includes a new water treatment plant.
- This project includes an expansion of an existing water treatment plant.
- This project includes rehabilitation of an existing water treatment plant.
- This project includes upgrades to an existing water treatment plant.
- This project includes emergency power generators for treatment activities.
- This project includes redundant treatment processes.

#### Acute Public Health Risk:

- This project includes infrastructure options to meet Cryptosporidium removal/inactivation requirements.
- This project includes infrastructure options to meet CT inactivation requirements.

#### Chronic Public Health Risk:

- This project includes treatment modifications to meet the Disinfectants/Disinfection Byproducts Rule at the water treatment plant.
- This project will provide treatment modifications for VOCs, IOCs, SOC, or Radionuclides.



## Drinking Water Project Profile

WX21041001 - City of Carrollton  
Carroll County Interconnect Project

**Secondary Contaminants:**

- This project includes treatment modifications to address Secondary Contaminants.

**Security:**

- This project includes security components for water treatment facilities.

**Water Distribution and Storage:**

- This project includes water distribution and/or storage components.

**Water Line Extensions:**

- This project includes water line extension(s).

Length of extensions: **7,140 LF**

Number of new connections: **20**

**Redundancy Components:**

- This project includes emergency power generators for distribution and/or storage activities.

Number of units provided: **1**

- This project includes redundant distribution and/or storage processes.

**Finished Water Quality:**

- This project includes infrastructure to address inadequate water turnover and disinfection byproducts (DBPs).
- This project includes infrastructure to address inability to maintain disinfection residual.

**Water Line Replacement:**

- This project replaces problem water lines (breaks, leaks, or restrictive flows due to age), water lines consisting of lead and/or asbestos-cement (AC), and/or inadequately sized water lines.

Roads Serviced by Line Replacements:	
Road Name	LF Serviced
KY-467	2,700
Highland Ave	4,423
<b>Total LF Serviced</b>	<b>7,123</b>

**Water Storage and Pressure Components:**

- This project includes the construction of new water tank(s).
- This project includes the replacement of existing water tank(s).
- This project includes the rehabilitation of existing water tank(s).
- This project includes the construction of new pump station(s).
- This project includes the rehabilitation of existing pump station(s).

**Security:**

- This project includes security components for water distribution infrastructure.



## Drinking Water Project Profile

WX21041001 - City of Carrollton  
Carroll County Interconnect Project

### Sustainable Infrastructure - Green Infrastructure:

*Green stormwater infrastructure includes a wide array of practices at multiple scales that manage wet weather and that maintains and restores natural hydrology by infiltrating, evapotranspiring and harvesting and using stormwater. On a regional scale, green infrastructure is the preservation and restoration of natural landscape features, such as forests, floodplains, and wetlands, coupled with policies such as infill and redevelopment that reduce overall imperviousness in a watershed. On the local scale, green infrastructure consists of site and neighborhood-specific practices, such as:*

Component	Cost
<input type="checkbox"/> Bioretention	
<input type="checkbox"/> Trees	
<input type="checkbox"/> Green Roofs	
<input type="checkbox"/> Permeable Pavement	
<input type="checkbox"/> Cisterns	
<b>Total Green Infrastructure Cost:</b>	<b>\$0</b>

*There are no Green Infrastructure components specified for this project.*

### Sustainable Infrastructure - Water Efficiency:

*The use of improved technologies and practices to deliver equal or better services with less water. Water efficiency encompasses conservation and reuse efforts, as well as water loss reduction and prevention, to protect water resources for the future. Examples include:*

Component	Cost
<input type="checkbox"/> Installing or retrofitting water efficient devices such as plumbing fixtures and appliances (toilets, showerheads, urinals).	
<input type="checkbox"/> Installing any type of water meter in previously unmetered areas (can include backflow prevention if in conjunction with meter replacement).	
<input type="checkbox"/> Replacing existing broken/malfunctioning water meters with AMR or smart meters, meters with leak detection, backflow prevention.	
<input type="checkbox"/> Retrofitting/adding AMR capabilities or leak equipment to existing meters.	
<input type="checkbox"/> Conducting water utility audits, leak detection studies, and water use efficiency baseline studies, which are reasonably expected to result in a capital project or in a reduction in demand to alleviate the need for additional capital investment.	
<input type="checkbox"/> Developing conservation plans/programs reasonable expected to result in a water conserving capital project or in a reduction in demand to alleviate the need for capital investment.	
<input type="checkbox"/> Recycling and water reuse projects that replace potable sources with non-potable sources (Gray water, condensate, and wastewater effluent reuse systems, extra treatment or distribution costs associated with water reuse).	
<input type="checkbox"/> Retrofit or replacement of existing landscape irrigation systems to more efficient landscape irrigation systems.	
<input type="checkbox"/> Water meter replacement with traditional water meters.*	
<input type="checkbox"/> Distribution pipe replacement or rehabilitation to reduce water loss and prevent water main breaks.*	
<input type="checkbox"/> Storage tank replacement/rehabilitation to reduce water loss.*	
<input type="checkbox"/> New water efficient landscape irrigation system, where there currently is not one.*	
<b>Total Water Efficiency Cost:</b>	<b>\$0</b>

*\* Indicates a business case may be required for this item.*

*There are no Water Efficiency components specified for this project.*





## Drinking Water Project Profile

WX21041001 - City of Carrollton  
Carroll County Interconnect Project

### Sustainable Infrastructure - Energy Efficiency:

*Energy efficiency is the use of improved technologies and practices to reduce the energy consumption of water projects, use energy in a more efficient way, and/or produce/utilize renewable energy. Examples include:*

Component	Cost
<input type="checkbox"/> Renewable energy projects, which are part of a public health project, such as wind, solar, geothermal, and micro-hydroelectric that provides power to a utility.	
<input type="checkbox"/> Utility-owned or publicly-owned renewable energy projects.	
<input type="checkbox"/> Utility energy management planning, including energy assessments, energy audits, optimization studies, and sub-metering of individual processes to determine high energy use areas.	
<input type="checkbox"/> Energy efficient retrofits, upgrades, or new pumping systems and treatment processes (including variable frequency drives (VFDs)).*	
<input type="checkbox"/> Pump refurbishment to optimize pump efficiency.*	
<input type="checkbox"/> Projects that result from an energy efficient related assessment.*	
<input type="checkbox"/> Projects that cost effectively eliminate pumps or pumping stations.*	
<input type="checkbox"/> Projects that achieve the remaining increments of energy efficiency in a system that is already very efficient.*	
<input type="checkbox"/> Upgrade of lighting to energy efficient sources.*	
<input type="checkbox"/> Automated and remote control systems (SCADA) that achieve substantial energy savings.*	
<b>Total Energy Efficiency Cost:</b>	<b>\$0</b>

*\* Indicates a business case may be required for this item.*

**There are no Energy Efficiency components specified for this project.**

### Sustainable Infrastructure - Environmentally Innovative:

*Environmentally innovative projects include those that demonstrate new and/or innovative approaches to delivering services or managing water resources in a more sustainable way. Examples include:*

Component	Cost
<input type="checkbox"/> Total integrated water resources management planning, or other planning framework where project life cycle costs are minimized, which enables communities to adopt more efficient and cost-effective infrastructure solutions.	
<input type="checkbox"/> Plans to improve water quantity and quality associated with water system technical, financial, and managerial capacity.	
<input type="checkbox"/> Source water protection planning (delineation, monitoring, modeling).	
<input type="checkbox"/> Planning activities to prepare for adaptation to the long-term effects of climate change and/or extreme weather.	
<input type="checkbox"/> Utility sustainability plan consistent with EPA's sustainability policy.	
<input type="checkbox"/> Greenhouse gas inventory or mitigation plan and submission of a GHG inventory to a registry as long as it is being done for an SRF eligible facility.	
<input type="checkbox"/> Construction of US Building Council LEED certified buildings, or renovation of an existing building.	
<input type="checkbox"/> Projects that significantly reduce or eliminate the use of chemicals in water treatment.*	
<input type="checkbox"/> Treatment technologies or approaches that significantly reduce the volume of residuals, minimize the generation of residuals, or lower the amount of chemicals in the residuals.*	
<input type="checkbox"/> Trenchless or low impact construction technology.*	
<input type="checkbox"/> Using recycled materials or re-using materials on-site.*	
<input type="checkbox"/> Educational activities and demonstration projects for water or energy efficiency (such as rain gardens).*	
<input type="checkbox"/> Projects that achieve the goals/objectives of utility asset management plans.*	
<b>Total Environmentally Innovative Cost:</b>	<b>\$0</b>

*\* Indicates a business case may be required for this item.*

**There are no Environmentally Innovative components specified for this project.**



## Drinking Water Project Profile

WX21041001 - City of Carrollton  
Carroll County Interconnect Project

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### Sustainable Infrastructure - Asset Management:

*If a category is selected, the applicant must provide proof to substantiate claims. The documents must be submitted to Anshu Singh (Anshu.Singh@ky.gov) for CW projects*

#### Component

---

Last Rate Adjustment Date: **07-01-2017** **Download Fee Schedule**

Rate Adjustment Age: **18 months**

System's monthly water bill, based on 4,000 gallons, as a percentage of MHI: **0.60%**

- The system(s) has a Capital Improvement Plan or similar planning document.
- The system(s) involved in this project have specifically allocated funds for the rehabilitation and replacement of aging and deteriorating infrastructure.

*If any boxes are checked above, please describe each below:*

Documentation forwarded to DOW.

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**Project Status:** Under Construction

Date Approved: 04-26-2012

Date Revised:

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## Drinking Water Project Profile

Legal Applicant: <b>City of Carrollton</b>		
Project Title: <b>CU - Focusing on Core Mission &amp; Infrastructure Project</b>		
Project Number: <b>WX21041002</b>	<a href="#">View Map</a>	Submitted By: <b>NKADD</b>
Funding Status: <b>Fully Funded</b>		Primary County: <b>Carroll</b>
Project Status: <b>Approved</b>		Planning Unit: <b>Carroll</b>
Project Schedule: <b>0-2 Years</b>		Multi-County: <b>Yes</b>
E-Clearinghouse SAI: <b>KY201407030774</b>		ECH Status: <b>Approved</b>
Applicant Entity Type: <b>Incorporated City</b>		ADD WMC Contact: <b>Jeff Burt</b>
Date Approved (AWMPC): <b>12-12-2012</b>		

**Project Description:**

This is a regional project including Carrollton Utilities in association with Henry County Water District, Carroll County Water District and the West Carroll Water District. The project focuses on each utilities' core mission to provide safe and reliable water service to its customers by: augmenting supply via a replacement well (CU), safety by eliminating chlorine gas use by using hypochlorination (CU), and water loss prevention by replacing an aging meter with a radio read unit and reducing pressure (HCWD and WCWD). Additional elements include the 2nd phase of a dedicated transmission line from the CU WTP to the General Butler ground storage tanks which will allow CU to reduce the system pressure while filling the tanks. CCWD will be adding and replacing telemetry throughout the system to prevent tanks from overflowing and providing communication to key booster stations for improved operation and pressure monitoring to reduce leaks.

**Need for Project:**

*Briefly describe how this project promotes public health or achieves and/or maintains compliance with the Clean Water Act or Safe Drinking Water Act:*  
As discussed above each utility will use this project to strengthen its core mission and will benefit the utilities by focusing future resources on projects that could not have been done without the core infrastructure first being replaced.

**Project Alternatives:**

Alternate A:

**Each utility doing the projects separately .**

Alternate B:

**Piecemeal projects over time.**

**Legal Applicant:**

Entity Type: <b>Incorporated City</b>	PSC Group ID: <b>30002116</b>
Entity Name: <b>City of Carrollton</b>	
Web URL:	
Office EMail: <b>mmore@carrolltonky.net</b>	
Office Phone: <b>502-732-7060</b>	Toll Free: Fax: <b>502-732-6738</b>

Mail Address Line 1: <b>PO Box 156</b>	Phys Address Line 1:
Mail Address Line 2:	Phys Address Line 2:
Mail City, State Zip: <b>Carrollton, KY 41008</b>	Phys City, State Zip:

Contact: <b>Melinda Wright-Moore</b>	Financial Contact:	Auth Official: <b>Robb W. Adams</b>
Contact Title: <b>City Clerk</b>	Financial Contact Title:	Auth Official Title: <b>Mayor</b>
Contact EMail: <b>mmore@carrolltonky.net</b>	Financial Contact EMail:	Auth Official EMail: <b>radams@carrolltonky.net</b>
Contact Phone: <b>502-732-7060</b>	Financial Contact Phone:	Auth Official Phone: <b>502-732-7051</b>

Data Source: **Kentucky Department for Local Government**

Date Last Modified: **04.05.2019**



## Drinking Water Project Profile

WX21041002 - City of Carrollton  
CU - Focusing on Core Mission & Infrastructure Project

### Project Administrator (PA) Information

Name: **Chas Robbins**  
 Title: **Finance Officer**  
 Organization: **Carrollton Utilities**  
 Address Line 1: **225 6th Street**  
 Address Line 2:  
 City: **Carrollton** State: **KY** Zip: **41008**  
 Phone: **502-732-7055** Fax: **502-732-7058**

### Applicant Contact (AC) Information

Name: **Terry A Roach**  
 Title: **Utility Engineer**  
 Organization: **Carrollton Utilities**  
 Address Line 1: **900 Clay St**  
 Address Line 2:  
 City: **Carrollton** State: **KY** Zip: **41008**  
 Phone: **502-732-1217** Fax: **502-732-7058**

### Estimated Budget

#### Project Cost Categories:

Cost Category	Cost
Administrative Expenses:	\$ 14,805
Legal Expenses:	\$ 5,000
Land, Appraisals, Easements:	\$ 5,000
Relocation Expenses & Repayments:	
Planning:	\$ 7,503
Engineering Fees - Design:	\$ 69,955
Engineering Fees - Construction:	
Engineering Fees - Inspection:	\$ 47,377
Engineering Fees - Other:	
Construction:	\$ 740,265
Equipment:	
Miscellaneous:	
Contingencies:	\$ 74,026
<b>Total Project Cost:</b>	<b>\$ 963,931</b>

#### Construction Cost Categories:

Cost Category	Cost
Treatment:	\$ 161,000
Transmission & Distribution:	\$ 359,265
Source:	\$ 220,000
Storage:	
Purchase of Systems:	
Restructuring:	
Land Acquisition:	
Non-Categorized:	
<b>Total Construction Cost:</b>	<b>\$ 740,265</b>
<b>Total Sustainable Infrastructure Costs:</b>	

Note: Total Sustainability Infrastructure Costs are included within construction and other costs reported in this section. This breakout is provided for SRF review purposes.

### Project Funding Sources:

Total Project Cost: **\$963,931**  
 Total Committed Funding: **\$963,931**  
 Funding Gap: **\$0 (Fully Funded)**

This project will be requesting SRF funding for fiscal year 2020.

### Estimated Project Schedule:

Est. Environmental Review Submittal Date:  
 Estimated Bid Date:  
 Estimated Construction Start Date: **06-16-2014**  
 Estimated Construction Completion Date:

Funding Source	Loan or Grant ID	Fiscal Year	Amount	Status	Applicable Date
KIA SRF Fund F Loan (DW)	F14-013	2014	\$963,931	Committed	12/5/2013
<b>Total Committed</b>			<b>\$963,931</b>		

### Funding Source Notes:

The following systems are beneficiaries of this project:  
**KY0210008 West Carroll Water District - Carrollton**  
**KY0210066 Carroll County Water District #1**



## Drinking Water Project Profile

WX21041002 - City of Carrollton  
CU - Focusing on Core Mission & Infrastructure Project

✓ **KY0210067 Carrollton Utilities**  
**KY0520192 Henry County Water District #2**

Note: Check mark indicates primary system for this project.

**Project Ranking by AWMP:**

Regional Ranking(s):

Planning Unit Ranking:

Total Points:

- Plans and specs have been sent to DOW.
- Plans and specs have been reviewed by DOW.
- Plans and specs have been sent to PSC.
- Plans and specs have been reviewed by PSC.

### Economic, Demographic and Geographic Impacts

Economic Impacts	
Jobs Created:	
Jobs Retained:	

*Demographic Impacts (GIS Census Overlay)			
Serviceable Demographic	Project Area	Included Systems	Included Utilities
Population:		4,629	4,629
Households:		1,971	1,971
MHI:		\$35,485	*\$35,485
MHI MOE		\$13,091	*\$13,091
MOE as Pct:		37.0%	37.0%
**NSRL:		2	2

Population and household counts are based on 2010 census block values from the SF1 (100%) dataset.

MHI Source is from the American Community Survey 2012-2016 5Yr Estimates (Table B19013) \*(for the primary system operated by the above listed beneficiary utilities).

MHI MOE = Med HH Income Margin of Error.

\*\* NSRL (Non-Standard Rate Levels):  
0 = Income above Kentucky MHI (KMHI).  
1 = Income between 80% KMHI and KMHI.  
2 = Income less than or equal to 80% KMHI.  
- KMHI = \$44,811  
- 80% KMHI = \$35,849

Geographic Impacts For Project Area	
<b>Counties</b>	
Carroll	
Gallatin	
<b>Legislative Districts</b>	
District Name	Legislator
House 047	Rick Rand
Senate 07	Julian M. Carroll
Senate 20	Paul Hornback
Congressional 4	Thomas Massie
<b>Groundwater Sensitivity Zones</b>	
<b>HUC 10 Watersheds</b>	
HUC Code	Watershed Name
0509020310	Big Bone Creek-Ohio River
0510020514	Lower Eagle Creek
0510020515	Cedar Creek-Kentucky River
0514010101	Little Kentucky River

Geographic Impacts For Included System(s)	
<b>Counties</b>	
Carroll	
Gallatin	
Henry	
Oldham	
Owen	
Shelby	
Trimble	
<b>Legislative Districts</b>	
District Name	Legislator
House 047	Rick Rand
House 058	Rob Rothenburger
House 059	David Osborne
House 062	Phillip Pratt
Senate 07	Julian M. Carroll
Senate 20	Paul Hornback
Senate 26	Ernie Harris
Congressional 4	Thomas Massie

New Customers	
New Residential Customers:	
New Commercial Customers:	
New Institutional Customers:	
New Industrial Customers:	

New or Improved Service		
Service Demographic	Survey Based	Census Overlay*
To Unserved Households:		
To Underserved Households:	7,800	
To Total Households:	7,800	
** Cost Per Household:	\$124	

\* GIS Census block overlay figures are estimates of population and households potentially served by systems and projects based on a proximity analysis of relevant service lines to census block boundaries.

\*\* Cost per household is based on surveyed household counts, not GIS overlay values.



## Drinking Water Project Profile

WX21041002 - City of Carrollton  
CU - Focusing on Core Mission & Infrastructure Project

### DW Specific Impacts:

- This project relates to a public health emergency.
- This project will assist a non-compliant system to achieve compliance.
- This project will assist a compliant system to meet future requirements
- This project will provide assistance not compliance related.
- This project is necessary to achieve full or partial compliance with a court order, agreed order, or a judicial or administrative consent decree.
- Primary system has not received any SDWA Notices of Violation within the previous state fiscal year-July through June, i.e. July 2014 – June 2015).

### Project Inventory (Mapped Features):

Mapped Point Features							
DOW Permit ID	Count	FeatureType	Purpose	Status	Existing Capacity	Proposed Capacity	Units
KY0210008	4	RADIO METER	METER - FINISHED WATER INTERCONNECT	NEW			EA
KY0210066	6	RADIO METER	SCADA	NEW			EA
KY0520192	1	MASTER METER	METER - FINISHED WATER INTERCONNECT	NEW			EA

Mapped Line Features							
DOW Permit ID	Line Type	Purpose	Activity	Size (in.)	Material	Length (LF)	
KY0210067	WATER LINE: FINISHED	TRANSMISSION	EXTENSION	10.00	PVC	4,170	
KY0210067	WATER LINE: RAW	TRANSMISSION	EXTENSION	6.00	PVC	1,254	
					Total Length	5,424	

### Administrative Components:

- Planning
 Design
 Construction
 Management

### Regionalization Components:

#### Public Water Systems Eliminated:

- this project includes the elimination of public water system(s) through merger or acquisition.

#### Water Treatment Plants Eliminated:

- This project includes the elimination of water treatment plant(s) through interconnect(s).

#### Supplementation of Raw Water Supply:

- This project includes supplementing the existing raw water supply.

#### Supplementation of Potable Water Supply:

- This project includes supplementing the existing potable water supply.

#### Emergency Only Water Supply:



## Drinking Water Project Profile

WX21041002 - City of Carrollton  
CU - Focusing on Core Mission & Infrastructure Project

- 
- This project provides emergency only water supply.
- 

### Water Source Protection:

- This project includes land acquisition for water source protection.
- 

### Water Treatment Components:

- This project includes water treatment components

#### Treatment Activities:

- This project includes a new water treatment plant.
- This project includes an expansion of an existing water treatment plant.
- This project includes rehabilitation of an existing water treatment plant.
- This project includes upgrades to an existing water treatment plant.
- This project includes emergency power generators for treatment activities.
- This project includes redundant treatment processes.

#### Acute Public Health Risk:

- This project includes infrastructure options to meet Cryptosporidium removal/inactivation requirements.
- This project includes infrastructure options to meet CT inactivation requirements.

#### Chronic Public Health Risk:

- This project includes treatment modifications to meet the Disinfectants/Disinfection Byproducts Rule at the water treatment plant.
- This project will provide treatment modifications for VOCs, IOC, SOC, or Radionuclides.

#### Secondary Contaminants:

- This project includes treatment modifications to address Secondary Contaminants.

#### Security:

- This project includes security components for water treatment facilities.

### Water Distribution and Storage:

- This project includes water distribution and/or storage components.

#### Water Line Extensions:

- This project includes water line extension(s).

Length of extensions: 5,424 LF

Number of new connections: 10



**Drinking Water Project Profile**  
WX21041002 - City of Carrollton  
CU - Focusing on Core Mission & Infrastructure Project

**Redundancy Components:**

- This project includes emergency power generators for distribution and/or storage activities.

Number of units provided: 0

- This project includes redundant distribution and/or storage processes.

Dedicated transmission line to fill tank.

**Finished Water Quality:**

- This project includes infrastructure to address inadequate water turnover and disinfection byproducts (DBPs).

- This project includes infrastructure to address inability to maintain disinfection residual.

**Water Line Replacement:**

- This project replaces problem water lines (breaks, leaks, or restrictive flows due to age), water lines consisting of lead and/or asbestos-cement (AC), and/or inadequately sized water lines.

**Water Storage and Pressure Components:**

- This project includes the construction of new water tank(s).
- This project includes the replacement of existing water tank(s).
- This project includes the rehabilitation of existing water tank(s).
- This project includes the construction of new pump station(s).
- This project includes the rehabilitation of existing pump station(s).

**Security:**

- This project includes security components for water distribution infrastructure.

**Sustainable Infrastructure - Green Infrastructure:**

*Green stormwater infrastructure includes a wide array of practices at multiple scales that manage wet weather and that maintains and restores natural hydrology by infiltrating, evapotranspiring and harvesting and using stormwater. On a regional scale, green infrastructure is the preservation and restoration of natural landscape features, such as forests, floodplains, and wetlands, coupled with policies such as infill and redevelopment that reduce overall imperviousness in a watershed. On the local scale, green infrastructure consists of site and neighborhood-specific practices, such as:*

Component	Cost
<input type="checkbox"/> Bioretention	
<input type="checkbox"/> Trees	
<input type="checkbox"/> Green Roofs	
<input type="checkbox"/> Permeable Pavement	
<input type="checkbox"/> Cisterns	
<b>Total Green Infrastructure Cost:</b>	<b>\$0</b>

*There are no Green Infrastructure components specified for this project.*





**Drinking Water Project Profile**  
WX21041002 - City of Carrollton  
CU - Focusing on Core Mission & Infrastructure Project

**Sustainable Infrastructure - Water Efficiency:**

*The use of improved technologies and practices to deliver equal or better services with less water. Water efficiency encompasses conservation and reuse efforts, as well as water loss reduction and prevention, to protect water resources for the future. Examples include:*

Component	Cost
<input type="checkbox"/> Installing or retrofitting water efficient devices such as plumbing fixtures and appliances (toilets, showerheads, urinals).	
<input type="checkbox"/> Installing any type of water meter in previously unmetered areas (can include backflow prevention if in conjunction with meter replacement).	
<input checked="" type="checkbox"/> Replacing existing broken/malfunctioning water meters with AMR or smart meters, meters with leak detection, backflow prevention.	<b>\$24,000</b>
<input type="checkbox"/> Retrofitting/adding AMR capabilities or leak equipment to existing meters.	
<input type="checkbox"/> Conducting water utility audits, leak detection studies, and water use efficiency baseline studies, which are reasonably expected to result in a capital project or in a reduction in demand to alleviate the need for additional capital investment.	
<input type="checkbox"/> Developing conservation plans/programs reasonable expected to result in a water conserving capital project or in a reduction in demand to alleviate the need for capital investment.	
<input type="checkbox"/> Recycling and water reuse projects that replace potable sources with non-potable sources (Gray water, condensate, and wastewater effluent reuse systems, extra treatment or distribution costs associated with water reuse).	
<input type="checkbox"/> Retrofit or replacement of existing landscape irrigation systems to more efficient landscape irrigation systems.	
<input type="checkbox"/> Water meter replacement with traditional water meters.*	
<input type="checkbox"/> Distribution pipe replacement or rehabilitation to reduce water loss and prevent water main breaks.*	
<input type="checkbox"/> Storage tank replacement/rehabilitation to reduce water loss.*	
<input type="checkbox"/> New water efficient landscape irrigation system, where there currently is not one.*	
<b>Total Water Efficiency Cost:</b>	<b>\$24,000</b>

*\* Indicates a business case may be required for this item.*

**The Henry Co. Water District #2 will replace its master meter with a 2" compound meter with AMR capabilities to assist West Carroll in tracking water use for leak detection. WCWD will replace the failed PRV station on its Henry Co. system to reduce system pressure from upwards of 160 psi to reduce leakage and install some leak detection meters to begin a District Metered Program (DMP) for a water audit.**



**Drinking Water Project Profile**  
WX21041002 - City of Carrollton  
CU - Focusing on Core Mission & Infrastructure Project

**Sustainable Infrastructure - Energy Efficiency:**

*Energy efficiency is the use of improved technologies and practices to reduce the energy consumption of water projects, use energy in a more efficient way, and/or produce/utilize renewable energy. Examples include:*

Component	Cost
<input type="checkbox"/> Renewable energy projects, which are part of a public health project, such as wind, solar, geothermal, and micro-hydroelectric that provides power to a utility.	
<input type="checkbox"/> Utility-owned or publicly-owned renewable energy projects.	
<input type="checkbox"/> Utility energy management planning, including energy assessments, energy audits, optimization studies, and sub-metering of individual processes to determine high energy use areas.	
<input type="checkbox"/> Energy efficient retrofits, upgrades, or new pumping systems and treatment processes (including variable frequency drives (VFDs)).*	
<input type="checkbox"/> Pump refurbishment to optimize pump efficiency.*	
<input type="checkbox"/> Projects that result from an energy efficient related assessment.*	
<input type="checkbox"/> Projects that cost effectively eliminate pumps or pumping stations.*	
<input type="checkbox"/> Projects that achieve the remaining increments of energy efficiency in a system that is already very efficient.*	
<input type="checkbox"/> Upgrade of lighting to energy efficient sources.*	
<input type="checkbox"/> Automated and remote control systems (SCADA) that achieve substantial energy savings.*	
<b>Total Energy Efficiency Cost:</b>	<b>\$0</b>

*\* Indicates a business case may be required for this item.*

***There are no Energy Efficiency components specified for this project.***

**Sustainable Infrastructure - Environmentally Innovative:**

*Environmentally innovative projects include those that demonstrate new and/or innovative approaches to delivering services or managing water resources in a more sustainable way. Examples include:*

Component	Cost
<input type="checkbox"/> Total integrated water resources management planning, or other planning framework where project life cycle costs are minimized, which enables communities to adopt more efficient and cost-effective infrastructure solutions.	
<input type="checkbox"/> Plans to improve water quantity and quality associated with water system technical, financial, and managerial capacity.	
<input type="checkbox"/> Source water protection planning (delineation, monitoring, modeling).	
<input type="checkbox"/> Planning activities to prepare for adaptation to the long-term effects of climate change and/or extreme weather.	
<input type="checkbox"/> Utility sustainability plan consistent with EPA's sustainability policy.	
<input type="checkbox"/> Greenhouse gas inventory or mitigation plan and submission of a GHG inventory to a registry as long as it is being done for an SRF eligible facility.	
<input type="checkbox"/> Construction of US Building Council LEED certified buildings, or renovation of an existing building.	
<input type="checkbox"/> Projects that significantly reduce or eliminate the use of chemicals in water treatment.*	
<input type="checkbox"/> Treatment technologies or approaches that significantly reduce the volume of residuals, minimize the generation of residuals, or lower the amount of chemicals in the residuals.*	
<input type="checkbox"/> Trenchless or low impact construction technology.*	
<input type="checkbox"/> Using recycled materials or re-using materials on-site.*	
<input type="checkbox"/> Educational activities and demonstration projects for water or energy efficiency (such as rain gardens).*	
<input type="checkbox"/> Projects that achieve the goals/objectives of utility asset management plans.*	
<b>Total Environmentally Innovative Cost:</b>	<b>\$0</b>

*\* Indicates a business case may be required for this item.*

***There are no Environmentally Innovative components specified for this project.***



**Drinking Water Project Profile**  
WX21041002 - City of Carrollton  
CU - Focusing on Core Mission & Infrastructure Project

**Sustainable Infrastructure - Asset Management:**

*If a category is selected, the applicant must provide proof to substantiate claims. The documents must be submitted to Anshu Singh (Anshu.Singh@ky.gov) for CW projects*

**Component**

Last Rate Adjustment Date: **07-01-2017** **Download Fee Schedule**

Rate Adjustment Age: **18 months**

System's monthly water bill, based on 4,000 gallons, as a percentage of MHI: **0.60%**

- The system(s) has a Capital Improvement Plan or similar planning document.
- The system(s) involved in this project have specifically allocated funds for the rehabilitation and replacement of aging and deteriorating infrastructure.

*If any boxes are checked above, please describe each below:*

The utilities have each developed plans for capital improvements, appropriate rate structures and depreciation programs.

**Project Status:** Approved

Date Approved: 12-12-2012

Date Revised:

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

7. Provide the names of the persons or entities responsible for assisting the utility with capital improvement planning, grant application assistance, engineering design, and construction services.

**Response:**

Carrollton Utilities provides assistance with capital improvement planning, grant application assistance, engineering design and construction services to West Carroll. Carrollton Utilities has a staff of three civil engineers, a certified grant writer, an experienced construction superintendent and a staff of trained operators and maintenance workers. West Carroll has also employed outside engineering firms and grant writers depending on the scope of the project.

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

8. Provide a copy of the utility's preventative maintenance program for the plant, pump, and storage facilities.

**Response:** Please see attached.

# **WCWD OPERATION AND MAINTENANCE PROGRAM**

## **Introduction**

West Carroll Water District is responsible for the operation and maintenance of three water systems, including day to-day operations, preventative maintenance, meter reading, equipment repair, material acquisition, water quality monitoring, installation of new services, water line locates, pipeline repair, leak detection and minor construction of new or replacement facilities. The District continues to maintain and update its Operations and Maintenance Manual which documents procedures. This file is maintained at the WTP field office and includes details regarding routine system operations and special operational programs.

## **1.1 SYSTEM PERSONNEL**

Staffing of the Districts distribution systems includes a superintendent and two distribution operators. There are also eleven other experienced, certified distribution operators available at all times. The district's current water distribution staff and their certifications are listed below in Figure 1-1.

### **Figure 1-1 Distribution Staff**

Chris Rose, Class III Distribution Operator, Superintendent  
Jess Maiden, Class II Distribution Operator  
Bryan Shirley, Distribution Operator  
Jason Noble, Class III distribution Operator  
Frank Thieman, Class III Distribution Operator  
Travis Arney, Class III Distribution Operator  
Tim Pearson, Class II Distribution Operator  
Danny Perkins, Class II Distribution Operator  
Bill Mahoney, Class II Distribution Operator  
Logan Hudgins, Class II Distribution Operator  
Jamie Tilley, Class II Distribution Operator  
Tim Hayden, Class II Distribution Operator  
Dennis Wheeler, Class II Distribution Operator  
Michael Rose, Class I Distribution Operator

The superintendent is responsible for having knowledge of all aspects of the water system and its operations, maintenance, policies, and procedures. In addition, the supervisor is accountable for the Division's compliance with applicable regulations, maintenance of appropriate system records, and the safety of its staff.

All distribution operators are responsible for having knowledge of all aspects of the general operations, maintenance, policies and procedures of the District, and must be capable of performing required duties with minimum direction or supervision.

## 1.2 ROUTINE OPERATIONS & MAINTENANCE SUMMARY

The Districts maintenance and inspection procedures plan describes each of routine scheduled tasks for source, pumps, tanks, distribution system and SCADA system. Other plans also include the policy and procedures for special operational programs such as meter testing/replacement, motor reconditioning, and backflow assembly testing. Table 1-2 identifies the routine elements for weekly, monthly, quarterly and annual schedules. The Districts manual continues the schedule for some facilities for 3, 5 and 18 years. The district maintains and routinely updates the original equipment manufacturers O&M manuals. For equipment or site specific details, troubleshooting or maintenance please refer to the site specific O&M manuals.

**Table 1-2 Routine System Operations**

<b>DAILY</b>	
Master Meter/ Purchase point	<ul style="list-style-type: none"> <li>a. Check all facilities visually</li> <li>b. Monitor continuously with SCADA</li> <li>c. Check facilities for leaks or abnormal conditions</li> <li>d. Check for tampering and or vandalism</li> <li>e. Clean debris from vault floors, lid and surrounding area</li> </ul>
Tanks	<ul style="list-style-type: none"> <li>i. Check pressure transmitter and level controls via SCADA for all storage tanks and booster stations</li> <li>j. Ground maintenance at all sites (weekly)</li> </ul>
Distribution System	<ul style="list-style-type: none"> <li>a. Conduct free chlorine tests within each system, two different locations (7 days/week)</li> <li>b. Leak Detection/loss prevention</li> </ul>
SCADA	<ul style="list-style-type: none"> <li>a. Observe system operations</li> <li>b. Verify all tanks, boosters and systems normal</li> </ul>
<b>MONTHLY</b>	
Pump/Booster Stations	<ul style="list-style-type: none"> <li>a. Check and grease pump packing, non-sealed bearings</li> <li>b. Check oil level in pump bearing reservoir and fill if necessary</li> <li>c. Test generator set if applicable</li> </ul>
Distribution System	<ul style="list-style-type: none"> <li>d. Take required number of water samples from specific sites within the distribution system as identified in WCWD sampling plan and submit them to certified lab for bacteriological analysis</li> <li>e. Turn off/on delinquent accounts</li> <li>f. Reading of all meters</li> <li>g. See sampling plan for other water quality tests</li> <li>h. Leak Detection/Loss Prevention</li> </ul>
SCADA	<ul style="list-style-type: none"> <li>a. Print out all historical logging for the month.</li> </ul>
<b>QUARTERLY</b>	
Pump/Booster Stations	<ul style="list-style-type: none"> <li>a. Grease seal bearings on pump motors</li> </ul>
Distribution	<ul style="list-style-type: none"> <li>a. Flush selected fire hydrants various areas within the system, 25%</li> <li>b. Valve exercise program 25% per quarter</li> <li>c. Meter change outs, 10% per year, 25% of 10% per quarter</li> </ul>

**SEASONAL / YEARLY**

- Pumps/Booster Stations
- a. Winterize or de-winterize pump house facilities
  - b. Check heating equipment and thermostats
  - c. Clean pressure transmitters
  - d. Pump control valves inspected
  - e. Verify flow meter calculations
  - f. Generator set complete inspection and maintenance, if applicable
  - g. Electrical panels and switchgear inspected and maintained
- Tanks
- a. Visually inspect reservoir exterior
  - b. Inspect reservoir interior as possible without removing it from service
  - c. Removal of a Booster pump and motor and rebuild as needed
- Distribution
- a. Insulate service meters with vault insulators
  - b. Operate and flush all fire hydrants. Lubricate hydrant caps and threads, touch-up painting as required
  - c. Inspection of pressure reducing valves
  - d. Inventory of materials
  - e. Annual inspection of all PRVs
  - f. Lead and Copper samples
  - g. 1 ½ " and larger meter testing
  - h. Collect annual TTHM and HAA5 samples
- SCADA
- a. R/R all battery back-up for remote sites and PCs
- AS REQUIRED**
- Pumps/Booster Stations
- a. Drawdown confirmation measurements performed as required (SCADA monitors drawdowns continuously)
  - b. Painting of interior and exterior of buildings/Tanks



- Distribution
- a. Flush low velocity water mains as required to remove sedimentation, or to increase chlorine residual
  - b. Approve and inspect new mains
  - c. Encourage conservation with customers
  - d. Customer complaints, rereads, etc.
  - e. Line locates for other utilities projects
  - f. Verify mapping on GIS, add new, make corrections

### **1.3 CROSS-CONNECTION CONTROL PROGRAM**

The District has an active cross connection program, which is documented in their Cross Connection Control Program Plan.

All residential and commercial applications for new service are evaluated to determine the potential hazard of the plumbing system and, if required, the appropriate level of protection is a condition of approving the application. Inspection and testing of backflow preventers will be conducted:

- At the time of installation;
- Annually after installation;
- After a backflow incident; and
- After repair, reinstallation, relocation, or re-plumbing.

The District may require a backflow preventer to be inspected and/or tested more frequently than once a year, when it protects against a high-health hazard or when it repeatedly fails tests or inspections.

The District requires the customer to be responsible for inspection and testing of backflow preventers owned by the customer. The customer shall employ a certified Backflow Assembly Tester to conduct the inspection and test within the time period specified in the testing notice set forth by the CCCP. The test report shall be completed and signed by the Backflow Assembly Tester, then countersigned and returned by the customer to the District, before the due date specified by the CCCP.

### **1.4 CUSTOMER COMPLAINT PROGRAM**

When routine customer complaints or questions are received by office or field staff regarding water quality, quantity or pressure, a work/service order is produced. If the customer's concern is an emergency situation, the field operators are notified by telephone or in person immediately. Complaints regarding billing or fees are directed to the Billing Department.

### **1.5 WATER QUALITY MONITORING**

The District routinely collects the required water quality samples from each of its systems, and throughout the distribution system as identified by the West Carroll Water District Sampling Plan. All samples are submitted to certified laboratories. Further details for analyses, sampling procedures, locations and schedules can be obtained in the WCWDSP.

## 1.6 SANITARY SURVEYS

Sanitary surveys of the water system are conducted by KDOW staff on a three year basis as specified in the DOW regulations. The last sanitary survey was conducted in September of 2018. No significant deficiencies were reported. A revision of the O&M manuals was requested by DOW staff to incorporate WCWD other policies and programs by reference into this document.

## 1.7 EMERGENCY RESPONSE PLANNING

Emergency response planning can be defined as the activities that prepare a utility to respond to an emergency situation. Emergencies can be small or large with respect to their effects on utility operation and service. The operation of the water system under emergency conditions is an important responsibility of District staff.

Many utilities cope with smaller scale or "routine" emergency situation frequently, perhaps weekly or daily. Larger scale or "disaster" emergency situations occur far less frequently, but many aspects or effects of a disaster manifest themselves in the same way as the routine emergencies. In many respects, a disaster can be considered the simultaneous occurrence of many smaller scale emergencies. If a utility is well prepared to handle the routine emergencies, it will be better prepared to handle disasters.

### 1.7.1 KEY COMPONENTS

There are a few key components of a successful response to an emergency including:

- **Capable Staff.** The District has fourteen experienced certified distribution operators including the Superintendent, who know all aspects of the system facilities and operations. In addition they have access to names and contact numbers of numerous suppliers and contractors, if needed.
- **Good routine Operations and Maintenance.** Keeping all of the facilities and equipment well maintained and in good operating condition not only helps ensure their continued functioning, but also their availability in case of an emergency.
- **Preparation.** Maintaining an adequate inventory of spare and repair parts; watching weather reports of possible adverse weather conditions such as high winds, cold weather, snow storms, etc.; and the entire staff discussing their implications.
- **Notification.** The SCADA system uses an auto dialer to notify various staff of an abnormal operational condition. Operators can also monitor system conditions via their cell phone and respond either remotely or in person. If another type of emergency occurs, such as a main break, the police department has the complete employee contact list for afterhours issues. The districts complaint/question handling process also serves as a method of notifying the District of possible abnormal conditions.
- **See West Carroll/Carrollton Utilities Emergency Response Plan for further and complete details and or assistance.**

### 1.7.2 VULNERABILITY ASSESSMENT AND RESPONSE PLAN

After September 11, 2001 the District conducted a Vulnerability Assessment of its facilities as required by the Public Health Security and Bioterrorism Preparedness Act of 2002 (Bioterrorism Act). Specific

findings and information from the Vulnerability Assessment are not included here, but are available for review as necessary and approved by KDOW.

An Emergency Response Plan was then developed that included findings of the assessment. That plan is also available for review at the WTP field office.

The District operators recently initiated discussions revisiting system vulnerability with the goal of modifying the Operations and Maintenance Manual and updating the Emergency Response Plan.

## **1.8 SAFETY**

All Water District employees are required to pass and maintain all safety courses including (but not limited to) flagging, forklift, CPR and first aid. As new equipment is purchased, employees must successfully learn how to operate the equipment safely per the owner's manual and dealer provided training. All equipment is to be maintained and operated in a safe manner. Safety training is completed monthly for all employees.

## **1.9 CUSTOMER NOTIFICATIONS**

West Carroll Water District corresponds with its customers on a regular basis on a number of water related topics including Consumer Confidence Reports, Water Use Efficiency information, general Cross Connection Control, and distribution system flushing schedules. These notifications may be included with the monthly water bill, the News Democrat newspaper articles or ads, and posting on Carrollton Utilities web page. Specific mailings to selected customers are done directly for such topics as backflow assembly testing reminders if applicable. If electronic notifications are necessary due to a health related concern or other water system emergencies, the District will provide press releases to radio and television stations in the Carrollton, Milton, Henry and Trimble area.

The Public Works administrative staff assists the Water Division with all customer notifications and the notices that are included with the bills are coordinated with the Finance Department-Utility Billing Division.

## **1.10 RECORDKEEPING & REPORTING**

The District Superintendent is responsible for maintaining operational records and routinely keeping the General Manager and WCWD board of commissioners informed about the activities of the District and if any problems have arisen or may arise. All staff are expected to keep maps and other system related records up-to-date.

The District as a whole has a records retention policy in accordance with federal regulations. At a minimum the District is required by KDOW regulations to maintain a number of records. See Kentucky Rural Water Recordkeeping package for further assistance and or details.

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9. State whether the water utility has assigned specific personnel the responsibility to detect and fix of water line leaks, and if so, state the names and job titles of such personnel and describe the functions and duties of each.

**Response:**

West Carroll has assigned Chris Rose, Plants Superintendent, to detect and fix leaks. Mr. Rose has a number of employees under his supervision that assist in this responsibility including maintenance worker, operators and meter readers.

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10. State whether leak detection is conducted on a daily basis, and if not, state the reasons why not.

**Response:**

Through its SCADA system, West Carroll is monitoring most areas of the system on a continuous basis.

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11. Provide the number of completed water line leak repairs by category, i.e., mains, service lines, etc. that were completed from September 1, 2018, to the date of the issuance of this Order.

**Response:** Please see attached.

West Carroll Water District  
Leak Report

<b>Date</b>	<b>Address</b>	<b>Leak Number</b>	<b>Type Line</b>	<b>Latitude</b>	<b>Longitude</b>
9/4/2018	982 Hwy 42	1836	Service	38.673336	-85.227698
9/5/2018	trailer park 36	1835	Main	38.70501	-85.232383
9/6/2018	Duncan WP Locust	1837	Main	38.690254	-85.280504
9/14/2018	Edwards HH	1838	Main	38.711632	-85.290824
9/21/2018	52 Kemper Lane	1839	Service	38.663658	-85.22556
10/8/2018	Bowne 36	1841	Service	38.693757	-85.221143
10/16/2018	Culls Ridge TP	1840	Main	38.683959	-85.280138
10/25/2018	389 Glaubers at 45	1843	Main	38.646776	-85.162957
10/30/2018	Locust DOT post	1842	Main	38.710804	-85.248079
11/1/2018	982 Hwy 42	1844	Service	38.673311	-85.227676
11/1/2018	Cole Gilgal	1845	Service	38.609989	-85.131863
12/18/2018	East Prong	1846	Service	38.699713	-85.259092
1/11/2019	1777 Hwy 36	1904	Main	38.703627	-85.231648
1/12/2019	2998 Gilgal Rd	1901	Service	38.592826	-85.155887
1/15/2019	Old Gial PRV up	1902	Main	38.613417	-85.134187
1/16/2019	Moundhill Booster	1903	Main	38.674039	-85.196622
2/5/2019	2500 Bells Ridge	1906	Main	38.625077	-85.274546
2/5/2019	39 Bridge St	1907	Service	38.680395	-85.191244
2/5/2019	791 Calender Rd	1908	Main	38.613685	-85.195051
2/6/2019	36/Notch Lick	1910	Main	38.701056	-85.22932
2/7/2019	620 Culls Ridge	1909	Service	38.664459	-85.28043
2/15/2019	39 Bridge St	1905	Service	38.680407	-85.191254

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12. Provide copies of each work order generated to investigate leaks reported by customers of the utility from September 1, 2018, to the date of the issuance of this Order.

**Response:**

Please see attached for a summary of the work orders generated to investigate leaks reports by customers. Please note that 44 of the 70 calls were due to leaks or high usage on the customer side of the meters.



Account	Type Description	Account Name	Service Address	Date Required	Comments
2402450.00 98	Work Order			9/6/18 12:00:00 PM	JAMIE CHECKED-LOOKS LIKE SERVICE LINE. WENT TO CHECK AND PRETTY GOOD LEAK. CALLED CHRIS WILL WORK ON 9/6/18
2402250.00 89	Work Order			9/17/18 12:00:00 PM	LEAK AT METER. METER NUT LOOSE ON OUTLET SIDE TIGHENED UP AND RECHECKED. R-21
2103650.00 96	Work Order			9/17/18 12:00:00 PM	WATER LEAK ON LEFT OF ROAD PAST RAILROAD TRACKS. PERSON DROVE BY AND SAW IT AND SAYS IT IS A BAD ONE.
2100240.00 93	WATER LEAK CHECK			9/17/18 12:00:00 PM	CUSTOMER THINKS USAGE IS TOO HIGH ██████████
2100240.00 93	WATER LEAK CHECK			9/17/18 12:00:00 PM	Leak hand not turning
2103670.00 98	WATER LEAK CHECK			9/18/18 12:00:00 PM	CUSTOMER CALLED SAYING THERE WAS A BAD LEAK IN THIS AREA AND WATER IS RUNNING ACROSS THE ROAD.
2103670.00 98	WATER LEAK CHECK			9/18/18 12:00:00 PM	No leak we have checked water in this area multiple times. Monitor meter stops and there is no chlorine in the water they are talking about.
2103655.00 98	Work Order			9/19/18 12:00:00 PM	CUSTOMER HAD A BAD LEAK NEXT TO SIDE OF HOUSE. SHE SAID THERE IS AN RED PAINTED ARROW ON SIDE OF HOUSE POINTING TOWARD THE AREA WHERE THE LEAK WAS REPAIRED
2103655.00 98	Work Order			9/19/18 12:00:00 PM	Leak hand not turning tried taking picture but service order would not complete with it attached for some reason
2100170.00 98	WATER LEAK CHECK			9/20/18 12:00:00 PM	CALL WITH ANSWERS. ██████████
2100170.00 98	WATER LEAK CHECK			9/20/18 12:00:00 PM	R-6356 NOT TURNING
501137.00 96	Work Order			9/21/18 12:00:00 PM	LEAK FIX
501137.00 96	Work Order			9/21/18 12:00:00 PM	Replaced setter and meter. Setter was leaking on customer side. After we dug out vault. We do not know if it was leaking before hand because leak indicator was not turning We replaced setter and in stalled a new meter. New Meter #79419671. Reading-3397
2101180.00 98	WATER LEAK CHECK			9/21/18 12:00:00 PM	Reading-3110 Leak hand turning slowly
2101180.00 98	WATER LEAK CHECK			9/21/18 12:00:00 PM	STILL HAS HIGH BILL AFTER HE THOUGHT HIS LEAK WAS REPAIRED GET A READING AND CHECK LEAK HAND PLEASE CALL HIM TO DISCUSS IF YOU FIND ANYTHING ██████████
500380.00 96	WATER LEAK CHECK			9/24/18 12:00:00 PM	LEAK BEHIND BUILDING TOWARD CARLISLE RD

500380.00 96	WATER LEAK CHECK	[REDACTED]	9/24/18 12:00:00 PM	They have Meter off in vault
2100065.00 98	Work Order	[REDACTED]	10/1/18 12:00:00 PM	Area is dry as of 10/2/18
2100065.00 98	Work Order	[REDACTED]	10/1/18 12:00:00 PM	CHECK WATER METER, CUSTOMER SAID THAT WATER WAS AROUND METER. DIDN'T KNOW IF IT WAS A LEAK OR FROM THE RAIN.
500721.00 96	Work Order	[REDACTED]	10/8/18 12:00:00 PM	Found about half gallon a minute leak on small main , will fix Tuesday morning
500721.00 96	Work Order	[REDACTED]	10/8/18 12:00:00 PM	LEAK UNDER HER DRIVE AND RUNNING OUT OF HER RETAINING WALL. [REDACTED]
2402325.00 96	WATER LEAK CHECK	[REDACTED]	10/10/18 12:00:00 PM	LEAK CHECK AND REREAD THEY REPAIRED LEAK
2402325.00 96	WATER LEAK CHECK	[REDACTED]	10/10/18 12:00:00 PM	Reading-533 Leak and not turning
2400980.00 98	Work Order	[REDACTED]	10/10/18 12:00:00 PM	LOW WATER PRESSURE
2400980.00 98	Work Order	[REDACTED]	10/10/18 12:00:00 PM	Old meter reading-468 Changed meter New Meter #37853694
2402040.00 98	Work Order	[REDACTED]	10/15/18 12:00:00 PM	VERIFY THAT LEAK HAND IS NOT TURNING.
2101071.00 67	Work Order	[REDACTED]	10/16/18 12:00:00 PM	MONITOR WATER METER DAILY TO SEE IF ANYTHING IS GOING ON.
500510.00 84	Work Order	[REDACTED]	10/16/18 12:00:00 PM	LANDLORD [REDACTED] CALLED - WOULD LIKE WATER LINE MARKED SO SHE COULD SHOW TENANT WHERE LINES ARE SO THAT THEY WILL QUIT PARKING ON THEM? SHE SAID THAT THEY KEEP PARKING ON THE METER AND SHE IS AFRAID THEY ARE GOING TO DAMAGE IT.
500510.00 84	Work Order	[REDACTED]	10/16/18 12:00:00 PM	The spot where they are parking is no a water line or meter vault. It is a sewer clean out vault. Will need to be addressed by the sewer crew.
2300360.00 98	WATER LEAK CHECK	[REDACTED]	10/17/18 12:00:00 PM	[REDACTED] LEAK CHECK VERY HIGH USAGE
2300360.00 98	WATER LEAK CHECK	[REDACTED]	10/17/18 12:00:00 PM	Reading-2060 Leak hand not turning no evidence of leak found. We re read this last month customer had high usage but seems to have returned to normal.
500721.00 96	Work Order	[REDACTED]	10/17/18 12:00:00 PM	[REDACTED] STATED JUST NOW THAT HER DRIVEWAY IS NOW BUBBLING UP AND IS AFRAID THAT THE INSURANCE CLAIM SHE HAS WITH US IS JUST GOING TO KEEP GROWING. PLEASE CHECK ON THIS.
500721.00 96	Work Order	[REDACTED]	10/17/18 12:00:00 PM	Repaired service line leak between flower bed and driveway. Lots of roots from planted plants rubbing line.

501137.00 96	Work Order		2/15/19 12:00:00 PM	WANTING THE AREA REPAIRED FROM LEAK FIX BEFORE IT GETS TOO COLD TO GROW GRASS. I TRIED TO EXPLAIN TO HIM THAT WE LIKE TO WAIT FOR THE AREA TO SETTLE BEFORE WE COME BACK FOR DIRT, GRASS, AND STRAW. HE STILL WANTS IT DONE
500011.00 98	Work Order		9/1/18 12:00:00 PM	FOUND LEAK
2400485.00 96	Work Order		10/18/18 12:00:00 PM	CUSTOMER DIG IN MISMAREKD BY 4 FT CUT OUT AND REPLACED 36" OF 3" PCV MAIN. 2-3" DRIVE ON COUPLINGS, 12 MAN HRS, 4 MINI EXCAVATOR HRS
2400485.00 96	Work Order		10/18/18 12:00:00 PM	LINE BREAK BOIL WATER
2103340.00 97	Work Order		10/18/18 12:00:00 PM	CUSTOMER SAID THAT THERE IS A LEAK AND ITS FILLING HER VAULT, WHICH IT IS RUNNING DOWN HER DRIVEWAY. SHE SAID COLD WEATHER IS COMING, AND IT'S GOING TO TURN INTO ICE. CALL WITH FINDINGS- 502-767-1463
2402220.00 95	Work Order		11/1/18 12:00:00 PM	JAMIE WENT OUT AND VALVE IS BAD. SETTER WOTN SHUT OFF SO HE PULLED THE METER AND INSTALLED A PLUG. R-9832
2400670.00 91	WATER LEAK CHECK		11/6/18 12:00:00 PM	METER NEXT TO STOP SIGN ? WATER LEAK CALLED IN BY CUSTOMER
2400670.00 91	WATER LEAK CHECK		11/6/18 12:00:00 PM	No evidence of leak water is standing in places but it rained a lot will check everything when it dries up
2300281.00 98	Work Order		11/30/18 10:15:00 AM	TURNED THE METER OFF DUE TO FINDING A LEAK. IS ON HIS WAY DOWN TO TRY AND FIND THE LEAK. HE WOULD LIKE THE METER TURNED BACK ON BY 10:15 IF POSSIBLE.
2400260.00 98	Work Order		12/11/18 12:00:00 PM	? LEAK BETWEEN DRIVEWAY AND ROAD LOOKS LIKE IT HAS GOTTEN WORSE RUNNING DOWN THE ROAD
2402322.00 98	WATER LEAK CHECK		12/17/18 12:00:00 PM	CALLED LEFT VM 12/18/18 HE CALLED BACK AND I SPOKE WITH HIM AD 12/18/18
2402322.00 98	WATER LEAK CHECK		12/17/18 12:00:00 PM	Leak hand not turning
2402322.00 98	WATER LEAK CHECK		12/17/18 12:00:00 PM	REREAD LEAK CHECK
2102510.00 98	WATER LEAK CHECK		12/18/18 12:00:00 PM	CALLED 12/18/18
2102510.00 98	WATER LEAK CHECK		12/18/18 12:00:00 PM	CUSTOMER SAYS THAT HER BILL IS HIGH. AND SHE KNOWS THAT SHE DID NOT USE THE STATED AMOUNT OF WATER ON HER BILL. CHECK FOR A LEAK, AND ALSO RE-READ WATER METER.
2102510.00 98	WATER LEAK CHECK		12/18/18 12:00:00 PM	Leak hand not turning no sign of leak
2402370.00 97	WATER LEAK CHECK		12/18/18 12:00:00 PM	1240. Customer has a leak somewhere Met with her and told her

2402370.00 97	WATER LEAK CHECK		12/18/18 12:00:00 PM	CUSTOMER IS AFRAID SHE HAS A LEAK. SHE IS WATCHING THE METER AND SAYS THE RED HAND IS MOVING BUT THE DIGITAL
2102730.00 97	WATER LEAK CHECK		12/18/18 12:00:00 PM	3170. Not turning
2102730.00 97	WATER LEAK CHECK		12/18/18 12:00:00 PM	PLEASE CHECKJ WATER METER. CUSTOMER SAYS THAT USEAGE IS HIGH.
2100235.00 97	WATER LEAK CHECK		12/18/18 12:00:00 PM	
2100235.00 97	WATER LEAK CHECK		12/18/18 12:00:00 PM	395. Leak hand not turning No leak found
500625.00 90	WATER LEAK CHECK		12/20/18 12:00:00 PM	947. Looks like a leak on service line, will call in locate
500625.00 90	WATER LEAK CHECK		12/20/18 12:00:00 PM	CUSTOMER THINKS THERE IS A PUDDLE FORMING AROUND THE METER AND SUSPECTS A LEAK.
2401337.00 98	WATER LEAK CHECK		12/20/18 12:00:00 PM	8193. Leak hand slowly turning
2401337.00 98	WATER LEAK CHECK		12/20/18 12:00:00 PM	IVE DONE ANOTHER SERVICE ORDER REQUESTING READING FROM CHANGED OUT METER. IT THINK IT MAY BE THE ONE READ INCORRECTLY. AD 12/21/18
2401337.00 98	WATER LEAK CHECK		12/20/18 12:00:00 PM	WATER LEAK CHECK AND REREAD METER WAS CHANGED OUT IN NOVEMBER [REDACTED]
2402215.00 93	Work Order		12/20/18 12:00:00 PM	LEAK
2103408.00 98	Work Order		1/11/19 12:00:00 PM	Reading-9998 Leak Hand turning very slowly
500445.00 98	Work Order		1/16/19 12:00:00 PM	Fixed leak on setter on customer side. Where faulty connection had been used when setter was replaced.
500445.00 98	Work Order		1/16/19 12:00:00 PM	when work was done with the new meter setting, the pipe joint came apart. and it is now leaking. customer has the hole dug up.
2102850.00 97	WATER LEAK CHECK		2/4/19 12:00:00 PM	LEAK WAS ON THEIR SIFE AND DID NOT WANT WATER TURNED OFF.
500154.00 87	Work Order		2/11/19 12:00:00 PM	Gate is unlocked, welcome to go inside lot to turn around.
500625.00 90	Work Order		2/15/19 12:00:00 PM	Customer says meter is busted out and water is coming out of the bottom of meter when 5 FT FROM METER FOUND BY CU DRIVING BY 6 MAN HRS 2 MIN EXCAVATOR HRS 1-CLAMP

500625.00 90	Work Order		2/15/19 12:00:00 PM	6 FT FROM METER FOUND BY VALVING 6 MAN HRS, 3 MINI EXCAVATOR HRS, 2-1" CLAMPS
2300380.00 95	WATER LEAK CHECK		2/19/19 12:00:00 PM	CUSTOMER HAS LEAK AT THE METER. [REDACTED]
2300380.00 95	WATER LEAK CHECK		2/19/19 12:00:00 PM	Leak on customer side Reading 2300
2300380.00 95	WATER LEAK CHECK		2/20/19 12:00:00 PM	Leak was fixed leak hand not turning 2303
2300380.00 95	WATER LEAK CHECK		2/20/19 12:00:00 PM	PLEASE CHECK AND SEE IF LEAK HADN IS TURNING OR STOPPED. CALLE BEFORE CHECKING BECAUSE THEY ARE HOME [REDACTED]
2301015.00 95	Work Order		2/22/19 12:00:00 PM	Customer has leak that has gotten worse. That's why there pressure has dropped
2102210.00 95	WATER LEAK CHECK		3/1/19 12:00:00 PM	[REDACTED]
2102210.00 95	WATER LEAK CHECK		3/1/19 12:00:00 PM	[REDACTED] CUSTOMER SAYS WATER BILL HAS BEEN HIGH, AND WATER HAS BEEN STANDING BY HER
2100065.00 98	WATER LEAK CHECK		3/14/19 12:00:00 PM	No leak found
2100065.00 98	WATER LEAK CHECK		3/14/19 12:00:00 PM	THEY HAD SOMONE COME OUT YESTERDAY TO FIX THEIR ROAD, AND HE NOTICED THAT THERE WAS STANDING WATER IN CERTAIN SPOTS, AND CUSTOMER SAID THAT THE WATER IS WHERE THE MAIN WATER LINE IS, AND NOT THEIR SERVICE LINE.
2100040.00 98	WATER LEAK CHECK		3/14/19 12:00:00 PM	4024 not turning
2100040.00 98	WATER LEAK CHECK		3/14/19 12:00:00 PM	PLEASE DOUBLE CHECK READING AND CHECK FOR LEAK. [REDACTED]
2100235.00 97	WATER LEAK CHECK		3/14/19 12:00:00 PM	[REDACTED] LEAK CHECK THE USAGE IS INCREASING MONTHLY
2101190.00 97	Work Order		3/19/19 12:00:00 PM	REPORTED LAST NIGHT TO JAMIE THAT WATER PRESSURE HAS BEEN GETTING WORSE ALL WEEK. JAMIE SAID METER ISN'T TURNING. WE NEED TO CHECK.
2103340.00 97	Work Order		3/19/19 12:00:00 PM	[REDACTED] CALL [REDACTED] WHEN THIS IS GOING TO BE SCHEDULED
2101090.00 79	Work Order		3/19/19 12:00:00 PM	4" PVC MAIN LINE REPAIR SPLIT IN PIPE
2102386.00 93	Work Order		3/26/19 12:00:00 PM	[REDACTED] trying to fix his water leak, however he is saying that the meter is still on. and he can not get the

2102389.00 97	Work Order		3/26/19 12:00:00 PM	CHECK IF LEAK IS FIXED, LOOK TO SEE IF THERE HAS BEEN ANYPLACE WHERE THE GROUND WAS DUG UP. ALSO CHECK THE LEAK HAND. ** CUSTOMER CAME IN AND SAID HE FIXED THE LEAK, BUT COULD NOT BRING IN PAPERS OF
2103330.00 97	Work Order		3/28/19 12:00:00 PM	READER FOUND A LEAK AT THE METER ON OUR SIDE.
2103330.00 97	Work Order		3/28/19 12:00:00 PM	Will have to replace regulator. Will order one and replace

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13. Does the utility have a policy or operating procedure in place that addresses the process and the length of time it should take for the utility to fix a known or reported leaking water line? If yes, provide a copy of the policy or operating procedure.

**Response:**

The process and timeliness of fixing a leak once the location is discovered depends on the nature and severity of the leak. Leaks that don't require excavation such as a broken water meter are repaired immediately. The District has a twenty-four hour on call service in which the service technician typically responds within the hour. Leaks that require excavation, are graded as to whether they are an emergency or non-emergency. Leaks that are non-emergency require a forty-eight hour call to have all utilities located and marked per Kentucky's 811 law. These leaks are scheduled for repair after the forty-eight hour window has elapsed. Leaks that are categorized as an emergency are those that are causing or are likely to cause a drop in pressure in the distribution system or that threaten infrastructure in some other way. Emergency leaks are repaired immediately.

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14. Provide a general asset ledger listing identifying all new equipment purchased by the utility from January 1, 2018, to the date of the issuance of this Order used in water loss reduction efforts (e.g., listening devices, flow meters, metal detectors, hand tools, etc.).

**Response:** Please see attached.



**West Carrol Water District**  
Equipment Purchased : 2018- Current

<b>Manufacturer</b>	<b>Equipment Description</b>
Vermeer	D20x22 S3 Horizontal Directional Drill
Bobcat	T590 Compact track loader
Bobcat	72" Brushcat attachment
Waterpoint	Line noise correlators
Waterpoint	Acoustic pipe listening device
Milwaukee	18 volt cordless sawzall
Milwaukee	18 volt cordless angle grinder
Ford	4wd extended cab Ranger
Romac	Tapmate hot tapping machine 2" to 12"
Neptune	Radio Read 3/4 meters qty 5
Neptune	1" T10 meters qty 5
Neptune	3/4 T10 meter qty 50

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15. Provide the type of training and the total amount of time the utility's personnel have received for leak detection and repairs since January 1, 2015, to the date of the issuance of this Order. List the personnel and dates of training.


**Response:** Please see attached.

<b>Chris Rose</b>		
<b>Agency ID:</b>	29442	<b>Regulatory Status:</b> Active
<b>AI Type:</b>	LICENSE-Person	<b>Physical Address</b>
<b>County:</b>	Henry	530 Gilgal Rd Turners Station, KY 40075

## License(s)

License Type	License ID	License Status	License Expiration Date	
DW Distribution III	26304	Active	06/30/2020	<u>Can not pay.</u>
DW Treatment IVA	31246	Active	06/30/2020	<u>Can not pay.</u>
WW Collection III	27614	Active	06/30/2019	<u>Can not pay.</u>
WW Treatment III	7298	Active	06/30/2019	<u>Can not pay.</u>
DW Treatment IIIA	19857	Upgraded	06/30/2018	<u>Can not pay.</u>
WW Collection II	19883	Upgraded	06/30/2015	<u>Can not pay.</u>
DW Distribution II	20299	Upgraded	06/30/2014	<u>Can not pay.</u>

## Training History: Arranged by License ID (descending)

	License Type	License ID	License Status	License Expirati
	WW Treatment III	7298	Active	06/30/2019

## Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
19348	Continuing Education for Operators - Carrollton	Wastewater / Drinking Water	01/29/2019	01/29/2019
19287	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/14/2018	11/14/2018
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/2018
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/2016
15408	Wastewater Treatment Training	Wastewater / Collection	01/26/2016	01/26/2016
15355	Basic Mathematics for water and wastewater operators	Wastewater / Collection	01/07/2016	01/07/2016
13595	Wastewater Collection Certification School	Wastewater / Collection	03/17/2015	03/19/2015
13794	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	01/28/2015	01/28/2015
13163	Corrosion Control # 6803	Wastewater / Drinking Water	06/04/2014	06/06/2014
13156	ERS: Generators (235)	Wastewater / Drinking Water	06/04/2014	06/04/2014
10269	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	03/07/2012	03/07/2012
9318	2011 KWWOA Laboratory Analyst Training	Wastewater / Drinking Water	03/28/2011	03/30/2011
8843	Pumper & Cleaner Environmental Expo 2011	Wastewater / Collection	03/02/2011	03/05/2011
9123	ABC Job Task Analysis	Wastewater / Drinking Water	12/21/2010	12/29/2010
8288	(6785) BGCS: Effective Supervisory Communication	Wastewater / Drinking Water	06/23/2010	06/23/2010
8287	(6785) BFCS: Leadership/Coaching	Wastewater / Drinking Water	06/23/2010	06/23/2010
6783	Becoming A First Class Supervisor - Complete Course	Wastewater / Drinking Water	06/23/2010	06/23/2010
7513	Collection Cert. School	Wastewater / Collection	01/11/2010	01/12/2010
4976	Wastewater Lab Analyst Certification Program	Wastewater Process Control	03/26/2007	03/28/2007
4977	Water & Wastewater Lab Analyst Certification Program	Wastewater Non Process Control	03/26/2007	03/28/2007
3808	Sludge & Solids, Production/Disposal	Wastewater Process Control	01/23/2007	01/24/2007
3744	WW II, III, IV Cert Prep Class	Wastewater Process Control	01/24/2006	01/26/2006
2327	Wastewater Process Control, Regulations and Lab Procedures	Wastewater Process Control	07/14/2004	07/15/2004
2326	Wastewater Process Control, Regulations and Lab Procedures	Wastewater Non Process Control	07/14/2004	07/15/2004
2315	Pumps: Troubleshooting, Safety, Etc.	Wastewater Non Process/Drinking Water	05/25/2004	05/25/2004
1869	Disinfection Systems and Methods	Wastewater Proc Control/Drinking Water	11/07/2003	11/07/2003
1644	2003 Plant Maintenance Seminar	Wastewater Proc Control/Drinking Water	04/30/2003	04/30/2003
389	LANDFARM OPERATOR CERT	Wastewater Process Control	06/18/2002	06/20/2002
1179	MUNICIPAL SAFETY/HEALTH CONF	Wastewater Non Process/Drinking Water	02/27/2002	03/01/2002
125	CLASS II-IV WW CERTIFICATION	Wastewater Process Control	03/26/2001	03/29/2001
210	WASTEWATER TRAINING	Wastewater Process Control	02/07/2001	02/08/2001
1031	CKWWOA/WKWWOA TRAINING	Wastewater Proc Control/Drinking Water	09/06/2000	09/07/2000



DW Treatment IIIA

19857

Upgraded

06/30/2018

**Training Event Details: Arranged by Event End Date (newest to oldest)**

Event ID	Event Name	Category	Event Start Date	Event End Date
17527	Drinking Water Surface Water Treatment Certification School	Drinking Water	04/10/2018	04/12/201
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/201
15407	Water Distribution Operator Training Review	Drinking Water	01/14/2016	01/14/201
15325	Basic Mathematics for Water and Wastewater Operators	Drinking Water	01/07/2016	01/07/201
14253	Control Valve Application and Troubleshooting	Drinking Water	03/22/2015	03/23/201
13794	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	01/28/2015	01/28/201
13163	Corrosion Control # 6803	Wastewater / Drinking Water	06/04/2014	06/06/201
13164	WTT: Ion Exchange	Drinking Water	06/04/2014	06/05/201
13156	ERS: Generators (235)	Wastewater / Drinking Water	06/04/2014	06/04/201
13157	Disinfection By-Products Summary Rule (82)	Drinking Water	06/04/2014	06/04/201
11177	Distribution Cert School	Drinking Water	12/03/2013	12/05/201
10269	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	03/07/2012	03/07/201
9318	2011 KWWOA Laboratary Analyst Training	Wastewater / Drinking Water	03/28/2011	03/30/201
9123	ABC Job Task Analysis	Wastewater / Drinking Water	12/21/2010	12/29/201
6783	Becoming A First Class Supervisor - Complete Course	Wastewater / Drinking Water	06/23/2010	06/23/201
8287	(6785) BFCS: Leadership/Coaching	Wastewater / Drinking Water	06/23/2010	06/23/201
8288	(6785) BGCS: Effective Supervisory Communication	Wastewater / Drinking Water	06/23/2010	06/23/201
7494	Distribution Cert. School	Drinking Water	04/12/2010	04/14/201



WW Collection II

19883

Upgraded

06/30/2015

**Training Event Details: Arranged by Event End Date (newest to oldest)**

Event ID	Event Name	Category	Event Start Date	Event End Date
13595	Wastewater Collection Certification School	Wastewater / Collection	03/17/2015	03/19/201
13794	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	01/28/2015	01/28/201
13163	Corrosion Control # 6803	Wastewater / Drinking Water	06/04/2014	06/06/201
13156	ERS: Generators (235)	Wastewater / Drinking Water	06/04/2014	06/04/201
10269	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	03/07/2012	03/07/201
9318	2011 KWWOA Laboratary Analyst Training	Wastewater / Drinking Water	03/28/2011	03/30/201
8843	Pumper & Cleaner Environmental Expo 2011	Wastewater / Collection	03/02/2011	03/05/201
9123	ABC Job Task Analysis	Wastewater / Drinking Water	12/21/2010	12/29/201
8288	(6785) BGCS: Effective Supervisory Communication	Wastewater / Drinking Water	06/23/2010	06/23/201
8287	(6785) BFCS: Leadership/Coaching	Wastewater / Drinking Water	06/23/2010	06/23/201
6783	Becoming A First Class Supervisor - Complete Course	Wastewater / Drinking Water	06/23/2010	06/23/201
7513	Collection Cert. School	Wastewater / Collection	01/11/2010	01/12/201



DW Distribution II

20299

Upgraded

06/30/2014

**Training Event Details: Arranged by Event End Date (newest to oldest)**

Event ID	Event Name	Category	Event Start Date	Event End Date
11177	Distribution Cert School	Drinking Water	12/03/2013	12/05/201
10269	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	03/07/2012	03/07/201
9318	2011 KWWOA Laboratary Analyst Training	Wastewater / Drinking Water	03/28/2011	03/30/201
9123	ABC Job Task Analysis	Wastewater / Drinking Water	12/21/2010	12/29/201

**Training Event Details: Arranged by Event End Date (newest to oldest)**

Event ID	Event Name	Category	Event Start Date	Event End Date
19348	Continuing Education for Operators - Carrollton	Wastewater / Drinking Water	01/29/2019	01/29/2019
19287	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/14/2018	11/14/2018
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/2018
17527	Drinking Water Surface Water Treatment Certification School	Drinking Water	04/10/2018	04/12/2018
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/2016
15407	Water Distribution Operator Training Review	Drinking Water	01/14/2016	01/14/2016
15325	Basic Mathematics for Water and Wastewater Operators	Drinking Water	01/07/2016	01/07/2016
14253	Control Valve Application and Troubleshooting	Drinking Water	03/22/2015	03/23/2015
13794	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	01/28/2015	01/28/2015
13163	Corrosion Control # 6803	Wastewater / Drinking Water	06/04/2014	06/06/2014
13164	WTT: Ion Exchange	Drinking Water	06/04/2014	06/05/2014
13156	ERS: Generators (235)	Wastewater / Drinking Water	06/04/2014	06/04/2014
13157	Disinfection By-Products Summary Rule (82)	Drinking Water	06/04/2014	06/04/2014
11177	Distribution Cert School	Drinking Water	12/03/2013	12/05/2013



WW Collection III

27614

Active

06/30/2019

**Training Event Details: Arranged by Event End Date (newest to oldest)**

Event ID	Event Name	Category	Event Start Date	Event End Date
19348	Continuing Education for Operators - Carrollton	Wastewater / Drinking Water	01/29/2019	01/29/2019
19287	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/14/2018	11/14/2018
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/2018
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/2016
15408	Wastewater Treatment Training	Wastewater / Collection	01/26/2016	01/26/2016
15355	Basic Mathematics for water and wastewater operators	Wastewater / Collection	01/07/2016	01/07/2016
13595	Wastewater Collection Certification School	Wastewater / Collection	03/17/2015	03/19/2015
13794	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	01/28/2015	01/28/2015
13163	Corrosion Control # 6803	Wastewater / Drinking Water	06/04/2014	06/06/2014
13156	ERS: Generators (235)	Wastewater / Drinking Water	06/04/2014	06/04/2014



DW Treatment IVA

31246

Active

06/30/2020

**Training Event Details: Arranged by Event End Date (newest to oldest)**

Event ID	Event Name	Category	Event Start Date	Event End Date
19348	Continuing Education for Operators - Carrollton	Wastewater / Drinking Water	01/29/2019	01/29/2019
19287	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/14/2018	11/14/2018
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/2018

<b>Jess L Maiden</b>		
<b>Agency ID:</b>	138077	<b>Regulatory Status:</b> Active
<b>AI Type:</b>	LICENSE-Person	<b>Physical Address</b>
<b>County:</b>	Carroll	99 Maiden Ln Carrollton, KY 41008

License(s)

License Type	License ID	License Status	License Expiration Date	
DW Distribution II	59072	Active	06/30/2020	<u>Can not pay.</u>
DW Distribution I	31771	Upgraded	06/30/2020	<u>Can not pay.</u>

Training History: Arranged by License ID (descending)

License Type	License ID	License Status	License Expiration
DW Distribution I	31771	Upgraded	06/30/2020

Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
19348	Continuing Education for Operators - Carrollton	Wastewater / Drinking Water	01/29/2019	01/29/2019

DW Distribution II	59072	Active	06/30/2020
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<b>Robert J Noble</b>		
<b>Agency ID:</b>	26891	<b>Regulatory Status:</b> Active
<b>AI Type:</b>	LICENSE-Person	<b>Physical Address</b>
<b>County:</b>	Carroll	4145 Whites Run Rd Carrollton, KY 41008

License(s)

License Type	License ID	License Status	License Expiration Date	
DW Distribution III	26305	Active	06/30/2020	<u>Can not pay.</u>
DW Treatment IIA	31249	Active	06/30/2020	<u>Can not pay.</u>
WW Collection III	27615	Active	06/30/2019	<u>Add to shopping cart</u>
WW Treatment III	12584	Active	06/30/2019	<u>Add to shopping cart</u>
DW Treatment IAD	19858	Upgraded	06/30/2018	<u>Can not pay.</u>
WW Collection II	21299	Upgraded	06/30/2015	<u>Can not pay.</u>
DW Distribution II	20303	Upgraded	06/30/2014	<u>Can not pay.</u>
WW Collection I	19882	Terminated	06/30/2013	<u>Can not pay.</u>
WW Treatment II	5915	Upgraded	06/30/2005	<u>Can not pay.</u>
Landfarm Operator	12361	Expired	12/31/2007	<u>Can not pay.</u>

Training History: Arranged by License ID (descending)

License Type	License ID	License Status	License Expiration Date
WW Treatment II	5915	Upgraded	06/30/2005

Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
2327	Wastewater Process Control, Regulations and Lab Procedures	Wastewater Process Control	07/14/2004	07/15/2004





WW Treatment III

12584

Active

06/30/2019

## Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
19348	Continuing Education for Operators - Carrollton	Wastewater / Drinking Water	01/29/2019	01/29/201
19287	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/14/2018	11/14/201
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/201
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/201
15408	Wastewater Treatment Training	Wastewater / Collection	01/26/2016	01/26/201
15355	Basic Mathematics for water and wastewater operators	Wastewater / Collection	01/07/2016	01/07/201
13595	Wastewater Collection Certification School	Wastewater / Collection	03/17/2015	03/19/201
13794	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	01/28/2015	01/28/201
13153	ERS: Generators (235)	Wastewater / Drinking Water	06/04/2014	06/04/201
10269	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	03/07/2012	03/07/201
9129	Valves & Operator Forum	Wastewater / Drinking Water	06/14/2011	06/15/201
8809	Wastewater Treatment Certification School	Wastewater / Collection	03/28/2011	03/30/201
7513	Collection Cert. School	Wastewater / Collection	01/11/2010	01/12/201
4976	Wastewater Lab Analyst Certification Program	Wastewater Process Control	03/26/2007	03/28/200
4977	Water & Wastewater Lab Analyst Certification Program	Wastewater Non Process Control	03/26/2007	03/28/200
3808	Sludge & Solids, Production/Disposal	Wastewater Process Control	01/23/2007	01/24/200
3744	WW II, III, IV Cert Prep Class	Wastewater Process Control	01/24/2006	01/26/200
2326	Wastewater Process Control, Regulations and Lab Procedures	Wastewater Non Process Control	07/14/2004	07/15/200
2327	Wastewater Process Control, Regulations and Lab Procedures	Wastewater Process Control	07/14/2004	07/15/200
1805	Wastewater Class I - IV Certification School/Exam Date	Wastewater Process Control	07/29/2003	08/01/200



DW Treatment IAD

19858

Upgraded

06/30/2018

## Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
17527	Drinking Water Surface Water Treatment Certification School	Drinking Water	04/10/2018	04/12/201
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/201
15407	Water Distribution Operator Training Review	Drinking Water	01/14/2016	01/14/201
15325	Basic Mathematics for Water and Wastewater Operators	Drinking Water	01/07/2016	01/07/201
14253	Control Valve Application and Troubleshooting	Drinking Water	03/22/2015	03/23/201
13794	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	01/28/2015	01/28/201
13165	WTT: Ion Exchange	Drinking Water	06/04/2014	06/05/201
13167	Water Journey - Part 1 Hidden Rivers # 6820	Drinking Water	06/04/2014	06/05/201
13153	ERS: Generators (235)	Wastewater / Drinking Water	06/04/2014	06/04/201
13154	WTT: Filtration	Drinking Water	06/04/2014	06/04/201
11177	Distribution Cert School	Drinking Water	12/03/2013	12/05/201
10269	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	03/07/2012	03/07/201
9129	Valves & Operator Forum	Wastewater / Drinking Water	06/14/2011	06/15/201
7494	Distribution Cert. School	Drinking Water	04/12/2010	04/14/201



WW Collection I

19882

Terminated

06/30/2013

 DW Distribution II | 20303 | Upgraded | 06/30/2014

### Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
11177	Distribution Cert School	Drinking Water	12/03/2013	12/05/201
10269	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	03/07/2012	03/07/201
9129	Valves & Operator Forum	Wastewater / Drinking Water	06/14/2011	06/15/201

 WW Collection II | 21299 | Upgraded | 06/30/2015

### Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
13595	Wastewater Collection Certification School	Wastewater / Collection	03/17/2015	03/19/201
13794	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	01/28/2015	01/28/201
13153	ERS: Generators (235)	Wastewater / Drinking Water	06/04/2014	06/04/201
10269	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	03/07/2012	03/07/201
9129	Valves & Operator Forum	Wastewater / Drinking Water	06/14/2011	06/15/201
8809	Wastewater Treatment Certification School	Wastewater / Collection	03/28/2011	03/30/201

 DW Distribution III | 26305 | Active | 06/30/2020

### Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
19348	Continuing Education for Operators - Carrollton	Wastewater / Drinking Water	01/29/2019	01/29/201
19287	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/14/2018	11/14/201
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/201
17527	Drinking Water Surface Water Treatment Certification School	Drinking Water	04/10/2018	04/12/201
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/201
15407	Water Distribution Operator Training Review	Drinking Water	01/14/2016	01/14/201
15325	Basic Mathematics for Water and Wastewater Operators	Drinking Water	01/07/2016	01/07/201
14253	Control Valve Application and Troubleshooting	Drinking Water	03/22/2015	03/23/201
13794	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	01/28/2015	01/28/201
13165	WTT: Ion Exchange	Drinking Water	06/04/2014	06/05/201
13167	Water Journey - Part 1 Hidden Rivers # 6820	Drinking Water	06/04/2014	06/05/201
13153	ERS: Generators (235)	Wastewater / Drinking Water	06/04/2014	06/04/201
13154	WTT: Filtration	Drinking Water	06/04/2014	06/04/201
11177	Distribution Cert School	Drinking Water	12/03/2013	12/05/201

 WW Collection III | 27615 | Active | 06/30/2019

### Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
19348	Continuing Education for Operators - Carrollton	Wastewater / Drinking Water	01/29/2019	01/29/201
19287	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/14/2018	11/14/201
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/201
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/201
15408	Wastewater Treatment Training	Wastewater / Collection	01/26/2016	01/26/201

**Training Event Details: Arranged by Event End Date (newest to oldest)**

Event ID	Event Name	Category	Event Start Date	Event End Date
19348	Continuing Education for Operators - Carrollton	Wastewater / Drinking Water	01/29/2019	01/29/201
19287	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/14/2018	11/14/201
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/201

<b>Franklin W Thieman II</b>		
<b>Agency ID:</b>	96787	<b>Regulatory Status:</b> Active
<b>AI Type:</b>	LICENSE-Person	<b>Physical Address</b>
<b>County:</b>	Carroll	10 N Pointe Rd Carrollton, KY 41008

## License(s)

License Type	License ID	License Status	License Expiration Date	
DW Treatment IVA	26018	Active	06/30/2020	<u>Can not pay</u>
DW Distribution III	26618	Active	06/30/2020	<u>Can not pay</u>
DW Distribution II	20252	Upgraded	06/30/2016	<u>Can not pay</u>
DW Treatment IIIA	19184	Upgraded	06/30/2014	<u>Can not pay</u>
DW Treatment IAD	17009	Terminated	06/30/2010	<u>Can not pay</u>
DW Treatment IIA	17998	Upgraded	06/30/2010	<u>Can not pay</u>

## Training History: Arranged by License ID (descending)

License Type	License ID	License Status	License Expiration Date
DW Treatment IAD	17009	Terminated	06/30/2010

## Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
7494	Distribution Cert. School	Drinking Water	04/12/2010	04/14/2010
6300	Surface Water Treatment Cert. School	Drinking Water	08/04/2009	08/06/2009
5400	Surface Water Certification School	Drinking Water	09/22/2008	09/24/2008
5884	(5704) Recordkeeping/Regulations/CPR	Drinking Water	03/13/2008	03/13/2008
3711	Stage 2 and LT2 Trainin	Drinking Water	08/15/2007	08/15/2007
4518	Certification Prep Class	Drinking Water	07/23/2007	07/26/2007

DW Treatment IIA	17998	Upgraded	06/30/2010
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## Training Event Details: Arranged by Event End Date (newest to oldest)

## Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
10917	Hydraulic Control Valves - Introduction & Troubleshooting	Wastewater / Drinking Water	08/23/2012	08/23/2012
9939	Alternative Disinfection & Technologies	Wastewater / Drinking Water	04/03/2012	04/04/2012
9937	Organic Removal	Drinking Water	03/13/2012	03/14/2012
7494	Distribution Cert. School	Drinking Water	04/12/2010	04/14/2010
6300	Surface Water Treatment Cert. School	Drinking Water	08/04/2009	08/06/2009
5400	Surface Water Certification School	Drinking Water	09/22/2008	09/24/2008
5884	(5704) Recordkeeping/Regulations/CPR	Drinking Water	03/13/2008	03/13/2008
3711	Stage 2 and LT2 Trainin	Drinking Water	08/15/2007	08/15/2007
4518	Certification Prep Class	Drinking Water	07/23/2007	07/26/2007



DW Distribution II

20252

Upgraded

06/30/2016

## Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
12696	WTT: Ion Exchange	Drinking Water	01/23/2014	01/23/2014
11176	Surface Water Cert School	Drinking Water	11/19/2013	11/21/2013
10917	Hydraulic Control Valves - Introduction & Troubleshooting	Wastewater / Drinking Water	08/23/2012	08/23/2012
9939	Alternative Disinfection & Technologies	Wastewater / Drinking Water	04/03/2012	04/04/2012
9937	Organic Removal	Drinking Water	03/13/2012	03/14/2012
7494	Distribution Cert. School	Drinking Water	04/12/2010	04/14/2010



DW Treatment IVA

26018

Active

06/30/2020

## Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
19348	Continuing Education for Operators - Carrollton	Wastewater / Drinking Water	01/29/2019	01/29/2019
19287	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/14/2018	11/14/2018
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/2018
16745	LP-Drinking Water Bacteriological Procedures	Drinking Water	10/10/2018	10/10/2018
19146	LP-Drinking Water Bacteriological Procedures	Drinking Water	10/01/2018	10/10/2018
19147	Water Laboratory Quality Assurance	Wastewater / Drinking Water	10/01/2018	10/10/2018
17837	Water Laboratory Quality Assurance	Wastewater / Drinking Water	10/10/2018	10/10/2018
16681	Tailgate Training Sessions	Wastewater / Drinking Water	04/21/2017	04/21/2017
16506	Training for Analyst Performing Microbiological Analysis of DW, WW & Ambient	Wastewater / Drinking Water	01/23/2017	01/24/2017
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/2016
15407	Water Distribution Operator Training Review	Drinking Water	01/14/2016	01/14/2016
15557	Basic Chemistry - Complete Course	Wastewater / Drinking Water	01/01/2016	01/12/2016
13554	Basic Chemistry - Complete Course	Wastewater / Drinking Water	01/12/2016	01/12/2016
15325	Basic Mathematics for Water and Wastewater Operators	Drinking Water	01/07/2016	01/07/2016
14253	Control Valve Application and Troubleshooting	Drinking Water	03/22/2015	03/23/2015
12484	Distribution Cert School	Drinking Water	05/13/2014	05/15/2014
12696	WTT: Ion Exchange	Drinking Water	01/23/2014	01/23/2014
11176	Surface Water Cert School	Drinking Water	11/19/2013	11/21/2013

### Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
19348	Continuing Education for Operators - Carrollton	Wastewater / Drinking Water	01/29/2019	01/29/2019
19287	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/14/2018	11/14/2018
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/2018
19146	LP-Drinking Water Bacteriological Procedures	Drinking Water	10/01/2018	10/10/2018
16745	LP-Drinking Water Bacteriological Procedures	Drinking Water	10/10/2018	10/10/2018
17837	Water Laboratory Quality Assurance	Wastewater / Drinking Water	10/10/2018	10/10/2018
19147	Water Laboratory Quality Assurance	Wastewater / Drinking Water	10/01/2018	10/10/2018
16681	Tailgate Training Sessions	Wastewater / Drinking Water	04/21/2017	04/21/2017
16506	Training for Analyst Performing Microbiological Analysis of DW, WW & Ambient	Wastewater / Drinking Water	01/23/2017	01/24/2017
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/2016
15407	Water Distribution Operator Training Review	Drinking Water	01/14/2016	01/14/2016
13554	Basic Chemistry - Complete Course	Wastewater / Drinking Water	01/12/2016	01/12/2016
15557	Basic Chemistry - Complete Course	Wastewater / Drinking Water	01/01/2016	01/12/2016
15325	Basic Mathematics for Water and Wastewater Operators	Drinking Water	01/07/2016	01/07/2016
14253	Control Valve Application and Troubleshooting	Drinking Water	03/22/2015	03/23/2015
12484	Distribution Cert School	Drinking Water	05/13/2014	05/15/2014

<b>Travis A Arney</b>		
<b>Agency ID:</b>	112880	<b>Regulatory Status:</b> Active
<b>AI Type:</b>	LICENSE-Person	<b>Physical Address</b>
<b>County:</b>	Carroll	112 Dakota Circle Carrollton, KY 41008

## License(s)

License Type	License ID	License Status	License Expiration Date	
DW Treatment IVA	28966	Active	06/30/2020	<u>Can not pay.</u>
DW Distribution III	27104	Active	06/30/2020	<u>Can not pay.</u>
DW Treatment IIIA	26401	Upgraded	06/30/2018	<u>Can not pay.</u>
DW Distribution II	26461	Upgraded	06/30/2016	<u>Can not pay.</u>
DW Treatment IIA	25529	Terminated	06/30/2014	<u>Can not pay.</u>
DW Treatment IAD	24531	Upgraded	06/30/2014	<u>Can not pay.</u>
DW Treatment IAD OIT	22079	Terminated	06/30/2012	<u>Can not pay.</u>
DW Distribution II OIT	24929	Terminated	06/30/2014	<u>Can not pay.</u>

## Training History: Arranged by License ID (descending)

License Type	License ID	License Status	License Expiration Date
DW Treatment IAD OIT	22079	Terminated	06/30/2012

## Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
9930	Distribution Cert School	Drinking Water	08/20/2012	08/22/2012

DW Treatment IAD	24531	Upgraded	06/30/2014
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## Training Event Details: Arranged by Event End Date (newest to oldest)


**Training Event Details: Arranged by Event End Date (newest to oldest)**

Event ID	Event Name	Category	Event Start Date	Event End Date
12487	Distribution Cert School	Drinking Water	08/18/2014	08/20/201
12481	Surface Water Cert School	Drinking Water	02/18/2014	02/20/201
11169	Surface Water Cert School	Drinking Water	03/05/2013	03/07/201
9930	Distribution Cert School	Drinking Water	08/20/2012	08/22/201

 DW Treatment IIA | 25529 | Terminated | 06/30/2014


**Training Event Details: Arranged by Event End Date (newest to oldest)**

Event ID	Event Name	Category	Event Start Date	Event End Date
12487	Distribution Cert School	Drinking Water	08/18/2014	08/20/201
12481	Surface Water Cert School	Drinking Water	02/18/2014	02/20/201
11169	Surface Water Cert School	Drinking Water	03/05/2013	03/07/201
9930	Distribution Cert School	Drinking Water	08/20/2012	08/22/201

 DW Treatment IIIA | 26401 | Upgraded | 06/30/2018

**Training Event Details: Arranged by Event End Date (newest to oldest)**

Event ID	Event Name	Category	Event Start Date	Event End Date
15407	Water Distribution Operator Training Review	Drinking Water	01/14/2016	01/14/201
15325	Basic Mathematics for Water and Wastewater Operators	Drinking Water	01/07/2016	01/07/201
12487	Distribution Cert School	Drinking Water	08/18/2014	08/20/201
12481	Surface Water Cert School	Drinking Water	02/18/2014	02/20/201

 DW Distribution II | 26461 | Upgraded | 06/30/2016


**Training Event Details: Arranged by Event End Date (newest to oldest)**

Event ID	Event Name	Category	Event Start Date	Event End Date
12481	Surface Water Cert School	Drinking Water	02/18/2014	02/20/201

 DW Distribution III | 27104 | Active | 06/30/2020

**Training Event Details: Arranged by Event End Date (newest to oldest)**

Event ID	Event Name	Category	Event Start Date	Event End Date
19348	Continuing Education for Operators - Carrollton	Wastewater / Drinking Water	01/29/2019	01/29/201
19287	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/14/2018	11/14/201
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/201
17527	Drinking Water Surface Water Treatment Certification School	Drinking Water	04/10/2018	04/12/201
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/201
15407	Water Distribution Operator Training Review	Drinking Water	01/14/2016	01/14/201
15325	Basic Mathematics for Water and Wastewater Operators	Drinking Water	01/07/2016	01/07/201
12487	Distribution Cert School	Drinking Water	08/18/2014	08/20/201

 DW Treatment IVA | 28966 | Active | 06/30/2020

**Training Event Details: Arranged by Event End Date (newest to oldest)**





<b>Dennis K Wheeler</b>		
<b>Agency ID:</b>	113830	<b>Regulatory Status:</b> Active
<b>AI Type:</b>	LICENSE-Person	<b>Physical Address</b>
<b>County:</b>	Carroll	1602 Highland Ave Carrollton, KY 41008

License(s)

License Type	License ID	License Status	License Expiration Date	
DW Distribution II	24513	Active	06/30/2020	<u>Can not pay.</u>

Training History: Arranged by License ID (descending)

License Type	License ID	License Status	License Expiration
DW Distribution II	24513	Active	06/30/2020

Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/201
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/201
15407	Water Distribution Operator Training Review	Drinking Water	01/14/2016	01/14/201
15325	Basic Mathematics for Water and Wastewater Operators	Drinking Water	01/07/2016	01/07/201
14253	Control Valve Application and Troubleshooting	Drinking Water	03/22/2015	03/23/201
11177	Distribution Cert School	Drinking Water	12/03/2013	12/05/201

<b>Michael R Rose</b>		
<b>Agency ID:</b>	138078	<b>Regulatory Status:</b> Active
<b>AI Type:</b>	LICENSE-Person	<b>Physical Address</b>
<b>County:</b>	Henry	530 Gilgal Rd Turners Station, KY 40075

## License(s)

License Type	License ID	License Status	License Expiration Date	
DW Distribution I	31772	Active	06/30/2020	<u>Can not pay</u>

## Training History: Arranged by License ID (descending)

License Type	License ID	License Status	License Expiration
DW Distribution I	31772	Active	06/30/2020

## Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
19348	Continuing Education for Operators - Carrollton	Wastewater / Drinking Water	01/29/2019	01/29/2019

<b>Jamie L Tilley</b>		
<b>Agency ID:</b>	26869	<b>Regulatory Status:</b> Active
<b>AI Type:</b>	LICENSE-Person	<b>Physical Address</b>
<b>County:</b>	Trimble	2239 Fairview Ridge Milton, KY 40045

License(s)

License Type	License ID	License Status	License Expiration Date	
DW Treatment IIIB	421	Active	06/30/2020	<u>Can not pay</u>
DW Distribution II	24245	Active	06/30/2020	<u>Can not pay</u>
WW Treatment I	5902	Terminated	06/30/2011	<u>Can not pay</u>

Training History: Arranged by License ID (descending)

License Type	License ID	License Status	License Expiration Date
DW Treatment IIIB	421	Active	06/30/2020

Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
19287	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/14/2018	11/14/2018
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/2018
17527	Drinking Water Surface Water Treatment Certification School	Drinking Water	04/10/2018	04/12/2018
16681	Tailgate Training Sessions	Wastewater / Drinking Water	04/21/2017	04/21/2017
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/2016
14097	Water Loss, Leak Detection & Distribution Deficiencies	Drinking Water	12/03/2015	12/04/2015
14253	Control Valve Application and Troubleshooting	Drinking Water	03/22/2015	03/23/2015
13794	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	01/28/2015	01/28/2015
12482	Distribution Cert School	Drinking Water	03/11/2014	03/13/2014
11177	Distribution Cert School	Drinking Water	12/03/2013	12/05/2013
10917	Hydraulic Control Valves - Introduction & Troubleshooting	Wastewater / Drinking Water	08/23/2012	08/23/2012
9924	Distribution Cert School	Drinking Water	02/14/2012	02/16/2012
9064	54th Annual Water & Wastewater Operators' Conference	Drinking Water	03/27/2011	03/31/2011
8906	2011 Management Conference, KRWA Think Tank	Wastewater / Drinking Water	02/23/2011	02/24/2011
7950	53rd Annual Water & Wastewater Operator's Conference	Drinking Water	04/11/2010	04/14/2010

Witness: Chris Rose

4571	(3981) Chlorine Safety Training Seminar	Wastewater Non Process/Drinking Water	10/27/2006	10/27/2006
4336	27th Annual Technical Conference & Exhibition	Wastewater Non Process/Drinking Water	08/21/2006	08/23/2006
3996	49th Annual KWWOA Operator's Conference	Wastewater Proc Control/Drinking Water	03/19/2006	03/22/2006
3964	Utility Safety Seminar	Drinking Water	01/19/2006	01/19/2006
3148	KWWOA 48th Annual Conference	Wastewater Non Process/Drinking Water	03/21/2005	03/23/2005
2997	2005 Management Conference	Drinking Water	02/14/2005	02/16/2005
2409	25th Annual Technical Conference and Exhibit	Wastewater Proc Control/Drinking Water	08/30/2004	09/01/2004
1946	2004 Management Conference - Securing Our Future	Wastewater Non Process/Drinking Water	02/10/2004	02/11/2004
1776	24th Annual Technical Conference	Wastewater Non Process/Drinking Water	08/25/2003	08/27/2003
1546	Confined Space Rescue Regs.	Wastewater Non Process/Drinking Water	03/26/2003	03/26/2003
1547	San. District #1 Rescue Tech.	Wastewater Non Process/Drinking Water	03/26/2003	03/26/2003
1537	TEMPO Impact/PWS Compliance	Drinking Water	03/26/2003	03/26/2003
1538	Infrastructure Planning/SDWA	Drinking Water	03/26/2003	03/26/2003
1548	Chlorine Safety	Wastewater Non Process/Drinking Water	03/26/2003	03/26/2003
1539	Antennas on Wtr Tanks/Towers	Drinking Water	03/26/2003	03/26/2003
1511	PBT-A Water Plant Perspective	Drinking Water	03/25/2003	03/25/2003
1509	UV Pilot Study at NKWSD	Drinking Water	03/25/2003	03/25/2003
1508	DW Question/Answers	Drinking Water	03/25/2003	03/25/2003
1513	Training on Coliform Sampling	Drinking Water	03/25/2003	03/25/2003
1510	Let's Talk DW Compliance	Drinking Water	03/25/2003	03/25/2003
1512	Vulnerability Assessments	Drinking Water	03/25/2003	03/25/2003
1504	Epoxy Lining for Water Mains	Drinking Water	03/24/2003	03/24/2003
1503	Line Locating	Drinking Water	03/24/2003	03/24/2003
1502	Leak Detection	Drinking Water	03/24/2003	03/24/2003
1507	Large Meter Sizing/Testing	Drinking Water	03/24/2003	03/24/2003
1505	Backflow and Cross Connection	Drinking Water	03/24/2003	03/24/2003
1506	Dechlorination/Flushing Prog.	Drinking Water	03/24/2003	03/24/2003
1146	2002 MANAGEMENT CONFERENCE	Wastewater Non Process/Drinking Water	02/12/2002	02/13/2002
1115	22ND ANNUAL CONFERENCE	Wastewater Proc Control/Drinking Water	08/20/2001	08/22/2001
1058	2001 MANAGEMENT CONFERENCE	Wastewater Proc Control/Drinking Water	02/13/2001	02/14/2001
628	COAL SLUDGE DISASTER	Wastewater Proc Control/Drinking Water	11/21/2000	11/21/2000
970	APPLIED WTR AND WW MATH	Wastewater Proc Control/Drinking Water	04/26/2000	04/26/2000
487	ENHANCED COAGULATION-PART 1	Drinking Water	03/29/2000	03/29/2000
488	ENHANCED COAGULATION-PART 2	Drinking Water	03/29/2000	03/29/2000
489	CRYPTOSPORIDIUM CONTROL	Drinking Water	03/29/2000	03/29/2000
480	JAR TESTING FOR OPTIMIZATION	Drinking Water	03/28/2000	03/28/2000
481	PROCESS CONTROL FOR ACTIFLO	Drinking Water	03/28/2000	03/28/2000

Witness: Chris Rose

472	REPORT REQUIREMENTS/PROBLEMS	Drinking Water	03/27/2000	03/27/2000
473	IESWTR AND D/DBPR UPDATE	Drinking Water	03/27/2000	03/27/2000
471	SDWA NEW RULES UPDATE	Drinking Water	03/27/2000	03/27/2000

 WW Treatment I | 5902 | Terminated | 06/30/2011

### Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
8906	2011 Management Conference, KRWA Think Tank	Wastewater / Drinking Water	02/23/2011	02/24/2011
8032	53rd Annual Water and Wastewater Operator's Conference	Wastewater / Collection	04/12/2010	04/14/2010
6382	2009 Management Conference - Liquid Assets - Taking Care of Business	Wastewater Non Process/Drinking Water	02/24/2009	02/25/2009
5228	28th Annual Technical Conference & Exhibition - Strength in Numbers	Wastewater Non Process/Drinking Water	08/27/2007	08/29/2007
3809	Wastewater Math and Biology	Wastewater Process Control	04/10/2007	04/11/2007
4571	(3981) Chlorine Safety Training Seminar	Wastewater Non Process/Drinking Water	10/27/2006	10/27/2006
4336	27th Annual Technical Conference & Exhibition	Wastewater Non Process/Drinking Water	08/21/2006	08/23/2006
3996	49th Annual KWWOA Operator's Conference	Wastewater Proc Control/Drinking Water	03/19/2006	03/22/2006
3148	KWWOA 48th Annual Conference	Wastewater Non Process/Drinking Water	03/21/2005	03/23/2005
2409	25th Annual Technical Conference and Exhibit	Wastewater Proc Control/Drinking Water	08/30/2004	09/01/2004
2327	Wastewater Process Control, Regulations and Lab Procedures	Wastewater Process Control	07/14/2004	07/15/2004
2326	Wastewater Process Control, Regulations and Lab Procedures	Wastewater Non Process Control	07/14/2004	07/15/2004
1946	2004 Management Conference - Securing Our Future	Wastewater Non Process/Drinking Water	02/10/2004	02/11/2004
1776	24th Annual Technical Conference	Wastewater Non Process/Drinking Water	08/25/2003	08/27/2003
358	WWC-136 MATH/ACTIVATED SLUDGE	Wastewater Process Control	04/08/2003	04/09/2003
1547	San. District #1 Rescue Tech.	Wastewater Non Process/Drinking Water	03/26/2003	03/26/2003
1548	Chlorine Safety	Wastewater Non Process/Drinking Water	03/26/2003	03/26/2003
1546	Confined Space Rescue Regs.	Wastewater Non Process/Drinking Water	03/26/2003	03/26/2003
210	WASTEWATER TRAINING	Wastewater Process Control	02/07/2001	02/08/2001

 DW Distribution II | 24245 | Active | 06/30/2020

### Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
19287	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/14/2018	11/14/2018
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/2018
17527	Drinking Water Surface Water Treatment Certification School	Drinking Water	04/10/2018	04/12/2018
16681	Tailgate Training Sessions	Wastewater / Drinking Water	04/21/2017	04/21/2017
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/2016
14097	Water Loss, Leak Detection & Distribution Deficiencies	Drinking Water	12/03/2015	12/04/2015
14253	Control Valve Application and Troubleshooting	Drinking Water	03/22/2015	03/23/2015
13794	Training for Drinking Water & Wastewater Operators	Wastewater / Drinking Water	01/28/2015	01/28/2015

<b>Timothy W Hayden</b>		
<b>Agency ID:</b>	81868	<b>Regulatory Status:</b> Active
<b>AI Type:</b>	LICENSE-Person	<b>Physical Address</b>
<b>County:</b>	Carroll	950 Furnish Rd Ghent, KY 410459050

## License(s)

License Type	License ID	License Status	License Expiration Date	
DW Distribution II	24345	Active	06/30/2020	<u>Can not pay.</u>
DW Distribution I	16266	Terminated	06/30/2010	<u>Can not pay.</u>
DW Treatment IIA	17333	Terminated	06/30/2010	<u>Can not pay.</u>

## Training History: Arranged by License ID (descending)

<b>License Type</b>	<b>License ID</b>	<b>License Status</b>	<b>License Expiration</b>
DW Distribution I	16266	Terminated	06/30/2010

### Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
7498	Surface Water Treatment Cert. School	Drinking Water	05/24/2010	05/26/2010
4524	Certification School - Surface Water Treatment	Drinking Water	12/03/2007	12/05/2007
5095	Drinking Water Regulatory Issues	Drinking Water	06/13/2007	06/13/2007
3713	DW Cert Prep Class Distribution	Drinking Water	11/14/2006	11/16/2006

<b>License Type</b>	<b>License ID</b>	<b>License Status</b>	<b>License Expiration</b>
DW Treatment IIA	17333	Terminated	06/30/2010

### Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
7498	Surface Water Treatment Cert. School	Drinking Water	05/24/2010	05/26/2010
4524	Certification School - Surface Water Treatment	Drinking Water	12/03/2007	12/05/2007
5095	Drinking Water Regulatory Issues	Drinking Water	06/13/2007	06/13/2007
3713	DW Cert Prep Class Distribution	Drinking Water	11/14/2006	11/16/2006

<b>License Type</b>	<b>License ID</b>	<b>License Status</b>	<b>License Expiration</b>
DW Distribution II	24345	Active	06/30/2020

### Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
19287	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/14/2018	11/14/2018
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/2016
15407	Water Distribution Operator Training Review	Drinking Water	01/14/2016	01/14/2016
15325	Basic Mathematics for Water and Wastewater Operators	Drinking Water	01/07/2016	01/07/2016
14253	Control Valve Application and Troubleshooting	Drinking Water	03/22/2015	03/23/2015
12482	Distribution Cert School	Drinking Water	03/11/2014	03/13/2014
10917	Hydraulic Control Valves - Introduction & Troubleshooting	Wastewater / Drinking Water	08/23/2012	08/23/2012



<b>Logan T Hudgins</b>		
<b>Agency ID:</b>	112733	<b>Regulatory Status:</b> Active
<b>AI Type:</b>	LICENSE-Person	<b>Physical Address</b>
<b>County:</b>	Carroll	675 Hudgins Ln Worthville, KY 41095

## License(s)

License Type	License ID	License Status	License Expiration Date	
DW Distribution II	25409	Active	06/30/2020	<u>Can not pay.</u>

## Training History: Arranged by License ID (descending)

License Type	License ID	License Status	License Expiration
DW Distribution II	25409	Active	06/30/2020

## Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
19287	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/14/2018	11/14/2019
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/2019
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/2019
15325	Basic Mathematics for Water and Wastewater Operators	Drinking Water	01/07/2016	01/07/2019
14253	Control Valve Application and Troubleshooting	Drinking Water	03/22/2015	03/23/2019
13798	KY/TN Section AWWA Competent Person Training	Wastewater / Drinking Water	01/27/2015	01/27/2019
11177	Distribution Cert School	Drinking Water	12/03/2013	12/05/2019

**Danny L Perkins**

<b>Agency ID:</b>	34154	<b>Regulatory Status:</b>	Active
<b>AI Type:</b>	LICENSE-Person	<b>Physical Address</b>	
<b>County:</b>	Carroll	2560 Whites Run Rd Carrollton, KY 41008	

## License(s)

License Type	License ID	License Status	License Expiration Date	
DW Distribution II	9801	Active	06/30/2020	<u>Can not pay</u>

## Training History: Arranged by License ID (descending)

License Type	License ID	License Status	License Expiration Date
DW Distribution II	9801	Active	06/30/2020

## Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
19287	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/14/2018	11/14/2018
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/2018
16681	Tailgate Training Sessions	Wastewater / Drinking Water	04/21/2017	04/21/2017
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/2016
13618	Drinking Water Distribution O&M	Drinking Water	04/09/2015	04/10/2015
14253	Control Valve Application and Troubleshooting	Drinking Water	03/22/2015	03/23/2015
11572	Optimizing Filtration	Drinking Water	08/06/2013	08/07/2013
8790	Disinfection, Optimization & Leak Detection	Drinking Water	03/09/2011	03/10/2011
7493	Distribution O & M	Drinking Water	03/30/2010	03/31/2010
4489	DW Continuing Education	Drinking Water	02/06/2008	02/07/2008
5095	Drinking Water Regulatory Issues	Drinking Water	06/13/2007	06/13/2007
3194	Distribution Operation & Maintenance	Drinking Water	08/23/2005	08/24/2005
1878	Sampling/Monitoring, Treatment Processes and Security	Drinking Water	09/10/2003	09/11/2003
869	DW DISTRIBUTION CERTIFICATION	Drinking Water	02/25/2003	02/28/2003

<b>Billy L Mahoney</b>		
<b>Agency ID:</b>	33574	<b>Regulatory Status:</b> Active
<b>AI Type:</b>	LICENSE-Person	<b>Physical Address</b>
<b>County:</b>	Henry	1049 Mill Creek Rd Turners Station, KY 40075

## License(s)

License Type	License ID	License Status	License Expiration Date	
DW Distribution II	17012	Active	06/30/2020	<u>Can not pay</u>

## Training History: Arranged by License ID (descending)

License Type	License ID	License Status	License Expiration Date
DW Distribution II	17012	Active	06/30/2020

## Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
19287	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/14/2018	11/14/2018
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/2018
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/2016
14097	Water Loss, Leak Detection & Distribution Deficiencies	Drinking Water	12/03/2015	12/04/2015
14253	Control Valve Application and Troubleshooting	Drinking Water	03/22/2015	03/23/2015
11177	Distribution Cert School	Drinking Water	12/03/2013	12/05/2013
9924	Distribution Cert School	Drinking Water	02/14/2012	02/16/2012
9129	Valves & Operator Forum	Wastewater / Drinking Water	06/14/2011	06/15/2011
7950	53rd Annual Water & Wastewater Operator's Conference	Drinking Water	04/12/2010	04/14/2010
4521	Certification School - Distribution	Drinking Water	09/11/2007	09/13/2007

<b>Timothy W Pearson</b>		
<b>Agency ID:</b>	121902	<b>Regulatory Status:</b> Active
<b>AI Type:</b>	LICENSE-Person	<b>Physical Address</b>
<b>County:</b>	Out of State	400 N Hereford Ln Madison , IN 47250

## License(s)

License Type	License ID	License Status	License Expiration Date	
DW Distribution II	28483	Active	06/30/2020	<u>Can not pay.</u>

## Training History: Arranged by License ID (descending)

License Type	License ID	License Status	License Expiration Date
DW Distribution II	28483	Active	06/30/2020

## Training Event Details: Arranged by Event End Date (newest to oldest)

Event ID	Event Name	Category	Event Start Date	Event End Date
19268	Water and Wastewater Continuing Education Course	Wastewater / Drinking Water	11/07/2018	11/07/2018
16681	Tailgate Training Sessions	Wastewater / Drinking Water	04/21/2017	04/21/2017
16303	Water & Wastewater Continuing Education Course	Wastewater / Drinking Water	11/11/2016	11/11/2016

From: "Kentucky Rural Water Association" <orders@gomembers.com>  
To: crose@carrolltonutilities.com  
Subject: Order Confirmation from Kentucky Rural Water Association  
Date: 1/9/2019 2:03:36 PM

Please do not reply to this message. This mailbox is not monitored. If you have any questions, please see our contact information below. Thank you for your order.

ORDER SUMMARY:

-----  
ORDER DATE: 2019-01-09 13:03:36  
ONLINE ORDER REFERENCE NUMBER: e12619-576544  
ORDER FORM: No Fee DW & WW Training - Jan. 29-30, 2019

ORDERED BY:

-----  
Chris Rose, WWTP Superintendent  
Carrollton Utilities  
PO Box 269  
Carrollton, KY 41008  
Email: crose@carrolltonutilities.com  
Org: (502) 732-7055  
Direct: (502) 732-7066

ORDER DETAILS:

-----  
ORDERED FOR: CHRIS ROSE  
1 x DW/WW-Continuing Education for Operators-January 29-30, 2019-Carrollton (\$0.00)  
= \$0.00  
Agency Interest #: 29442  
DW Cert #: 26304  
WW Cert #: 7298

Subtotal: \$0.00  
S&H: \$0.00  
Tax: \$0.00

ORDERED FOR: TRAVIS ARNEY  
1 x DW/WW-Continuing Education for Operators-January 29-30, 2019-Carrollton (\$0.00)  
= \$0.00  
Agency Interest #: 112880  
DW Cert #: 28966  
WW Cert #:

Subtotal: \$0.00  
S&H: \$0.00  
Tax: \$0.00

ORDERED FOR: FRANKLIN THIEMAN  
1 x DW/WW-Continuing Education for Operators-January 29-30, 2019-Carrollton (\$0.00)

= \$0.00

Agency Interest #: 96787  
DW Cert #: 26018  
WW Cert #:

Subtotal: \$0.00  
S&H: \$0.00  
Tax: \$0.00

ORDERED FOR: JASON NOBLE

1 x DW/WW-Continuing Education for Operators-January 29-30, 2019-Carrollton (\$0.00)  
= \$0.00

Agency Interest #: 26891  
DW Cert #: 26305  
WW Cert #: 27615

Subtotal: \$0.00  
S&H: \$0.00  
Tax: \$0.00

ORDERED FOR: JESS MAIDEN

1 x DW/WW-Continuing Education for Operators-January 29-30, 2019-Carrollton (\$0.00)  
= \$0.00

Agency Interest #: 138077  
DW Cert #: 31771  
WW Cert #:

Subtotal: \$0.00  
S&H: \$0.00  
Tax: \$0.00

ORDERED FOR: MICHAEL ROSE

1 x DW/WW-Continuing Education for Operators-January 29-30, 2019-Carrollton (\$0.00)  
= \$0.00

Agency Interest #: 138078  
DW Cert #: 31772  
WW Cert #:

Subtotal: \$0.00  
S&H: \$0.00  
Tax: \$0.00

ORDERED FOR: GREG WILSON

1 x DW/WW-Continuing Education for Operators-January 29-30, 2019-Carrollton (\$0.00)  
= \$0.00

Agency Interest #: 119489  
DW Cert #:  
WW Cert #: 29276

Subtotal: \$0.00  
S&H: \$0.00  
Tax: \$0.00

Total: \$0.00

PAYMENT METHOD:

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Payment Method: No Charge

If you have questions about this order, please contact us at the address below. Please do not reply to this message. This mailbox is not monitored and you will not receive a response.

OUR CONTACT INFORMATION:

-----  
Kentucky Rural Water Association  
1151 Old Porter Pike  
Bowling Green, KY 42103  
Ph: (270) 843-2291  
Fax: (270) 796-8623  
Email: [events@krwa.org](mailto:events@krwa.org)

# **OnBoard Learning Management System**

## **Carrollton Utilities - Transcript**







*Run By Timothy W Pearson on 3/28/2019 8:16:13 AM*






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Witness: Chris Rose






## Wheeler, Dennis (dwheeler)



K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCF1.0	<b>CF-1 Exam Join plastic pipe with heat fusion</b>	Passed	12/06/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF1.1.0C	<b>CF-1.1 Course Join Plastic Pipe with Butt Fusion</b>	Completed	12/06/2014			Online	
K	ITSOQCF1.1.0	<b>CF-1.1 Exam Join Plastic Pipe with Butt Fusion</b>	Passed	12/06/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF1.2.0C	<b>CF-1.2 Course Join Plastic Pipe with Socket Fusion</b>	Completed	12/06/2014			Online	
K	ITSOQCF1.2.0	<b>CF-1.2 Exam Join Plastic Pipe with Socket Fusion</b>	Passed	12/06/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF1.3.0C	<b>CF-1.3 Course Join Plastic Pipe with Saddle Fusion</b>	Completed	12/10/2014			Online	
K	ITSOQCF1.3.0	<b>CF-1.3 Exam Join Plastic Pipe with Saddle Fusion</b>	Passed	12/10/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF1.4.0C	<b>CF-1.4 Course Join Plastic Pipe with Electrofusion</b>	Completed	12/11/2014			Online	
K	ITSOQCF1.4.0	<b>CF-1.4 Exam Join Plastic Pipe with Electrofusion</b>	Passed	12/11/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF2.0	<b>CF-2 Exam Join polyethylene pipe with mechanical fittings</b>	Failed	01/05/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF2.1.0C	<b>CF-2.1 Course Join Plastic Pipe with Threaded Nut Compression End Fittings</b>	Completed	12/13/2014			Online	




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 Witness: Chris Rose




K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCF2.2.0C	<b>CF-2.2 Course Join Plastic Pipe with Stab-Type Mechanical Fittings</b>	Completed	12/14/2014			Online	
K	ITSOQCF2.2.0	<b>CF-2.2 Exam Join Plastic Pipe with Stab-Type Mechanical Fittings</b>	Passed	12/14/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF1-CF2.0C	<b>CF1-CF2 Course Join plastic pipe prerequisite</b>	Completed	04/19/2014			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Completed	02/23/2014			Online	
K	ITSOQCG1.0	<b>CG-1 Exam Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Passed	02/23/2014			Online	 No
K	ITSOQCG2.0C	<b>CG-2 Course Identify Basic Installation Methods for Mains and Transmission Pipelines</b>	Completed	03/29/2015			Online	
K	ITSOQCG4.0C	<b>CG-4 Course Install Mains and Transmission Pipelines Using Trenchless Methods</b>	Completed	05/31/2016			Online	
K	ITSOQCH1.0C	<b>CH-1 Course Install Customer Gas Meter and Regulator Sets</b>	Completed	03/25/2014			Online	
K	ITSOQCH1.0	<b>CH-1 Exam Install Customer Gas Meter and Regulator Sets</b>	Passed	12/10/2014		Pearson, Timothy W	Online	 No






K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCH2.0C	<b>CH-2 Course Install Customer Gas Service Lines</b>	Completed	12/15/2014			Online	
K	ITSOQCH2.0	<b>CH-2 Exam Install Customer Gas Service Lines</b>	Passed	12/15/2014			Online	 No
K	ITSOQCI1.0C	<b>CI-1 Course Perform Pipe-to-Soil Potential Surveys on Effectively Coated Buried or Submerged Pipelines</b>	Completed	09/13/2012			Online	
K	ITSOQCI1.0	<b>CI-1 Exam Perform Pipe-to-Soil Potential Surveys on Effectively Coated Buried or Submerged Pipelines</b>	Passed	09/13/2012	09/13/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ0001	Measure Structure to Electrolyte Potential	Passed	09/26/2012		Pearson, Timothy W		
K	ITSOQCI10.0C	<b>CI-10 Course Inspect and Monitor Exposed Piping for Evidence of Atmospheric Corrosion</b>	Passed	09/13/2012			Online	
K	ITSOQCI10.0	<b>CI-10 Exam Inspect and Monitor Exposed Piping for Evidence of Atmospheric Corrosion</b>	Passed	09/13/2012	09/13/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ0141	Visual Inspection For Atmospheric Corrosion	Passed	09/26/2012		Pearson, Timothy W		
S	ITSOQ0191	Measure Atmospheric Corrosion	Passed	09/26/2012		Pearson, Timothy W		

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCI11.0C	<b>CI-11 Course Install Sacrificial Anodes and Test Stations</b>	Passed	09/13/2012			Online	
K	ITSOQCI11.0	<b>CI-11 Exam Install Sacrificial Anodes and Test Stations</b>	Passed	09/13/2012	09/13/2015	Pearson, Timothy W	Online	ⓘ Expired
S	ITSOQ0041	Installation And Maintenance of Mechanical Electrical Connections	Passed	09/27/2012		Pearson, Timothy W		
S	ITSOQ0051	Installation of Exothermic Electrical Connections	Passed	09/27/2012		Pearson, Timothy W		
S	ITSOQ5071	Install Sacrificial Anodes	Passed	09/26/2012		Pearson, Timothy W		
K	ITSOQCI12.0C	<b>CI-12 Course Measure the Extent of Corrosion on Pipeline Facilities</b>	Passed	09/13/2012			Online	
K	ITSOQCI12.0	<b>CI-12 Exam Measure the Extent of Corrosion on Pipeline Facilities</b>	Passed	09/13/2012	09/13/2015		Online	ⓘ Expired
S	ITSOQ0181	Measure Internal Corrosion	Passed	09/26/2012		Pearson, Timothy W		
S	ITSOQ0191	Measure Atmospheric Corrosion	Passed	09/26/2012		Pearson, Timothy W		
K	ITSOQCI13.0C	<b>CI-13 Course Identify Procedures Basic to Inspecting, Applying, and Repairing Pipeline Coatings</b>	Passed	09/13/2012			Online	
K	ITSOQCI13.0	<b>CI-13 Exam Identify Procedures Basic to Inspecting, Applying, and Repairing Pipeline Coatings</b>	Passed	09/13/2012	09/13/2015	Pearson, Timothy W	Online	ⓘ Expired





K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
S	ITSOQ0151	Visual Inspection of Buried Pipe and Components When Exposed	Passed	09/27/2012		Pearson, Timothy W		
S	ITSOQ0991	Coating Application and Repair: Brushed or Rolled	Passed	09/26/2012		Pearson, Timothy W		
S	ITSOQ1011	External Coating Application and Repair: Wrapped	Passed	09/26/2012		Pearson, Timothy W		
K	ITSOQCI2.0C	<b>CI-2 Course Determine Areas of Active Corrosion Using Close Interval Survey Methods</b>	Passed	09/13/2012			Online	
K	ITSOQCI2.0	<b>CI-2 Exam Determine Areas of Active Corrosion Using Close Interval Survey Methods</b>	Passed	09/13/2012	09/13/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ0011	Conduct Close Interval Survey	Passed	09/13/2012		Pearson, Timothy W		
K	ITSOQCI3.0C	<b>CI-3 Course Measure Soil Resistivity</b>	Passed	09/13/2012			Online	
K	ITSOQCI3.0	<b>CI-3 Exam Measure Soil Resistivity</b>	Passed	09/13/2012	09/13/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ0021	Measure Soil Resistivity	Passed	09/26/2012		Pearson, Timothy W		
K	ITSOQCI4.0C	<b>CI-4 Course Inspect the External Condition of Exposed Buried Metal Piping to Determine if Repair or Replacement is Necessary</b>	Passed	09/14/2012			Online	





K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCI4.0	<b>CI-4 Exam Inspect the External Condition of Exposed Buried Metal Piping to Determine if Repair or Replacement is Necessary</b>	Passed	09/14/2012	09/14/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ0151	Visual Inspection of Buried Pipe and Components When Exposed	Passed	09/27/2012		Pearson, Timothy W		
S	ITSOQ0171	Measure External Corrosion	Passed	09/27/2012		Pearson, Timothy W		
K	ITSOQCI5.0C	<b>CI-5 Course Inspect and Maintain Rectifiers</b>	Passed	09/14/2012			Online	
K	ITSOQCI5.0	<b>CI-5 Exam Inspect and Maintain Rectifiers</b>	Passed	09/14/2012	09/14/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ0101	Inspect Rectifier And Obtain Readings	Passed	09/27/2012		Pearson, Timothy W		
S	ITSOQ0111	Maintain Rectifiers	Passed	09/27/2012		Pearson, Timothy W		
K	ITSOQCI6.0C	<b>CI-6 Course Inspect for the Effects of Interference Current</b>	Passed	09/14/2012			Online	
K	ITSOQCI6.0	<b>CI-6 Exam Inspect for the Effects of Interference Current</b>	Passed	09/14/2012	09/14/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ0061	Inspect or Test Cathodic Protection Bonds	Passed	09/27/2012		Pearson, Timothy W		
K	ITSOQCI7.0C	<b>CI-7 Course Install Test Leads to Monitor and Control External Corrosion</b>	Passed	09/14/2012			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCI7.0	<b>CI-7 Exam Install Test Leads to Monitor and Control External Corrosion</b>	Passed	09/14/2012	09/14/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ0041	Installation And Maintenance of Mechanical Electrical Connections	Passed	09/27/2012		Pearson, Timothy W		
S	ITSOQ0051	Installation of Exothermic Electrical Connections	Passed	09/27/2012		Pearson, Timothy W		
K	ITSOQCI8.0C	<b>CI-8 Course Install and Test Insulation to Control External Corrosion by Electrical Isolation</b>	Passed	09/14/2012			Online	
K	ITSOQCI8.0	<b>CI-8 Exam Install and Test Insulation to Control External Corrosion by Electrical Isolation</b>	Passed	09/14/2012	09/14/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ0071	Inspect or Test Cathodic Protection Electrical Isolation Devices	Passed	09/27/2012		Pearson, Timothy W		
S	ITSOQ0081	Install Cathodic Protection Electrical Isolation Devices	Passed	09/27/2012		Pearson, Timothy W		
K	ITSOQCI9.0C	<b>CI-9 Course Inspect for Evidence of Internal Corrosion</b>	Passed	09/14/2012			Online	
K	ITSOQCI9.0	<b>CI-9 Exam Inspect for Evidence of Internal Corrosion</b>	Passed	09/14/2012	09/14/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ0161	Visual Inspection for Internal Corrosion	Passed	09/26/2012		Pearson, Timothy W		
S	ITSOQ0181	Measure Internal Corrosion	Passed	09/26/2012		Pearson, Timothy W		

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCL1.0C	<b>CL-1 Course Tap Pipelines Under Pressure</b>	Completed	12/17/2014			Online	
K	ITSOQCL1.0	<b>CL-1 Exam Tap Pipelines Under Pressure</b>	Passed	12/17/2014			Online	 No
K	ITSOQCL2.0C	<b>CL-2 Course Purge Pipelines (Small &amp; Large Diameter)</b>	Completed	01/03/2015			Online	
K	ITSOQCL2.0	<b>CL-2 Exam Purge Pipelines (Small &amp; Large Diameter)</b>	Passed	01/03/2015		Pearson, Timothy W	Online	 No
K	ITSOQCL3a.0C	<b>CL-3a Course Monitor Odorant Levels</b>	Completed	12/19/2014			Online	
K	ITSOQCL3a.0	<b>CL-3a Exam Monitor Odorant Levels</b>	Passed	12/19/2014			Online	 No
K	ITSOQCM1.0C	<b>CM-1 Course Perform Patrol and Leakage Surveys on Gas Pipeline Facilities</b>	Completed	12/19/2014			Online	
K	ITSOQCM1.0	<b>CM-1 Exam Perform Patrol and Leakage Surveys on Gas Pipeline Facilities</b>	Passed	12/19/2014			Online	 No
K	ITSOQCM10.0C	<b>CM-10 Course Abandon/Deactivate Gas Pipeline Facilities</b>	Completed	12/19/2014			Online	
K	ITSOQCM10.0	<b>CM-10 Exam Abandon/Deactivate Gas Pipeline Facilities</b>	Passed	12/19/2014			Online	 No



K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCM11.0C	<b>CM-11 Course Recognize and React to Generic Abnormal Operating Conditions</b>	Completed	01/19/2014			Online	
K	ITSOQCM11.0	<b>CM-11 Exam Recognize and React to Generic Abnormal Operating Conditions</b>	Passed	01/19/2014	01/19/2017		Online	 Expired
K	ITSOQCM13.0C	<b>CM-13 Course Investigate Reported Gas Leaks and Odors In Buildings</b>	Completed	08/24/2013			Online	
K	ITSOQCM13.0	<b>CM-13 Exam Investigate Reported Gas Leaks and Odors In Buildings</b>	Passed	12/24/2013			Online	 No
K	ITSOQCM2.0C	<b>CM-2 Course Locate and Mark Underground Pipeline Facilities</b>	Completed	12/18/2014			Online	
K	ITSOQCM2.0	<b>CM-2 Exam Locate and Mark Underground Pipeline Facilities</b>	Passed	12/19/2014			Online	 No
K	ITSOQCM3.0C	<b>CM-3 Course Pressure Testing Gas Pipelines</b>	Completed	01/03/2015			Online	
K	ITSOQCM3.0	<b>CM-3 Exam Pressure Testing Gas Pipelines</b>	Passed	01/03/2015		Pearson, Timothy W	Online	 No
K	ITSOQCM4.0C	<b>CM-4 Course Inspect and Test Pressure Limiting Stations, Relief Devices, and Pressure Regulating Stations</b>	Completed	01/04/2015			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCM4.0	<b>CM-4 Exam Inspect and Test Pressure Limiting Stations, Relief Devices, and Pressure Regulating Stations</b>	Passed	01/04/2015			Online	 No
K	ITSOQCM5.0	<b>CM-5 Exam Inspect, Service, and Operate Line Valves</b>	Passed	09/10/2012	09/12/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ0301	Manually Opening and Closing Valves	Passed	09/12/2012		Pearson, Timothy W		
S	ITSOQ0311	Adjust and Monitor Flow or Pressure-Manual Valve Operation	Passed	09/12/2012		Pearson, Timothy W		
S	ITSOQ0331	Valve – Visual Inspection and Partial Operation	Passed	09/12/2012		Pearson, Timothy W		
S	ITSOQ0341	Valve-Preventive Maintenance	Passed	09/12/2012		Pearson, Timothy W		
K	ITSOQCM7.0C	<b>CM-7 Course Prevent Accidental Ignition</b>	Completed	12/23/2014			Online	
K	ITSOQCM7.0	<b>CM-7 Exam Prevent Accidental Ignition</b>	Passed	12/23/2014	12/23/2017		Online	 Expired
K	ITSOQCM8.0C	<b>CM-8 Course Make Field Repairs on Gas Pipelines</b>	Completed	11/27/2015			Online	
K	ITSOQCM8.0	<b>CM-8 Exam Make Field Repairs on Gas Pipelines</b>	Passed	12/31/2014			Online	 No
K	TSK-70545851	<b>Material Safety Data Sheets</b>	Passed	09/27/2014			Online	
K	TSK-47656876	<b>OSHA: Active Shooter On-Site: What Every Employee Should Do</b>	Passed	03/04/2018			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-57181827	<b>OSHA: Avoiding Back Injuries</b>	Passed	08/27/2016			Online	
K	TSK-40374352	<b>OSHA: Avoiding Exposure to Bloodborne Pathogens</b>	Passed	09/21/2013			Online	
K	TSK-16333528	<b>OSHA: Battery Safety</b>	Passed	10/31/2018			Online	
K	TSK-19428631	<b>OSHA: Bloodborne Pathogens - General</b>	Passed	10/30/2016			Online	
K	TSK-49993361	<b>OSHA: Contractor Safety</b>	Passed	12/01/2018			Online	
K	TSK-94487089	<b>OSHA: Defensive Driving for Non-commercial Motorists</b>	Passed	05/25/2014			Online	
K	TSK-81206787	<b>OSHA: Disaster Planning for Employees</b>	Passed	02/25/2016			Online	
K	TSK-80650531	<b>OSHA: Electrical Safety - Unqualified Worker</b>	Passed	12/23/2014			Online	
K	TSK-43324205	<b>OSHA: Emergency Action and Fire Prevention</b>	Passed	03/25/2014			Online	
K	TSK-1863478	<b>OSHA: Exit Routes</b>	Passed	01/28/2018			Online	
K	TSK-88156636	<b>OSHA: Eye Protection</b>	Passed	11/27/2016			Online	
K	TSK-12431243	<b>OSHA: Fire Extinguishers</b>	Passed	12/31/2016			Online	
K	TSK-26325108	<b>OSHA: Fire Extinguishers Safe Use &amp; Handling</b>	Passed	02/02/2019			Online	
K	TSK-82208821	<b>OSHA: Foot Protection</b>	Passed	01/29/2017			Online	
K	TSK-59540464	<b>OSHA: Forklift Operator Safety</b>	Passed	02/26/2017			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-76505221	<b>OSHA: Good Housekeeping</b>	Passed	09/09/2018			Online	
K	TSK-18089227	<b>OSHA: Hazard Communication and GHS - Employees</b>	Passed	11/24/2013			Online	
K	TSK-23131903	<b>OSHA: Home Safety</b>	Passed	01/01/2018			Online	
K	TSK-16814140	<b>OSHA: Hydrogen Sulfide Safety</b>	Passed	04/30/2016			Online	
K	TSK-6855417	<b>OSHA: Introduction to OSHA General Duty Clause</b>	Passed	04/26/2015			Online	
K	TSK-90329309	<b>OSHA: Lockout/Tagout - Affected Employee</b>	Passed	03/23/2016			Online	
K	TSK-68980468	<b>OSHA: Lockout/Tagout - Authorized Employee</b>	Passed	05/29/2017			Online	
K	TSK-28933376	<b>OSHA: Mold Hazards and Prevention</b>	Passed	12/15/2015			Online	
K	TSK-39871740	<b>OSHA: Noise and Hearing Conservation</b>	Passed	07/02/2017			Online	
K	TSK-84258098	<b>OSHA: OSHA Inspections, Citations, and Penalties</b>	Passed	10/27/2015			Online	
K	TSK-19197876	<b>OSHA: Personal Protective Equipment - What Employees Need To Know</b>	Passed	04/29/2018			Online	
K	TSK-58073640	<b>OSHA: Preparing for Weather Emergencies</b>	Passed	12/02/2017			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-34175129	<b>OSHA: Preventing Slips, Trips, and Falls</b>	Passed	06/25/2018			Online	
K	TSK-30539153	<b>OSHA: Preventing Workplace Violence for Employees</b>	Passed	03/25/2018			Online	
K	TSK-73543343	<b>OSHA: Process Safety Management</b>	Passed	08/27/2016			Online	
K	TSK-41577608	<b>OSHA: Recordkeeping</b>	Passed	07/30/2016			Online	
K	TSK-24151389	<b>OSHA: Safe Forklift Operation</b>	Passed	09/29/2015			Online	
K	TSK-90852211	<b>OSHA: Substance Abuse in the Workplace</b>	Passed	02/23/2015			Online	
K	TSK-6305383	<b>OSHA: Trenching - Competent Person</b>	Passed	03/25/2014			Online	
K	TSK-98660073	<b>OSHA: Understanding Chemical Labels Under GHS</b>	Passed	08/30/2015			Online	
K	TSK-29694826	<b>OSHA: Working in Cold Conditions</b>	Passed	10/29/2017			Online	
K	TSK-93233025	<b>OSHA: Working in Hot Conditions</b>	Passed	05/30/2018			Online	
K	TSK-69030935	<b>OSHA: Working Safely Outdoors</b>	Passed	08/24/2014			Online	
K	TSK-27437815	<b>OSHA: Working Safely with Flammable Liquids</b>	Passed	10/26/2014			Online	
K	TSK-78342570	<b>OSHA: Workplace Safety for Employees</b>	Passed	09/02/2017			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-25594563	<b>OSHA: Workplace Security for Employees</b>	Passed	08/05/2018			Online	
K	TSK-5026184	<b>OSHA: Your Guide to PPE</b>	Passed	09/30/2018			Online	







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## Tilley, Jamie (jtilley)





K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCF1.0	<b>CF-1 Exam Join plastic pipe with heat fusion</b>	Failed	12/16/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF1.1.0C	<b>CF-1.1 Course Join Plastic Pipe with Butt Fusion</b>	Completed	12/16/2014			Online	
K	ITSOQCF1.1.0	<b>CF-1.1 Exam Join Plastic Pipe with Butt Fusion</b>	Passed	12/16/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF1.2.0C	<b>CF-1.2 Course Join Plastic Pipe with Socket Fusion</b>	Completed	12/16/2014			Online	
K	ITSOQCF1.2.0	<b>CF-1.2 Exam Join Plastic Pipe with Socket Fusion</b>	Passed	12/16/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF1.3.0C	<b>CF-1.3 Course Join Plastic Pipe with Saddle Fusion</b>	Completed	12/16/2014			Online	
K	ITSOQCF1.3.0	<b>CF-1.3 Exam Join Plastic Pipe with Saddle Fusion</b>	Passed	12/16/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF1.4.0C	<b>CF-1.4 Course Join Plastic Pipe with Electrofusion</b>	Completed	12/16/2014			Online	
K	ITSOQCF1.4.0	<b>CF-1.4 Exam Join Plastic Pipe with Electrofusion</b>	Passed	12/16/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF2.0	<b>CF-2 Exam Join polyethylene pipe with mechanical fittings</b>	Passed	12/16/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF2.1.0C	<b>CF-2.1 Course Join Plastic Pipe with Threaded Nut Compression End Fittings</b>	Completed	12/16/2014			Online	






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K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCF2.2.0C	<b>CF-2.2 Course Join Plastic Pipe with Stab-Type Mechanical Fittings</b>	Completed	12/16/2014			Online	
K	ITSOQCF2.2.0	<b>CF-2.2 Exam Join Plastic Pipe with Stab-Type Mechanical Fittings</b>	Passed	12/16/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF1-CF2.0C	<b>CF1-CF2 Course Join plastic pipe prerequisite</b>	Completed	04/03/2014			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Completed	07/14/2014			Online	
K	ITSOQCG1.0	<b>CG-1 Exam Verifying excavating and backfilling operations that minimize excavation damage</b>	Passed	03/27/2013		Pearson, Timothy W	Online	 No
K	ITSOQCG2.0C	<b>CG-2 Course Identify Basic Installation Methods for Mains and Transmission Pipelines</b>	Completed	03/06/2015			Online	
K	ITSOQCG4.0C	<b>CG-4 Course Install Mains and Transmission Pipelines Using Trenchless Methods</b>	Completed	07/18/2016			Online	
K	ITSOQCH1.0C	<b>CH-1 Course Install Customer Gas Meter and Regulator Sets</b>	Completed	03/27/2013			Online	
K	ITSOQCH1.0	<b>CH-1 Exam Install Customer Gas Meter and Regulator Sets</b>	Passed	03/27/2013		Pearson, Timothy W	Online	 No

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCH2.0C	<b>CH-2 Course Install Customer Gas Service Lines</b>	Completed	03/27/2013			Online	
K	ITSOQCH2.0	<b>CH-2 Exam Install Customer Gas Service Lines</b>	Passed	03/27/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI1.0C	<b>CI-1 Course Perform Pipe-to-Soil Potential Surveys on Effectively Coated Buried or Submerged Pipelines</b>	Completed	08/30/2013			Online	
K	ITSOQCI1.0	<b>CI-1 Exam Perform Pipe-to-Soil Potential Surveys on Effectively Coated Buried or Submerged Pipelines</b>	Passed	08/30/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI10.0C	<b>CI-10 Course Inspect and Monitor Exposed Piping for Evidence of Atmospheric Corrosion</b>	Completed	09/03/2013			Online	
K	ITSOQCI10.0	<b>CI-10 Exam Inspect and Monitor Exposed Piping for Evidence of Atmospheric Corrosion</b>	Passed	09/03/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI11.0C	<b>CI-11 Course Install Sacrificial Anodes and Test Stations</b>	Completed	09/03/2013			Online	
K	ITSOQCI11.0	<b>CI-11 Exam Install Sacrificial Anodes and Test Stations</b>	Passed	09/03/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI12.0C	<b>CI-12 Course Measure the Extent of Corrosion on Pipeline Facilities</b>	Completed	09/03/2013			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCI12.0	<b>CI-12 Exam Measure the Extent of Corrosion on Pipeline Facilities</b>	Passed	09/03/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI13.0C	<b>CI-13 Course Identify Procedures Basic to Inspecting, Applying, and Repairing Pipeline Coatings</b>	Completed	06/11/2015			Online	
K	ITSOQCI13.0	<b>CI-13 Exam Identify Procedures Basic to Inspecting, Applying, and Repairing Pipeline Coatings</b>	Passed	09/03/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI2.0C	<b>CI-2 Course Determine Areas of Active Corrosion Using Close Interval Survey Methods</b>	Completed	08/30/2013			Online	
K	ITSOQCI2.0	<b>CI-2 Exam Determine Areas of Active Corrosion Using Close Interval Survey Methods</b>	Failed	08/30/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI3.0C	<b>CI-3 Course Measure Soil Resistivity</b>	Completed	08/30/2013			Online	
K	ITSOQCI3.0	<b>CI-3 Exam Measure Soil Resistivity</b>	Failed	08/30/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI4.0C	<b>CI-4 Course Inspect the External Condition of Exposed Buried Metal Piping to Determine if Repair or Replacement is Necessary</b>	Completed	08/30/2013			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCI4.0	<b>CI-4 Exam Inspect the External Condition of Exposed Buried Metal Piping to Determine if Repair or Replacement is Necessary</b>	Passed	08/30/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI5.0C	<b>CI-5 Course Inspect and Maintain Rectifiers</b>	Completed	08/30/2013			Online	
K	ITSOQCI5.0	<b>CI-5 Exam Inspect and Maintain Rectifiers</b>	Passed	08/30/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI6.0C	<b>CI-6 Course Inspect for the Effects of Interference Current</b>	Completed	08/30/2013			Online	
K	ITSOQCI6.0	<b>CI-6 Exam Inspect for the Effects of Interference Current</b>	Passed	08/30/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI7.0C	<b>CI-7 Course Install Test Leads to Monitor and Control External Corrosion</b>	Completed	09/03/2013			Online	
K	ITSOQCI7.0	<b>CI-7 Exam Install Test Leads to Monitor and Control External Corrosion</b>	Passed	09/03/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI8.0C	<b>CI-8 Course Install and Test Insulation to Control External Corrosion by Electrical Isolation</b>	Completed	09/03/2013			Online	
K	ITSOQCI8.0	<b>CI-8 Exam Install and Test Insulation to Control External Corrosion by Electrical Isolation</b>	Passed	09/03/2013		Pearson, Timothy W	Online	 No

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCI9.0C	<b>CI-9 Course Inspect for Evidence of Internal Corrosion</b>	Completed	09/03/2013			Online	
K	ITSOQCI9.0	<b>CI-9 Exam Inspect for Evidence of Internal Corrosion</b>	Passed	09/03/2013		Pearson, Timothy W	Online	 No
K	ITSOQCL3a.0C	<b>CL-3a Course Monitor Odorant Levels</b>	Completed	08/28/2013			Online	
K	ITSOQCL3a.0	<b>CL-3a Exam Monitor Odorant Levels</b>	Passed	08/28/2013		Pearson, Timothy W	Online	 No
K	ITSOQCM1.0C	<b>CM-1 Course Perform Patrol and Leakage Surveys on Gas Pipeline Facilities</b>	Completed	08/28/2013			Online	
K	ITSOQCM1.0	<b>CM-1 Exam Perform Patrol and Leakage Surveys on Gas Pipeline Facilities</b>	Passed	08/28/2013		Pearson, Timothy W	Online	 No
K	ITSOQCM13.0C	<b>CM-13 Course Investigate Reported Gas Leaks and Odors In Buildings</b>	Completed	01/13/2014			Online	
K	ITSOQCM13.0	<b>CM-13 Exam Investigate Reported Gas Leaks and Odors In Buildings</b>	Passed	01/22/2014			Online	 No
K	ITSOQCM2.0C	<b>CM-2 Course Locate and Mark Underground Pipeline Facilities</b>	Completed	08/28/2013			Online	
K	ITSOQCM2.0	<b>CM-2 Exam Locate and Mark Underground Pipeline Facilities</b>	Passed	08/28/2013		Pearson, Timothy W	Online	 No

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCM3.0C	<b>CM-3 Course Pressure Testing Gas Pipelines</b>	Completed	03/27/2013			Online	
K	ITSOQCM3.0	<b>CM-3 Exam Pressure Testing Gas Pipelines</b>	Passed	03/27/2013		Pearson, Timothy W	Online	 No
K	ITSOQCM4.0C	<b>CM-4 Course Inspect and Test Pressure Limiting Stations, Relief Devices, and Pressure Regulating Stations</b>	Completed	08/28/2013			Online	
K	ITSOQCM4.0	<b>CM-4 Exam Inspect and Test Pressure Limiting Stations, Relief Devices, and Pressure Regulating Stations</b>	Failed	08/28/2013		Pearson, Timothy W	Online	 No
K	ITSOQCM5.0C	<b>CM-5 Course Inspect, Service, and Operate Line Valves</b>	Completed	08/30/2013			Online	
K	ITSOQCM5.0	<b>CM-5 Exam Inspect, Service, and Operate Line Valves</b>	Failed	08/30/2013		Pearson, Timothy W	Online	 No
K	ITSOQCM8.0C	<b>CM-8 Course Make Field Repairs on Gas Pipelines</b>	Completed	11/10/2015			Online	
K	ITSOQCM8.0	<b>CM-8 Exam Make Field Repairs on Gas Pipelines</b>	Passed	08/30/2013		Pearson, Timothy W	Online	 No
K	ITSNG101.0c	<b>ITS Natural Gas 101: Properties of Natural Gas</b>	Completed	12/10/2013			Online	
K	TSK-70545851	<b>Material Safety Data Sheets</b>	Passed	09/03/2014			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-47656876	<b>OSHA: Active Shooter On-Site: What Every Employee Should Do</b>	Passed	03/21/2018			Online	
K	TSK-57181827	<b>OSHA: Avoiding Back Injuries</b>	Passed	08/31/2016			Online	
K	TSK-40374352	<b>OSHA: Avoiding Exposure to Bloodborne Pathogens</b>	Passed	09/30/2013			Online	
K	TSK-16333528	<b>OSHA: Battery Safety</b>	Passed	11/02/2018			Online	
K	TSK-19428631	<b>OSHA: Bloodborne Pathogens - General</b>	Failed	10/20/2016			Online	
K	TSK-49993361	<b>OSHA: Contractor Safety</b>	Passed	12/14/2018			Online	
K	TSK-94487089	<b>OSHA: Defensive Driving for Non-commercial Motorists</b>	Passed	05/14/2014			Online	
K	TSK-81206787	<b>OSHA: Disaster Planning for Employees</b>	Failed	02/25/2016			Online	
K	TSK-80650531	<b>OSHA: Electrical Safety - Unqualified Worker</b>	Passed	12/16/2014			Online	
K	TSK-43324205	<b>OSHA: Emergency Action and Fire Prevention</b>	Passed	03/17/2014			Online	
K	TSK-1863478	<b>OSHA: Exit Routes</b>	Passed	03/21/2018			Online	
K	TSK-88156636	<b>OSHA: Eye Protection</b>	Passed	12/13/2016			Online	
K	TSK-12431243	<b>OSHA: Fire Extinguishers</b>	Failed	12/22/2016			Online	
K	TSK-82208821	<b>OSHA: Foot Protection</b>	Passed	03/20/2017			Online	
K	TSK-59540464	<b>OSHA: Forklift Operator Safety</b>	Passed	03/20/2017			Online	


K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-76505221	<b>OSHA: Good Housekeeping</b>	Passed	11/02/2018			Online	
K	TSK-89763766	<b>OSHA: Hazard Communication and GHS - Supervisors</b>	Passed	11/22/2013			Online	
K	TSK-23131903	<b>OSHA: Home Safety</b>	Passed	01/05/2018			Online	
K	TSK-16814140	<b>OSHA: Hydrogen Sulfide Safety</b>	Passed	04/11/2016			Online	
K	TSK-6855417	<b>OSHA: Introduction to OSHA General Duty Clause</b>	Passed	04/09/2015			Online	
K	TSK-90329309	<b>OSHA: Lockout/Tagout - Affected Employee</b>	Passed	03/31/2016			Online	
K	TSK-68980468	<b>OSHA: Lockout/Tagout - Authorized Employee</b>	Passed	06/30/2017			Online	
K	TSK-28933376	<b>OSHA: Mold Hazards and Prevention</b>	Failed	12/16/2015			Online	
K	TSK-39871740	<b>OSHA: Noise and Hearing Conservation</b>	Passed	10/23/2017			Online	
K	TSK-84258098	<b>OSHA: OSHA Inspections, Citations, and Penalties</b>	Passed	10/28/2015			Online	
K	TSK-19197876	<b>OSHA: Personal Protective Equipment - What Employees Need To Know</b>	Passed	11/02/2018			Online	
K	TSK-58073640	<b>OSHA: Preparing for Weather Emergencies</b>	Passed	11/10/2017			Online	

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K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-34175129	<b>OSHA: Preventing Slips, Trips, and Falls</b>	Passed	12/14/2018			Online	
K	TSK-30539153	<b>OSHA: Preventing Workplace Violence for Employees</b>	Passed	03/21/2018			Online	
K	TSK-73543343	<b>OSHA: Process Safety Management</b>	Passed	10/20/2016			Online	
K	TSK-41577608	<b>OSHA: Recordkeeping</b>	Passed	07/28/2016			Online	
K	TSK-24151389	<b>OSHA: Safe Forklift Operation</b>	Passed	09/29/2015			Online	
K	TSK-90852211	<b>OSHA: Substance Abuse in the Workplace</b>	Passed	02/17/2015			Online	
K	TSK-6305383	<b>OSHA: Trenching - Competent Person</b>	Passed	02/14/2014			Online	
K	TSK-98660073	<b>OSHA: Understanding Chemical Labels Under GHS</b>	Failed	08/06/2015			Online	
K	TSK-29694826	<b>OSHA: Working in Cold Conditions</b>	Passed	10/23/2017			Online	
K	TSK-93233025	<b>OSHA: Working in Hot Conditions</b>	Passed	12/14/2018			Online	
K	TSK-69030935	<b>OSHA: Working Safely Outdoors</b>	Passed	08/18/2014			Online	
K	TSK-27437815	<b>OSHA: Working Safely with Flammable Liquids</b>	Passed	10/24/2014			Online	
K	TSK-78342570	<b>OSHA: Workplace Safety for Employees</b>	Passed	10/23/2017			Online	

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K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-25594563	<b>OSHA: Workplace Security for Employees</b>	Passed	12/14/2018			Online	
K	TSK-5026184	<b>OSHA: Your Guide to PPE</b>	Passed	12/31/2018			Online	
K	ITSOQUM7.0	<b>UM-7 Exam Prevent Accidental Ignition</b>	Passed	02/22/2013	02/22/2016	Pearson, Timothy W	Paper	 Expired

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## Thieman, Frank (fthieman)

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCF1-CF2.0C	<b>CF1-CF2 Course Join plastic pipe prerequisite</b>	Completed	04/28/2014			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Completed	07/02/2014			Online	
K	ITSOQCG2.0C	<b>CG-2 Course Identify Basic Installation Methods for Mains and Transmission Pipelines</b>	Completed	03/06/2015			Online	
K	ITSOQCG4.0C	<b>CG-4 Course Install Mains and Transmission Pipelines Using Trenchless Methods</b>	Completed	05/06/2016			Online	
K	ITSOQCM13.0C	<b>CM-13 Course Investigate Reported Gas Leaks and Odors In Buildings</b>	Completed	01/23/2014			Online	
K	ITSOQCM13.0	<b>CM-13 Exam Investigate Reported Gas Leaks and Odors In Buildings</b>	Passed	01/24/2014			Online	 No
K	ITSNG101.0c	<b>ITS Natural Gas 101: Properties of Natural Gas</b>	Completed	12/06/2013			Online	
K	TSK-70545851	<b>Material Safety Data Sheets</b>	Passed	09/22/2014			Online	
K	TSK-47656876	<b>OSHA: Active Shooter On-Site: What Every Employee Should Do</b>	Passed	02/05/2018			Online	
K	TSK-70376491	<b>OSHA: Arc Flash Safety</b>	Passed	12/06/2013			Online	
K	TSK-57181827	<b>OSHA: Avoiding Back Injuries</b>	Passed	08/23/2016			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-40374352	<b>OSHA: Avoiding Exposure to Bloodborne Pathogens</b>	Passed	09/11/2013			Online	
K	TSK-16333528	<b>OSHA: Battery Safety</b>	Passed	10/18/2018			Online	
K	TSK-19428631	<b>OSHA: Bloodborne Pathogens - General</b>	Passed	10/22/2016			Online	
K	TSK-49993361	<b>OSHA: Contractor Safety</b>	Passed	11/29/2018			Online	
K	TSK-94487089	<b>OSHA: Defensive Driving for Non-commercial Motorists</b>	Passed	05/31/2014			Online	
K	TSK-81206787	<b>OSHA: Disaster Planning for Employees</b>	Passed	02/18/2016			Online	
K	TSK-80650531	<b>OSHA: Electrical Safety - Unqualified Worker</b>	Passed	12/05/2014			Online	
K	TSK-43324205	<b>OSHA: Emergency Action and Fire Prevention</b>	Passed	03/06/2014			Online	
K	TSK-1863478	<b>OSHA: Exit Routes</b>	Passed	01/08/2018			Online	
K	TSK-88156636	<b>OSHA: Eye Protection</b>	Passed	11/08/2016			Online	
K	TSK-12431243	<b>OSHA: Fire Extinguishers</b>	Passed	12/18/2016			Online	
K	TSK-26325108	<b>OSHA: Fire Extinguishers Safe Use &amp; Handling</b>	Passed	01/22/2019			Online	
K	TSK-82208821	<b>OSHA: Foot Protection</b>	Passed	01/20/2017			Online	
K	TSK-59540464	<b>OSHA: Forklift Operator Safety</b>	Passed	03/06/2017			Online	
K	TSK-76505221	<b>OSHA: Good Housekeeping</b>	Passed	08/24/2018			Online	

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K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-89763766	<b>OSHA: Hazard Communication and GHS - Supervisors</b>	Passed	11/27/2013			Online	
K	TSK-23131903	<b>OSHA: Home Safety</b>	Passed	12/04/2017			Online	
K	TSK-16814140	<b>OSHA: Hydrogen Sulfide Safety</b>	Passed	04/11/2016			Online	
K	TSK-6855417	<b>OSHA: Introduction to OSHA General Duty Clause</b>	Passed	04/07/2015			Online	
K	TSK-18079533	<b>OSHA: Laboratory Safety</b>	Passed	01/22/2019			Online	
K	TSK-90329309	<b>OSHA: Lockout/Tagout - Affected Employee</b>	Passed	03/04/2016			Online	
K	TSK-68980468	<b>OSHA: Lockout/Tagout - Authorized Employee</b>	Passed	05/25/2017			Online	
K	TSK-28933376	<b>OSHA: Mold Hazards and Prevention</b>	Passed	12/16/2015			Online	
K	TSK-39871740	<b>OSHA: Noise and Hearing Conservation</b>	Passed	06/28/2017			Online	
K	TSK-84258098	<b>OSHA: OSHA Inspections, Citations, and Penalties</b>	Passed	10/30/2015			Online	
K	TSK-19197876	<b>OSHA: Personal Protective Equipment - What Employees Need To Know</b>	Passed	04/05/2018			Online	
K	TSK-58073640	<b>OSHA: Preparing for Weather Emergencies</b>	Passed	11/09/2017			Online	
K	TSK-34175129	<b>OSHA: Preventing Slips, Trips, and Falls</b>	Passed	06/22/2018			Online	
K	TSK-73543343	<b>OSHA: Process Safety Management</b>	Passed	08/05/2016			Online	
K	TSK-41577608	<b>OSHA: Recordkeeping</b>	Passed	07/27/2016			Online	
K	TSK-24151389	<b>OSHA: Safe Forklift Operation</b>	Passed	09/16/2015			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-90852211	<b>OSHA: Substance Abuse in the Workplace</b>	Passed	02/12/2015			Online	
K	TSK-6305383	<b>OSHA: Trenching - Competent Person</b>	Passed	02/11/2014			Online	
K	TSK-98660073	<b>OSHA: Understanding Chemical Labels Under GHS</b>	Passed	08/24/2015			Online	
K	TSK-29694826	<b>OSHA: Working in Cold Conditions</b>	Passed	10/10/2017			Online	
K	TSK-93233025	<b>OSHA: Working in Hot Conditions</b>	Passed	05/08/2018			Online	
K	TSK-69030935	<b>OSHA: Working Safely Outdoors</b>	Passed	08/28/2014			Online	
K	TSK-27437815	<b>OSHA: Working Safely with Flammable Liquids</b>	Passed	10/20/2014			Online	
K	TSK-78342570	<b>OSHA: Workplace Safety for Employees</b>	Passed	09/11/2017			Online	
K	TSK-25594563	<b>OSHA: Workplace Security for Employees</b>	Passed	07/20/2018			Online	
K	TSK-5026184	<b>OSHA: Your Guide to PPE</b>	Passed	09/10/2018			Online	

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## Thieman, Frank (fthieman)

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCF1-CF2.0C	<b>CF1-CF2 Course Join plastic pipe prerequisite</b>	Completed	04/28/2014			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Completed	07/02/2014			Online	
K	ITSOQCG2.0C	<b>CG-2 Course Identify Basic Installation Methods for Mains and Transmission Pipelines</b>	Completed	03/06/2015			Online	
K	ITSOQCG4.0C	<b>CG-4 Course Install Mains and Transmission Pipelines Using Trenchless Methods</b>	Completed	05/06/2016			Online	
K	ITSOQCM13.0C	<b>CM-13 Course Investigate Reported Gas Leaks and Odors In Buildings</b>	Completed	01/23/2014			Online	
K	ITSOQCM13.0	<b>CM-13 Exam Investigate Reported Gas Leaks and Odors In Buildings</b>	Passed	01/24/2014			Online	 No
K	ITSNG101.0c	<b>ITS Natural Gas 101: Properties of Natural Gas</b>	Completed	12/06/2013			Online	
K	TSK-70545851	<b>Material Safety Data Sheets</b>	Passed	09/22/2014			Online	
K	TSK-47656876	<b>OSHA: Active Shooter On-Site: What Every Employee Should Do</b>	Passed	02/05/2018			Online	
K	TSK-70376491	<b>OSHA: Arc Flash Safety</b>	Passed	12/06/2013			Online	
K	TSK-57181827	<b>OSHA: Avoiding Back Injuries</b>	Passed	08/23/2016			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-40374352	<b>OSHA: Avoiding Exposure to Bloodborne Pathogens</b>	Passed	09/11/2013			Online	
K	TSK-16333528	<b>OSHA: Battery Safety</b>	Passed	10/18/2018			Online	
K	TSK-19428631	<b>OSHA: Bloodborne Pathogens - General</b>	Passed	10/22/2016			Online	
K	TSK-49993361	<b>OSHA: Contractor Safety</b>	Passed	11/29/2018			Online	
K	TSK-94487089	<b>OSHA: Defensive Driving for Non-commercial Motorists</b>	Passed	05/31/2014			Online	
K	TSK-81206787	<b>OSHA: Disaster Planning for Employees</b>	Passed	02/18/2016			Online	
K	TSK-80650531	<b>OSHA: Electrical Safety - Unqualified Worker</b>	Passed	12/05/2014			Online	
K	TSK-43324205	<b>OSHA: Emergency Action and Fire Prevention</b>	Passed	03/06/2014			Online	
K	TSK-1863478	<b>OSHA: Exit Routes</b>	Passed	01/08/2018			Online	
K	TSK-88156636	<b>OSHA: Eye Protection</b>	Passed	11/08/2016			Online	
K	TSK-12431243	<b>OSHA: Fire Extinguishers</b>	Passed	12/18/2016			Online	
K	TSK-26325108	<b>OSHA: Fire Extinguishers Safe Use &amp; Handling</b>	Passed	01/22/2019			Online	
K	TSK-82208821	<b>OSHA: Foot Protection</b>	Passed	01/20/2017			Online	
K	TSK-59540464	<b>OSHA: Forklift Operator Safety</b>	Passed	03/06/2017			Online	
K	TSK-76505221	<b>OSHA: Good Housekeeping</b>	Passed	08/24/2018			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-89763766	<b>OSHA: Hazard Communication and GHS - Supervisors</b>	Passed	11/27/2013			Online	
K	TSK-23131903	<b>OSHA: Home Safety</b>	Passed	12/04/2017			Online	
K	TSK-16814140	<b>OSHA: Hydrogen Sulfide Safety</b>	Passed	04/11/2016			Online	
K	TSK-6855417	<b>OSHA: Introduction to OSHA General Duty Clause</b>	Passed	04/07/2015			Online	
K	TSK-18079533	<b>OSHA: Laboratory Safety</b>	Passed	01/22/2019			Online	
K	TSK-90329309	<b>OSHA: Lockout/Tagout - Affected Employee</b>	Passed	03/04/2016			Online	
K	TSK-68980468	<b>OSHA: Lockout/Tagout - Authorized Employee</b>	Passed	05/25/2017			Online	
K	TSK-28933376	<b>OSHA: Mold Hazards and Prevention</b>	Passed	12/16/2015			Online	
K	TSK-39871740	<b>OSHA: Noise and Hearing Conservation</b>	Passed	06/28/2017			Online	
K	TSK-84258098	<b>OSHA: OSHA Inspections, Citations, and Penalties</b>	Passed	10/30/2015			Online	
K	TSK-19197876	<b>OSHA: Personal Protective Equipment - What Employees Need To Know</b>	Passed	04/05/2018			Online	
K	TSK-58073640	<b>OSHA: Preparing for Weather Emergencies</b>	Passed	11/09/2017			Online	
K	TSK-34175129	<b>OSHA: Preventing Slips, Trips, and Falls</b>	Passed	06/22/2018			Online	
K	TSK-73543343	<b>OSHA: Process Safety Management</b>	Passed	08/05/2016			Online	
K	TSK-41577608	<b>OSHA: Recordkeeping</b>	Passed	07/27/2016			Online	
K	TSK-24151389	<b>OSHA: Safe Forklift Operation</b>	Passed	09/16/2015			Online	

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K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-90852211	<b>OSHA: Substance Abuse in the Workplace</b>	Passed	02/12/2015			Online	
K	TSK-6305383	<b>OSHA: Trenching - Competent Person</b>	Passed	02/11/2014			Online	
K	TSK-98660073	<b>OSHA: Understanding Chemical Labels Under GHS</b>	Passed	08/24/2015			Online	
K	TSK-29694826	<b>OSHA: Working in Cold Conditions</b>	Passed	10/10/2017			Online	
K	TSK-93233025	<b>OSHA: Working in Hot Conditions</b>	Passed	05/08/2018			Online	
K	TSK-69030935	<b>OSHA: Working Safely Outdoors</b>	Passed	08/28/2014			Online	
K	TSK-27437815	<b>OSHA: Working Safely with Flammable Liquids</b>	Passed	10/20/2014			Online	
K	TSK-78342570	<b>OSHA: Workplace Safety for Employees</b>	Passed	09/11/2017			Online	
K	TSK-25594563	<b>OSHA: Workplace Security for Employees</b>	Passed	07/20/2018			Online	
K	TSK-5026184	<b>OSHA: Your Guide to PPE</b>	Passed	09/10/2018			Online	

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## Shirley, Bryan (bshirley)

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCF1-CF2.0C	<b>CF1-CF2 Course Join plastic pipe prerequisite</b>	Completed	04/14/2014			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Completed	08/06/2014			Online	
K	ITSOQCG1.0	<b>CG-1 Exam Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Passed	08/06/2014			Online	 No
K	ITSOQCG2.0C	<b>CG-2 Course Identify Basic Installation Methods for Mains and Transmission Pipelines</b>	Completed	04/08/2015			Online	
K	ITSOQCG4.0C	<b>CG-4 Course Install Mains and Transmission Pipelines Using Trenchless Methods</b>	Completed	08/23/2016			Online	
K	TSK-70545851	<b>Material Safety Data Sheets</b>	Passed	10/29/2014			Online	
K	TSK-47656876	<b>OSHA: Active Shooter On-Site: What Every Employee Should Do</b>	Passed	05/18/2018			Online	
K	TSK-57181827	<b>OSHA: Avoiding Back Injuries</b>	Passed	08/23/2016			Online	
K	TSK-40374352	<b>OSHA: Avoiding Exposure to Bloodborne Pathogens</b>	Passed	07/18/2016			Online	
K	TSK-16333528	<b>OSHA: Battery Safety</b>	Passed	05/23/2017			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-19428631	<b>OSHA: Bloodborne Pathogens - General</b>	Passed	10/21/2016			Online	
K	TSK-49993361	<b>OSHA: Contractor Safety</b>	Passed	08/31/2015			Online	
K	TSK-94487089	<b>OSHA: Defensive Driving for Non-commercial Motorists</b>	Passed	06/10/2014			Online	
K	TSK-81206787	<b>OSHA: Disaster Planning for Employees</b>	Passed	04/11/2016			Online	
K	TSK-80650531	<b>OSHA: Electrical Safety - Unqualified Worker</b>	Passed	12/03/2014			Online	
K	TSK-1863478	<b>OSHA: Exit Routes</b>	Passed	05/17/2018			Online	
K	TSK-88156636	<b>OSHA: Eye Protection</b>	Passed	12/20/2016			Online	
K	TSK-12431243	<b>OSHA: Fire Extinguishers</b>	Passed	01/03/2017			Online	
K	TSK-82208821	<b>OSHA: Foot Protection</b>	Passed	02/03/2017			Online	
K	TSK-59540464	<b>OSHA: Forklift Operator Safety</b>	Passed	05/23/2017			Online	
K	TSK-76505221	<b>OSHA: Good Housekeeping</b>	Passed	05/25/2017			Online	
K	TSK-23131903	<b>OSHA: Home Safety</b>	Passed	01/08/2018			Online	
K	TSK-16814140	<b>OSHA: Hydrogen Sulfide Safety</b>	Passed	06/22/2016			Online	

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K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-6855417	<b>OSHA: Introduction to OSHA General Duty Clause</b>	Passed	12/18/2015			Online	
K	TSK-90329309	<b>OSHA: Lockout/Tagout - Affected Employee</b>	Passed	04/11/2016			Online	
K	TSK-68980468	<b>OSHA: Lockout/Tagout - Authorized Employee</b>	Passed	05/25/2017			Online	
K	TSK-28933376	<b>OSHA: Mold Hazards and Prevention</b>	Passed	12/18/2015			Online	
K	TSK-90233209	<b>OSHA: New Employee Safety Orientation</b>	Passed	04/14/2014			Online	
K	TSK-39871740	<b>OSHA: Noise and Hearing Conservation</b>	Passed	07/13/2017			Online	
K	TSK-84258098	<b>OSHA: OSHA Inspections, Citations, and Penalties</b>	Passed	12/21/2015			Online	
K	TSK-19197876	<b>OSHA: Personal Protective Equipment - What Employees Need To Know</b>	Passed	05/25/2018			Online	
K	TSK-58073640	<b>OSHA: Preparing for Weather Emergencies</b>	Passed	05/25/2018			Online	
K	TSK-30539153	<b>OSHA: Preventing Workplace Violence for Employees</b>	Passed	05/17/2018			Online	
K	TSK-73543343	<b>OSHA: Process Safety Management</b>	Passed	09/01/2016			Online	
K	TSK-41577608	<b>OSHA: Recordkeeping</b>	Passed	07/29/2016			Online	

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K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	is Qualified
K	TSK-24151389	<b>OSHA: Safe Forklift Operation</b>	Passed	09/30/2015			Online	
K	TSK-90852211	<b>OSHA: Substance Abuse in the Workplace</b>	Passed	02/19/2015			Online	
K	TSK-98660073	<b>OSHA: Understanding Chemical Labels Under GHS</b>	Passed	09/30/2015			Online	
K	TSK-29694826	<b>OSHA: Working in Cold Conditions</b>	Passed	10/25/2017			Online	
K	TSK-93233025	<b>OSHA: Working in Hot Conditions</b>	Passed	05/17/2018			Online	
K	TSK-69030935	<b>OSHA: Working Safely Outdoors</b>	Passed	08/11/2014			Online	
K	TSK-27437815	<b>OSHA: Working Safely with Flammable Liquids</b>	Passed	12/03/2014			Online	
K	TSK-78342570	<b>OSHA: Workplace Safety for Employees</b>	Passed	09/12/2017			Online	
K	TSK-5026184	<b>OSHA: Your Guide to PPE</b>	Passed	08/18/2017			Online	

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## Rose, Michael (mrose)

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCF1.1.0C	<b>CF-1.1 Course Join Plastic Pipe with Butt Fusion</b>	Completed	02/12/2019			Online	
K	ITSOQCF1.1.0	<b>CF-1.1 Exam Join Plastic Pipe with Butt Fusion</b>	Passed	02/12/2019		Pearson, Timothy W	Online	<input type="radio"/> No
K	ITSOQCF1.2.0C	<b>CF-1.2 Course Join Plastic Pipe with Socket Fusion</b>	Completed	02/12/2019			Online	
K	ITSOQCF1.2.0	<b>CF-1.2 Exam Join Plastic Pipe with Socket Fusion</b>	Passed	02/12/2019		Pearson, Timothy W	Online	<input type="radio"/> No
K	ITSOQCF1.3.0C	<b>CF-1.3 Course Join Plastic Pipe with Saddle Fusion</b>	Completed	02/12/2019			Online	
K	ITSOQCF1.3.0	<b>CF-1.3 Exam Join Plastic Pipe with Saddle Fusion</b>	Passed	02/12/2019		Pearson, Timothy W	Online	<input type="radio"/> No
K	ITSOQCM25.0C	<b>CM-25 COURSE Classifying Leaks</b>	Completed	07/31/2018			Online	
K	ITSOQCM25.0	<b>CM-25 Exam Classifying Leaks</b>	Passed	07/31/2018		Pearson, Timothy W	Online	<input type="radio"/> No
K	ITSOQCM7.0C	<b>CM-7 Course Prevent Accidental Ignition</b>	Completed	07/31/2018			Online	
K	ITSOQCM7.0	<b>CM-7 Exam Prevent Accidental Ignition</b>	Passed	07/31/2018	07/31/2021	Pearson, Timothy W	Online	<input checked="" type="radio"/> Yes
K	TSK-47656876	<b>OSHA: Active Shooter On-Site: What Every Employee Should Do</b>	Passed	02/08/2018			Online	
K	TSK-67161868	<b>OSHA: Back Safety</b>	Passed	05/30/2017			Online	




K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-16333528	<b>OSHA: Battery Safety</b>	Passed	10/26/2018			Online	
K	TSK-49993361	<b>OSHA: Contractor Safety</b>	Passed	03/04/2019			Online	
K	TSK-1863478	<b>OSHA: Exit Routes</b>	Passed	01/23/2018			Online	
K	TSK-88156636	<b>OSHA: Eye Protection</b>	Passed	05/30/2017			Online	
K	TSK-76505221	<b>OSHA: Good Housekeeping</b>	Passed	02/11/2019			Online	
K	TSK-23131903	<b>OSHA: Home Safety</b>	Passed	01/23/2018			Online	
K	TSK-39871740	<b>OSHA: Noise and Hearing Conservation</b>	Passed	07/05/2017			Online	
K	TSK-19197876	<b>OSHA: Personal Protective Equipment - What Employees Need To Know</b>	Passed	05/09/2018			Online	
K	TSK-58073640	<b>OSHA: Preparing for Weather Emergencies</b>	Passed	01/23/2018			Online	
K	TSK-29694826	<b>OSHA: Working in Cold Conditions</b>	Passed	01/23/2018			Online	
K	TSK-78342570	<b>OSHA: Workplace Safety for Employees</b>	Passed	01/23/2018			Online	
K	TSK-5026184	<b>OSHA: Your Guide to PPE</b>	Passed	02/07/2018			Online	





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## Rose, Chris (crose)

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCE1.0C	<b>CE-1 Course Weld on steel pipelines</b>	Completed	02/15/2018			Online	
K	ITSOQCE1.0	<b>CE-1 Exam Weld on steel pipelines</b>	Passed	02/16/2018		Pearson, Timothy W	Online	 No
K	ITSOQCF1.1.0C	<b>CF-1.1 Course Join Plastic Pipe with Butt Fusion</b>	Completed	02/19/2014			Online	
K	ITSOQCF1.2.0C	<b>CF-1.2 Course Join Plastic Pipe with Socket Fusion</b>	Completed	02/19/2014			Online	
K	ITSOQCF1.3.0C	<b>CF-1.3 Course Join Plastic Pipe with Saddle Fusion</b>	Completed	02/19/2014			Online	
K	ITSOQCF1.4.0C	<b>CF-1.4 Course Join Plastic Pipe with Electrofusion</b>	Completed	02/19/2014			Online	
K	ITSOQCF1.4.0	<b>CF-1.4 Exam Join Plastic Pipe with Electrofusion</b>	Failed	02/16/2018		Pearson, Timothy W	Online	 No
K	ITSOQCF1-CF2.0C	<b>CF1-CF2 Course Join plastic pipe prerequisite</b>	Completed	04/29/2014			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Completed	12/17/2013			Online	
K	ITSOQCG1.0	<b>CG-1 Exam Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Passed	12/17/2013		Pearson, Timothy W	Online	 No

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCG2.0C	<b>CG-2 Course Identify Basic Installation Methods for Mains and Transmission Pipelines</b>	Completed	03/10/2015			Online	
K	ITSOQCG4.0C	<b>CG-4 Course Install Mains and Transmission Pipelines Using Trenchless Methods</b>	Completed	05/10/2016			Online	
K	ITSOQCH1.0C	<b>CH-1 Course Install Customer Gas Meter and Regulator Sets</b>	Completed	12/18/2013			Online	
K	ITSOQCH1.0	<b>CH-1 Exam Install Customer Gas Meter and Regulator Sets</b>	Passed	12/18/2013		Pearson, Timothy W	Online	 No
K	ITSOQCH2.0C	<b>CH-2 Course Install Customer Gas Service Lines</b>	Completed	12/18/2013			Online	
K	ITSOQCH2.0	<b>CH-2 Exam Install Customer Gas Service Lines</b>	Passed	12/18/2013		Pearson, Timothy W	Online	 No
K	ITSOQCH3.0C	<b>CH-3 Course Deactivate Gas Metering Services</b>	Completed	12/18/2013			Online	
K	ITSOQCH3.0	<b>CH-3 Exam Deactivate Gas Metering Services</b>	Passed	12/18/2013		Pearson, Timothy W	Online	 No
K	ITSOQCM11.0C	<b>CM-11 Course Recognize and React to Generic Abnormal Operating Conditions</b>	Completed	01/27/2014			Online	
K	ITSOQCM11.0	<b>CM-11 Exam Recognize and React to Generic Abnormal Operating Conditions</b>	Passed	01/27/2014	01/27/2017		Online	 Expired

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCM13.0C	<b>CM-13 Course Investigate Reported Gas Leaks and Odors In Buildings</b>	Completed	12/17/2013			Online	
K	ITSOQCM13.0	<b>CM-13 Exam Investigate Reported Gas Leaks and Odors In Buildings</b>	Passed	12/17/2013			Online	 No
K	ITSOQCM7.0C	<b>CM-7 Course Prevent Accidental Ignition</b>	Completed	09/26/2013			Online	
K	ITSOQCM7.0	<b>CM-7 Exam Prevent Accidental Ignition</b>	Passed	09/26/2013	09/26/2016	Pearson, Timothy W	Online	 Expired
K	ITSNG101.0c	<b>ITS Natural Gas 101: Properties of Natural Gas</b>	Completed	09/26/2013			Online	
K	TSK-70545851	<b>Material Safety Data Sheets</b>	Passed	10/03/2014			Online	
K	TSK-47656876	<b>OSHA: Active Shooter On-Site: What Every Employee Should Do</b>	Passed	02/15/2018			Online	
K	TSK-57181827	<b>OSHA: Avoiding Back Injuries</b>	Passed	08/25/2016			Online	
K	TSK-40374352	<b>OSHA: Avoiding Exposure to Bloodborne Pathogens</b>	Passed	09/26/2013			Online	
K	TSK-16333528	<b>OSHA: Battery Safety</b>	Passed	01/08/2019			Online	
K	TSK-19428631	<b>OSHA: Bloodborne Pathogens - General</b>	Passed	10/20/2016			Online	
K	TSK-49993361	<b>OSHA: Contractor Safety</b>	Passed	01/08/2019			Online	
K	TSK-94487089	<b>OSHA: Defensive Driving for Non-commercial Motorists</b>	Passed	05/30/2014			Online	



K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-81206787	<b>OSHA: Disaster Planning for Employees</b>	Passed	02/11/2016			Online	
K	TSK-80650531	<b>OSHA: Electrical Safety - Unqualified Worker</b>	Passed	12/05/2014			Online	
K	TSK-43324205	<b>OSHA: Emergency Action and Fire Prevention</b>	Passed	03/31/2014			Online	
K	TSK-1863478	<b>OSHA: Exit Routes</b>	Passed	01/12/2018			Online	
K	TSK-88156636	<b>OSHA: Eye Protection</b>	Passed	11/15/2016			Online	
K	TSK-12431243	<b>OSHA: Fire Extinguishers</b>	Passed	12/19/2016			Online	
K	TSK-26325108	<b>OSHA: Fire Extinguishers Safe Use &amp; Handling</b>	Passed	01/21/2019			Online	
K	TSK-82208821	<b>OSHA: Foot Protection</b>	Passed	01/23/2017			Online	
K	TSK-59540464	<b>OSHA: Forklift Operator Safety</b>	Passed	02/24/2017			Online	
K	TSK-76505221	<b>OSHA: Good Housekeeping</b>	Passed	01/08/2019			Online	
K	TSK-89763766	<b>OSHA: Hazard Communication and GHS - Supervisors</b>	Passed	11/12/2013			Online	
K	TSK-23131903	<b>OSHA: Home Safety</b>	Passed	12/08/2017			Online	
K	TSK-16814140	<b>OSHA: Hydrogen Sulfide Safety</b>	Passed	04/08/2016			Online	
K	TSK-6855417	<b>OSHA: Introduction to OSHA General Duty Clause</b>	Passed	04/17/2015			Online	
K	TSK-90329309	<b>OSHA: Lockout/Tagout - Affected Employee</b>	Passed	03/21/2016			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-68980468	<b>OSHA: Lockout/Tagout - Authorized Employee</b>	Passed	05/25/2017			Online	
K	TSK-28933376	<b>OSHA: Mold Hazards and Prevention</b>	Passed	12/16/2015			Online	
K	TSK-39871740	<b>OSHA: Noise and Hearing Conservation</b>	Passed	06/28/2017			Online	
K	TSK-84258098	<b>OSHA: OSHA Inspections, Citations, and Penalties</b>	Passed	10/15/2015			Online	
K	TSK-19197876	<b>OSHA: Personal Protective Equipment - What Employees Need To Know</b>	Passed	04/04/2018			Online	
K	TSK-58073640	<b>OSHA: Preparing for Weather Emergencies</b>	Passed	11/08/2017			Online	
K	TSK-34175129	<b>OSHA: Preventing Slips, Trips, and Falls</b>	Passed	01/08/2019			Online	
K	TSK-30539153	<b>OSHA: Preventing Workplace Violence for Employees</b>	Passed	03/27/2018			Online	
K	TSK-73543343	<b>OSHA: Process Safety Management</b>	Passed	08/03/2016			Online	
K	TSK-41577608	<b>OSHA: Recordkeeping</b>	Passed	07/28/2016			Online	
K	TSK-24151389	<b>OSHA: Safe Forklift Operation</b>	Passed	09/17/2015			Online	
K	TSK-90852211	<b>OSHA: Substance Abuse in the Workplace</b>	Passed	02/10/2015			Online	







K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-6305383	<b>OSHA: Trenching - Competent Person</b>	Passed	02/19/2014			Online	
K	TSK-98660073	<b>OSHA: Understanding Chemical Labels Under GHS</b>	Passed	08/24/2015			Online	
K	TSK-29694826	<b>OSHA: Working in Cold Conditions</b>	Passed	10/13/2017			Online	
K	TSK-93233025	<b>OSHA: Working in Hot Conditions</b>	Passed	05/22/2018			Online	
K	TSK-69030935	<b>OSHA: Working Safely Outdoors</b>	Passed	08/06/2014			Online	
K	TSK-27437815	<b>OSHA: Working Safely with Flammable Liquids</b>	Passed	10/07/2014			Online	
K	TSK-78342570	<b>OSHA: Workplace Safety for Employees</b>	Passed	10/12/2017			Online	
K	TSK-25594563	<b>OSHA: Workplace Security for Employees</b>	Passed	01/08/2019			Online	
K	TSK-5026184	<b>OSHA: Your Guide to PPE</b>	Passed	01/08/2019			Online	

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## Perkins, Danny (dperkins)

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCF1.0	<b>CF-1 Exam Join plastic pipe with heat fusion</b>	Passed	12/05/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF1.1.0C	<b>CF-1.1 Course Join Plastic Pipe with Butt Fusion</b>	Completed	01/19/2015			Online	
K	ITSOQCF1.1.0	<b>CF-1.1 Exam Join Plastic Pipe with Butt Fusion</b>	Failed	01/19/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF1.2.0C	<b>CF-1.2 Course Join Plastic Pipe with Socket Fusion</b>	Completed	01/19/2015			Online	
K	ITSOQCF1.2.0	<b>CF-1.2 Exam Join Plastic Pipe with Socket Fusion</b>	Passed	01/19/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF1.3.0C	<b>CF-1.3 Course Join Plastic Pipe with Saddle Fusion</b>	Completed	01/19/2015			Online	
K	ITSOQCF1.3.0	<b>CF-1.3 Exam Join Plastic Pipe with Saddle Fusion</b>	Passed	01/19/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF1.4.0C	<b>CF-1.4 Course Join Plastic Pipe with Electrofusion</b>	Completed	01/20/2015			Online	
K	ITSOQCF1.4.0	<b>CF-1.4 Exam Join Plastic Pipe with Electrofusion</b>	Passed	01/21/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF2.0	<b>CF-2 Exam Join polyethylene pipe with mechanical fittings</b>	Passed	01/19/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF2.1.0C	<b>CF-2.1 Course Join Plastic Pipe with Threaded Nut Compression End Fittings</b>	Completed	01/21/2015			Online	

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K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCF2.2.0C	<b>CF-2.2 Course Join Plastic Pipe with Stab-Type Mechanical Fittings</b>	Completed	01/21/2015			Online	
K	ITSOQCF2.2.0	<b>CF-2.2 Exam Join Plastic Pipe with Stab-Type Mechanical Fittings</b>	Passed	01/21/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF1-CF2.0C	<b>CF1-CF2 Course Join plastic pipe prerequisite</b>	Completed	04/02/2014			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Passed	09/04/2012			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Completed	07/11/2014			Online	
K	ITSOQCG1.0	<b>CG-1 Exam Verifying excavating and backfilling operations that minimize excavation damage</b>	Passed	09/04/2012	09/04/2015		Online	 Expired
S	ITSOQ0641	Visually Inspect Pipe and Components Prior to Installation	Passed	09/10/2012		Pearson, Timothy W		
S	ITSOQ0981	Backfilling	Passed	09/10/2012		Pearson, Timothy W		
S	ITSOQ1321	Damage Prevention During Excavation Activities by or on Behalf of the Operator	Passed	09/10/2012		Pearson, Timothy W		

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
S	ITSOQ1331	Damage Prevention Inspection During Third-Party Excavation or Encroachment Activities as Determined Necessary by the Operator	Passed	09/10/2012		Pearson, Timothy W		
S	ITSOQ1341	Provide or Ensure Adequate Pipeline Support During Operator-Initiated Excavation Activities	Passed	09/10/2012		Pearson, Timothy W		
S	ITSOQ5051	Verified the Correct Marking of Permanently Marked Underground Pipeline Facilities	Passed	09/10/2012		Pearson, Timothy W		
S	ITSOQ5061	Verified the Correct Marking of Temporarily Marked Underground Pipeline Facilities	Passed	09/10/2012		Pearson, Timothy W		
K	ITSOQCG2.0C	<b>CG-2 Course Identify Basic Installation Methods for Mains and Transmission Pipelines</b>	Completed	03/06/2015			Online	
K	ITSOQCG4.0C	<b>CG-4 Course Install Mains and Transmission Pipelines Using Trenchless Methods</b>	Completed	05/11/2016			Online	
K	ITSOQCI1.0C	<b>CI-1 Course Perform Pipe-to-Soil Potential Surveys on Effectively Coated Buried or Submerged Pipelines</b>	Passed	09/10/2012			Online	
K	ITSOQCI1.0	<b>CI-1 Exam Perform Pipe-to-Soil Potential Surveys on Effectively Coated Buried or Submerged Pipelines</b>	Passed	09/10/2012	09/10/2015	Pearson, Timothy W	Online	 Expired





K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
S	ITSOQ0001	Measure Structure to Electrolyte Potential	Passed	09/10/2012		Pearson, Timothy W		
K	ITSOQCI10.0C	<b>CI-10 Course Inspect and Monitor Exposed Piping for Evidence of Atmospheric Corrosion</b>	Passed	09/05/2012			Online	
K	ITSOQCI10.0	<b>CI-10 Exam Inspect and Monitor Exposed Piping for Evidence of Atmospheric Corrosion</b>	Passed	09/05/2012	09/05/2015		Online	ⓘ Expired
S	ITSOQ0141	Visual Inspection For Atmospheric Corrosion	Passed	09/05/2012		Pearson, Timothy W		
S	ITSOQ0191	Measure Atmospheric Corrosion	Passed	09/05/2012		Pearson, Timothy W		
K	ITSOQCI11.0C	<b>CI-11 Course Install Sacrificial Anodes and Test Stations</b>	Passed	09/05/2012			Online	
K	ITSOQCI11.0	<b>CI-11 Exam Install Sacrificial Anodes and Test Stations</b>	Passed	09/05/2012	09/05/2015		Online	ⓘ Expired
S	ITSOQ0041	Installation And Maintenance of Mechanical Electrical Connections	Passed	09/06/2012		Pearson, Timothy W		
S	ITSOQ0051	Installation of Exothermic Electrical Connections	Passed	09/06/2012		Pearson, Timothy W		
S	ITSOQ5071	Install Sacrificial Anodes	Passed	09/05/2012		Pearson, Timothy W		
K	ITSOQCI12.0C	<b>CI-12 Course Measure the Extent of Corrosion on Pipeline Facilities</b>	Completed	09/10/2012			Online	



K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCI12.0	<b>CI-12 Exam Measure the Extent of Corrosion on Pipeline Facilities</b>	Passed	09/10/2012	09/06/2015		Online	ⓘ Expired
S	ITSOQ0181	Measure Internal Corrosion	Passed	09/06/2012		Pearson, Timothy W		
S	ITSOQ0191	Measure Atmospheric Corrosion	Passed	09/05/2012		Pearson, Timothy W		
K	ITSOQCI13.0C	<b>CI-13 Course Identify Procedures Basic to Inspecting, Applying, and Repairing Pipeline Coatings</b>	Passed	09/05/2012			Online	
K	ITSOQCI13.0	<b>CI-13 Exam Identify Procedures Basic to Inspecting, Applying, and Repairing Pipeline Coatings</b>	Passed	09/05/2012	09/05/2015		Online	ⓘ Expired
S	ITSOQ0151	Visual Inspection of Buried Pipe and Components When Exposed	Passed	09/06/2012		Pearson, Timothy W		
S	ITSOQ0991	Coating Application and Repair: Brushed or Rolled	Passed	09/05/2012		Pearson, Timothy W		
S	ITSOQ1011	External Coating Application and Repair: Wrapped	Passed	09/05/2012		Pearson, Timothy W		
K	ITSOQCI2.0C	<b>CI-2 Course Determine Areas of Active Corrosion Using Close Interval Survey Methods</b>	Completed	03/08/2013			Online	
K	ITSOQCI2.0	<b>CI-2 Exam Determine Areas of Active Corrosion Using Close Interval Survey Methods</b>	Passed	03/08/2013	03/08/2016	Pearson, Timothy W	Online	ⓘ Expired
S	ITSOQ0011	Conduct Close Interval Survey	Passed	03/11/2013		Pearson, Timothy W		

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQC13.0C	<b>CI-3 Course Measure Soil Resistivity</b>	Completed	03/11/2013			Online	
K	ITSOQC13.0	<b>CI-3 Exam Measure Soil Resistivity</b>	Passed	03/11/2013	03/11/2016	Pearson, Timothy W	Online	ⓘ Expired
S	ITSOQ0021	Measure Soil Resistivity	Passed	03/11/2013		Pearson, Timothy W		
K	ITSOQC14.0C	<b>CI-4 Course Inspect the External Condition of Exposed Buried Metal Piping to Determine if Repair or Replacement is Necessary</b>	Passed	09/06/2012			Online	
K	ITSOQC14.0	<b>CI-4 Exam Inspect the External Condition of Exposed Buried Metal Piping to Determine if Repair or Replacement is Necessary</b>	Passed	09/06/2012	09/06/2015		Online	ⓘ Expired
S	ITSOQ0151	Visual Inspection of Buried Pipe and Components When Exposed	Passed	09/06/2012		Pearson, Timothy W		
S	ITSOQ0171	Measure External Corrosion	Passed	09/06/2012		Pearson, Timothy W		
K	ITSOQC15.0C	<b>CI-5 Course Inspect and Maintain Rectifiers</b>	Passed	09/06/2012			Online	
K	ITSOQC15.0	<b>CI-5 Exam Inspect and Maintain Rectifiers</b>	Passed	09/06/2012	09/06/2015		Online	ⓘ Expired
S	ITSOQ0101	Inspect Rectifier And Obtain Readings	Passed	09/06/2012		Pearson, Timothy W		

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
S	ITSOQ0111	Maintain Rectifiers	Passed	09/06/2012		Pearson, Timothy W		
K	ITSOQCI6.0C	<b>CI-6 Course Inspect for the Effects of Interference Current</b>	Passed	09/06/2012			Online	
K	ITSOQCI6.0	<b>CI-6 Exam Inspect for the Effects of Interference Current</b>	Passed	09/06/2012	09/06/2015		Online	ⓘ Expired
S	ITSOQ0061	Inspect or Test Cathodic Protection Bonds	Passed	09/06/2012		Pearson, Timothy W		
K	ITSOQCI7.0C	<b>CI-7 Course Install Test Leads to Monitor and Control External Corrosion</b>	Passed	09/06/2012			Online	
K	ITSOQCI7.0	<b>CI-7 Exam Install Test Leads to Monitor and Control External Corrosion</b>	Passed	09/06/2012	09/06/2015		Online	ⓘ Expired
S	ITSOQ0041	Installation And Maintenance of Mechanical Electrical Connections	Passed	09/06/2012		Pearson, Timothy W		
S	ITSOQ0051	Installation of Exothermic Electrical Connections	Passed	09/06/2012		Pearson, Timothy W		
K	ITSOQCI8.0C	<b>CI-8 Course Install and Test Insulation to Control External Corrosion by Electrical Isolation</b>	Passed	09/06/2012			Online	
K	ITSOQCI8.0	<b>CI-8 Exam Install and Test Insulation to Control External Corrosion by Electrical Isolation</b>	Passed	09/06/2012	09/06/2015		Online	ⓘ Expired
S	ITSOQ0071	Inspect or Test Cathodic Protection Electrical Isolation Devices	Passed	09/06/2012		Pearson, Timothy W		

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
S	ITSOQ0081	Install Cathodic Protection Electrical Isolation Devices	Passed	09/06/2012		Pearson, Timothy W		
K	ITSOQCI9.0C	<b>CI-9 Course Inspect for Evidence of Internal Corrosion</b>	Passed	09/06/2012			Online	
K	ITSOQCI9.0	<b>CI-9 Exam Inspect for Evidence of Internal Corrosion</b>	Passed	09/06/2012	09/06/2015		Online	 Expired
S	ITSOQ0161	Visual Inspection for Internal Corrosion	Passed	09/06/2012		Pearson, Timothy W		
S	ITSOQ0181	Measure Internal Corrosion	Passed	09/06/2012		Pearson, Timothy W		
K	ITSOQCL1.0C	<b>CL-1 Course Tap Pipelines Under Pressure</b>	Completed	04/02/2014			Online	
K	ITSOQCL1.0	<b>CL-1 Exam Tap Pipelines Under Pressure</b>	Passed	02/11/2014			Online	 No
K	ITSOQCL2.0C	<b>CL-2 Course Purge Pipelines (Small &amp; Large Diameter)</b>	Completed	04/02/2014			Online	
K	ITSOQCL2.0	<b>CL-2 Exam Purge Pipelines (Small &amp; Large Diameter)</b>	Failed	02/11/2014			Online	 No
K	ITSOQCM10.0C	<b>CM-10 Course Abandon/Deactivate Gas Pipeline Facilities</b>	Completed	04/02/2014			Online	
K	ITSOQCM10.0	<b>CM-10 Exam Abandon/Deactivate Gas Pipeline Facilities</b>	Failed	02/11/2014			Online	 No

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCM11.0C	<b>CM-11 Course Recognize and React to Generic Abnormal Operating Conditions</b>	Completed	04/02/2014			Online	
K	ITSOQCM11.0	<b>CM-11 Exam Recognize and React to Generic Abnormal Operating Conditions</b>	Passed	01/06/2014	01/06/2017		Online	ⓘ Expired
K	ITSOQCM13.0C	<b>CM-13 Course Investigate Reported Gas Leaks and Odors In Buildings</b>	Completed	12/06/2013			Online	
K	ITSOQCM13.0	<b>CM-13 Exam Investigate Reported Gas Leaks and Odors In Buildings</b>	Passed	12/06/2013			Online	ⓘ No
K	ITSOQCM8.0C	<b>CM-8 Course Make Field Repairs on Gas Pipelines</b>	Completed	11/24/2015			Online	
K	ITSOQCM8.0	<b>CM-8 Exam Make Field Repairs on Gas Pipelines</b>	Passed	09/05/2012	09/05/2015		Online	ⓘ Expired
S	ITSOQ0201	Visual Inspection of Installed Pipe and Components for Mechanical Damage	Passed	09/10/2012		Pearson, Timothy W		
S	ITSOQ0641	Visually Inspect Pipe and Components Prior to Installation	Passed	09/10/2012		Pearson, Timothy W		
S	ITSOQ1041	Install Mechanical Clamps or Sleeves: Bolted	Passed	09/10/2012		Pearson, Timothy W		
S	ITSOQ1051	Fit-Up of Weld Type Repair Sleeves	Passed	09/10/2012		Pearson, Timothy W		
S	ITSOQ1071	Repair of Steel Pipe by Grinding	Passed	09/10/2012		Pearson, Timothy W		

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
S	ITSOQ1141	Squeeze Off Plastic Pipe	Passed	09/10/2012		Pearson, Timothy W		
K	TSK-70545851	<b>Material Safety Data Sheets</b>	Failed	09/23/2014			Online	
K	TSK-47656876	<b>OSHA: Active Shooter On-Site: What Every Employee Should Do</b>	Passed	02/05/2018			Online	
K	TSK-57181827	<b>OSHA: Avoiding Back Injuries</b>	Passed	08/19/2016			Online	
K	TSK-40374352	<b>OSHA: Avoiding Exposure to Bloodborne Pathogens</b>	Passed	09/11/2013			Online	
K	TSK-16333528	<b>OSHA: Battery Safety</b>	Passed	10/25/2018			Online	
K	TSK-19428631	<b>OSHA: Bloodborne Pathogens - General</b>	Passed	10/21/2016			Online	
K	TSK-49993361	<b>OSHA: Contractor Safety</b>	Passed	01/14/2019			Online	
K	TSK-94487089	<b>OSHA: Defensive Driving for Non- commercial Motorists</b>	Passed	05/15/2014			Online	
K	TSK-81206787	<b>OSHA: Disaster Planning for Employees</b>	Passed	02/25/2016			Online	
K	TSK-80650531	<b>OSHA: Electrical Safety - Unqualified Worker</b>	Passed	12/05/2014			Online	
K	TSK-43324205	<b>OSHA: Emergency Action and Fire Prevention</b>	Passed	03/13/2014			Online	
K	TSK-1863478	<b>OSHA: Exit Routes</b>	Passed	02/05/2018			Online	
K	TSK-88156636	<b>OSHA: Eye Protection</b>	Passed	11/23/2016			Online	
K	TSK-12431243	<b>OSHA: Fire Extinguishers</b>	Passed	12/15/2016			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-82208821	<b>OSHA: Foot Protection</b>	Passed	01/30/2017			Online	
K	TSK-59540464	<b>OSHA: Forklift Operator Safety</b>	Passed	02/27/2017			Online	
K	TSK-76505221	<b>OSHA: Good Housekeeping</b>	Passed	08/23/2018			Online	
K	TSK-18089227	<b>OSHA: Hazard Communication and GHS - Employees</b>	Passed	12/03/2013			Online	
K	TSK-23131903	<b>OSHA: Home Safety</b>	Passed	12/05/2017			Online	
K	TSK-16814140	<b>OSHA: Hydrogen Sulfide Safety</b>	Passed	04/11/2016			Online	
K	TSK-90329309	<b>OSHA: Lockout/Tagout - Affected Employee</b>	Passed	03/24/2016			Online	
K	TSK-68980468	<b>OSHA: Lockout/Tagout - Authorized Employee</b>	Passed	06/07/2017			Online	
K	TSK-28933376	<b>OSHA: Mold Hazards and Prevention</b>	Passed	12/31/2015			Online	
K	TSK-39871740	<b>OSHA: Noise and Hearing Conservation</b>	Passed	06/29/2017			Online	
K	TSK-84258098	<b>OSHA: OSHA Inspections, Citations, and Penalties</b>	Passed	10/22/2015			Online	
K	TSK-19197876	<b>OSHA: Personal Protective Equipment - What Employees Need To Know</b>	Passed	04/25/2018			Online	
K	TSK-58073640	<b>OSHA: Preparing for Weather Emergencies</b>	Passed	11/09/2017			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-34175129	<b>OSHA: Preventing Slips, Trips, and Falls</b>	Passed	07/06/2018			Online	
K	TSK-30539153	<b>OSHA: Preventing Workplace Violence for Employees</b>	Passed	03/23/2018			Online	
K	TSK-73543343	<b>OSHA: Process Safety Management</b>	Passed	08/19/2016			Online	
K	TSK-41577608	<b>OSHA: Recordkeeping</b>	Passed	07/22/2016			Online	
K	TSK-24151389	<b>OSHA: Safe Forklift Operation</b>	Passed	09/25/2015			Online	
K	TSK-90852211	<b>OSHA: Substance Abuse in the Workplace</b>	Passed	02/09/2015			Online	
K	TSK-6305383	<b>OSHA: Trenching - Competent Person</b>	Passed	02/11/2014			Online	
K	TSK-98660073	<b>OSHA: Understanding Chemical Labels Under GHS</b>	Passed	08/06/2015			Online	
K	TSK-29694826	<b>OSHA: Working in Cold Conditions</b>	Passed	11/09/2017			Online	
K	TSK-93233025	<b>OSHA: Working in Hot Conditions</b>	Passed	07/06/2018			Online	
K	TSK-69030935	<b>OSHA: Working Safely Outdoors</b>	Passed	08/21/2014			Online	
K	TSK-27437815	<b>OSHA: Working Safely with Flammable Liquids</b>	Passed	10/20/2014			Online	
K	TSK-78342570	<b>OSHA: Workplace Safety for Employees</b>	Passed	09/20/2017			Online	

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K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-25594563	<b>OSHA: Workplace Security for Employees</b>	Passed	08/01/2018			Online	
K	TSK-5026184	<b>OSHA: Your Guide to PPE</b>	Passed	10/25/2018			Online	

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## Pearson, Timothy W (tpearson)






K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TTT 0.3C	<b>0.3 Course Administering Proctored ITS Tests</b>	Completed	01/18/2018			Online	
K	TTT 0.3	<b>0.3 Exam Administering Proctored ITS Tests</b>	Passed	01/18/2018	01/18/2021		Online	<input checked="" type="radio"/> Yes
K	TTT 0.4C	<b>0.4 Course Basic Procedures for Conducting OQ Skill and Ability Performance Evaluations</b>	Completed	01/18/2018			Online	
K	TTT 0.4	<b>0.4 Exam Basic Procedures for Conducting OQ Skill and Ability Performance Evaluations</b>	Passed	01/18/2018	01/18/2021		Online	<input checked="" type="radio"/> Yes
K	ITSOQCF1.2.0C	<b>CF-1.2 Course Join Plastic Pipe with Socket Fusion</b>	Completed	12/03/2014			Online	
K	ITSOQCF1.3.0C	<b>CF-1.3 Course Join Plastic Pipe with Saddle Fusion</b>	Completed	12/03/2014			Online	
K	ITSOQCF1-CF2.0C	<b>CF1-CF2 Course Join plastic pipe prerequisite</b>	Completed	04/03/2014			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Completed	07/29/2014			Online	
K	ITSOQCG1.0	<b>CG-1 Exam Verifying excavating and backfilling operations that minimize excavation damage</b>	Passed	10/03/2012		Dodson, Larry James	Online	<input type="radio"/> No





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K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCG2.0C	<b>CG-2 Course Identify Basic Installation Methods for Mains and Transmission Pipelines</b>	Completed	03/03/2015			Online	
K	ITSOQCG4.0C	<b>CG-4 Course Install Mains and Transmission Pipelines Using Trenchless Methods</b>	Completed	05/31/2016			Online	
K	ITSOQCH1.0C	<b>CH-1 Course Install Customer Gas Meter and Regulator Sets</b>	Completed	07/29/2014			Online	
K	ITSOQCH1.0	<b>CH-1 Exam Install Customer Gas Meter and Regulator Sets</b>	Passed	07/29/2014			Online	 No
K	ITSOQCH2.0C	<b>CH-2 Course Install Customer Gas Service Lines</b>	Completed	07/29/2014			Online	
K	ITSOQCH2.0	<b>CH-2 Exam Install Customer Gas Service Lines</b>	Passed	07/29/2014			Online	 No
K	ITSOQCI1.0C	<b>CI-1 Course Perform Pipe-to-Soil Potential Surveys on Effectively Coated Buried or Submerged Pipelines</b>	Completed	09/12/2012		Dodson, Larry James	Online	
K	ITSOQCI1.0	<b>CI-1 Exam Perform Pipe-to-Soil Potential Surveys on Effectively Coated Buried or Submerged Pipelines</b>	Passed	10/03/2012		Dodson, Larry James	Online	 No
K	ITSOQCI10.0C	<b>CI-10 Course Inspect and Monitor Exposed Piping for Evidence of Atmospheric Corrosion</b>	Completed	09/12/2012		Dodson, Larry James	Online	






K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCI10.0	<b>CI-10 Exam Inspect and Monitor Exposed Piping for Evidence of Atmospheric Corrosion</b>	Passed	10/05/2012		Dodson, Larry James	Online	 No
K	ITSOQCI11.0C	<b>CI-11 Course Install Sacrificial Anodes and Test Stations</b>	Completed	03/26/2013			Online	
K	ITSOQCI11.0	<b>CI-11 Exam Install Sacrificial Anodes and Test Stations</b>	Passed	03/26/2013		Dodson, Larry James	Online	 No
K	ITSOQCI12.0C	<b>CI-12 Course Measure the Extent of Corrosion on Pipeline Facilities</b>	Completed	03/26/2013			Online	
K	ITSOQCI12.0	<b>CI-12 Exam Measure the Extent of Corrosion on Pipeline Facilities</b>	Passed	03/26/2013			Online	 No
K	ITSOQCI13.0C	<b>CI-13 Course Identify Procedures Basic to Inspecting, Applying, and Repairing Pipeline Coatings</b>	Completed	03/26/2013			Online	
K	ITSOQCI13.0	<b>CI-13 Exam Identify Procedures Basic to Inspecting, Applying, and Repairing Pipeline Coatings</b>	Passed	03/26/2013			Online	 No
K	ITSOQCI2.0C	<b>CI-2 Course Determine Areas of Active Corrosion Using Close Interval Survey Methods</b>	Completed	09/12/2012		Dodson, Larry James	Online	
K	ITSOQCI2.0	<b>CI-2 Exam Determine Areas of Active Corrosion Using Close Interval Survey Methods</b>	Passed	10/03/2012			Online	 No
K	ITSOQCI3.0C	<b>CI-3 Course Measure Soil Resistivity</b>	Completed	10/05/2012		Dodson, Larry James	Online	


K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCI3.0	<b>CI-3 Exam Measure Soil Resistivity</b>	Failed	09/06/2012			Online	 No
K	ITSOQCI4.0C	<b>CI-4 Course Inspect the External Condition of Exposed Buried Metal Piping to Determine if Repair or Replacement is Necessary</b>	Completed	03/26/2013			Online	
K	ITSOQCI4.0	<b>CI-4 Exam Inspect the External Condition of Exposed Buried Metal Piping to Determine if Repair or Replacement is Necessary</b>	Passed	03/26/2013			Online	 No
K	ITSOQCI5.0C	<b>CI-5 Course Inspect and Maintain Rectifiers</b>	Completed	03/26/2013			Online	
K	ITSOQCI5.0	<b>CI-5 Exam Inspect and Maintain Rectifiers</b>	Passed	03/26/2013			Online	 No
K	ITSOQCI6.0C	<b>CI-6 Course Inspect for the Effects of Interference Current</b>	Completed	03/26/2013			Online	
K	ITSOQCI6.0	<b>CI-6 Exam Inspect for the Effects of Interference Current</b>	Passed	03/26/2013			Online	 No
K	ITSOQCI7.0C	<b>CI-7 Course Install Test Leads to Monitor and Control External Corrosion</b>	Completed	03/04/2013		Dodson, Larry James	Online	
K	ITSOQCI7.0	<b>CI-7 Exam Install Test Leads to Monitor and Control External Corrosion</b>	Passed	03/04/2013			Online	 No

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCI8.0C	<b>CI-8 Course Install and Test Insulation to Control External Corrosion by Electrical Isolation</b>	Completed	03/04/2013		Dodson, Larry James	Online	
K	ITSOQCI8.0	<b>CI-8 Exam Install and Test Insulation to Control External Corrosion by Electrical Isolation</b>	Passed	03/04/2013			Online	 No
K	ITSOQCI9.0C	<b>CI-9 Course Inspect for Evidence of Internal Corrosion</b>	Completed	03/04/2013		Dodson, Larry James	Online	
K	ITSOQCI9.0	<b>CI-9 Exam Inspect for Evidence of Internal Corrosion</b>	Passed	03/04/2013			Online	 No
K	ITSOQCL1.0C	<b>CL-1 Course Tap Pipelines Under Pressure</b>	Completed	11/18/2014			Online	
K	ITSOQCL1.0	<b>CL-1 Exam Tap Pipelines Under Pressure</b>	Passed	11/18/2014			Online	 No
K	ITSOQCL2.0C	<b>CL-2 Course Purge Pipelines (Small &amp; Large Diameter)</b>	Completed	11/18/2014			Online	
K	ITSOQCL2.0	<b>CL-2 Exam Purge Pipelines (Small &amp; Large Diameter)</b>	Passed	11/18/2014			Online	 No
K	ITSOQCL3a.0C	<b>CL-3a Course Monitor Odorant Levels</b>	Completed	07/29/2014			Online	
K	ITSOQCL3a.0	<b>CL-3a Exam Monitor Odorant Levels</b>	Passed	07/29/2014			Online	 No

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCM1.0C	<b>CM-1 Course Perform Patrol and Leakage Surveys on Gas Pipeline Facilities</b>	Completed	03/04/2015			Online	
K	ITSOQCM1.0	<b>CM-1 Exam Perform Patrol and Leakage Surveys on Gas Pipeline Facilities</b>	Failed	10/03/2012		Pearson, Timothy W	Online	 No
K	ITSOQCM10.0C	<b>CM-10 Course Abandon/Deactivate Gas Pipeline Facilities</b>	Completed	11/18/2014			Online	
K	ITSOQCM10.0	<b>CM-10 Exam Abandon/Deactivate Gas Pipeline Facilities</b>	Passed	11/18/2014			Online	 No
K	ITSOQCM11.0C	<b>CM-11 Course Recognize and React to Generic Abnormal Operating Conditions</b>	Completed	01/17/2014			Online	
K	ITSOQCM11.0	<b>CM-11 Exam Recognize and React to Generic Abnormal Operating Conditions</b>	Passed	01/17/2014	01/17/2017		Online	 Expired
K	ITSOQCM13.0C	<b>CM-13 Course Investigate Reported Gas Leaks and Odors In Buildings</b>	Completed	12/17/2013			Online	
K	ITSOQCM13.0	<b>CM-13 Exam Investigate Reported Gas Leaks and Odors In Buildings</b>	Passed	12/17/2013			Online	 No
K	ITSOQCM2.0C	<b>CM-2 Course Locate and Mark Underground Pipeline Facilities</b>	Completed	03/04/2015			Online	



K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCM2.0	<b>CM-2 Exam Locate and Mark Underground Pipeline Facilities</b>	Failed	11/18/2014			Online	 No
K	ITSOQCM3.0C	<b>CM-3 Course Pressure Testing Gas Pipelines</b>	Completed	12/31/2014			Online	
K	ITSOQCM3.0	<b>CM-3 Exam Pressure Testing Gas Pipelines</b>	Passed	01/23/2015			Online	 No
K	ITSOQCM4.0C	<b>CM-4 Course Inspect and Test Pressure Limiting Stations, Relief Devices, and Pressure Regulating Stations</b>	Completed	01/23/2015			Online	
K	ITSOQCM4.0	<b>CM-4 Exam Inspect and Test Pressure Limiting Stations, Relief Devices, and Pressure Regulating Stations</b>	Passed	01/23/2015			Online	 No
K	ITSOQCM5.0C	<b>CM-5 Course Inspect, Service, and Operate Line Valves</b>	Completed	03/03/2015			Online	
K	ITSOQCM5.0	<b>CM-5 Exam Inspect, Service, and Operate Line Valves</b>	Failed	03/03/2015			Online	 No
K	ITSOQCM7.0C	<b>CM-7 Course Prevent Accidental Ignition</b>	Completed	09/12/2012			Online	
K	ITSOQCM7.0	<b>CM-7 Exam Prevent Accidental Ignition</b>	Passed	10/03/2012	10/03/2015	Pearson, Timothy W	Online	 Expired
K	ITSOQCM8.0C	<b>CM-8 Course Make Field Repairs on Gas Pipelines</b>	Completed	03/03/2015			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCM8.0	<b>CM-8 Exam Make Field Repairs on Gas Pipelines</b>	Passed	03/03/2015			Online	 No
K	ITSNG101.0c	<b>ITS Natural Gas 101: Properties of Natural Gas</b>	Completed	07/15/2013			Online	
K	TSK-47656876	<b>OSHA: Active Shooter On-Site: What Every Employee Should Do</b>	Passed	02/16/2018			Online	
K	TSK-57181827	<b>OSHA: Avoiding Back Injuries</b>	Passed	08/30/2016			Online	
K	TSK-16333528	<b>OSHA: Battery Safety</b>	Passed	05/18/2017			Online	
K	TSK-19428631	<b>OSHA: Bloodborne Pathogens - General</b>	Passed	10/24/2016			Online	
K	TSK-49993361	<b>OSHA: Contractor Safety</b>	Passed	12/14/2015			Online	
K	TSK-94487089	<b>OSHA: Defensive Driving for Non-commercial Motorists</b>	Passed	06/24/2014			Online	
K	TSK-43324205	<b>OSHA: Emergency Action and Fire Prevention</b>	Passed	03/17/2014			Online	
K	TSK-1863478	<b>OSHA: Exit Routes</b>	Passed	02/05/2018			Online	
K	TSK-88156636	<b>OSHA: Eye Protection</b>	Passed	01/27/2017			Online	
K	TSK-12431243	<b>OSHA: Fire Extinguishers</b>	Passed	01/30/2017			Online	
K	TSK-82208821	<b>OSHA: Foot Protection</b>	Passed	01/30/2017			Online	
K	TSK-59540464	<b>OSHA: Forklift Operator Safety</b>	Passed	05/18/2017			Online	
K	TSK-76505221	<b>OSHA: Good Housekeeping</b>	Passed	05/18/2017			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-89763766	<b>OSHA: Hazard Communication and GHS - Supervisors</b>	Passed	11/18/2013			Online	
K	TSK-23131903	<b>OSHA: Home Safety</b>	Passed	02/05/2018			Online	
K	TSK-90329309	<b>OSHA: Lockout/Tagout - Affected Employee</b>	Passed	04/22/2016			Online	
K	TSK-68980468	<b>OSHA: Lockout/Tagout - Authorized Employee</b>	Passed	08/11/2017			Online	
K	TSK-28933376	<b>OSHA: Mold Hazards and Prevention</b>	Passed	12/14/2015			Online	
K	TSK-39871740	<b>OSHA: Noise and Hearing Conservation</b>	Passed	08/18/2017			Online	
K	TSK-58713447	<b>OSHA: Office Ergonomics</b>	Passed	09/26/2013			Online	
K	TSK-58073640	<b>OSHA: Preparing for Weather Emergencies</b>	Passed	02/05/2018			Online	
K	TSK-34175129	<b>OSHA: Preventing Slips, Trips, and Falls</b>	Passed	10/28/2013			Online	
K	TSK-73543343	<b>OSHA: Process Safety Management</b>	Passed	08/02/2016			Online	
K	TSK-41577608	<b>OSHA: Recordkeeping</b>	Passed	08/02/2016			Online	
K	TSK-24151389	<b>OSHA: Safe Forklift Operation</b>	Passed	09/29/2015			Online	
K	TSK-13163648	<b>OSHA: Stress Management</b>	Passed	08/08/2013			Online	
K	TSK-6305383	<b>OSHA: Trenching - Competent Person</b>	Passed	02/20/2014			Online	


K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-98660073	<b>OSHA: Understanding Chemical Labels Under GHS</b>	Failed	08/19/2015			Online	
K	TSK-29694826	<b>OSHA: Working in Cold Conditions</b>	Passed	11/13/2017			Online	
K	TSK-78342570	<b>OSHA: Workplace Safety for Employees</b>	Passed	09/13/2017			Online	
K	TSK-5026184	<b>OSHA: Your Guide to PPE</b>	Passed	08/18/2017			Online	

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## Noble, Jason (jnoble)

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCF1-CF2.0C	<b>CF1-CF2 Course Join plastic pipe prerequisite</b>	Completed	04/07/2014			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Completed	07/07/2014			Online	
K	ITSOQCG2.0C	<b>CG-2 Course Identify Basic Installation Methods for Mains and Transmission Pipelines</b>	Completed	03/11/2015			Online	
K	ITSOQCG4.0C	<b>CG-4 Course Install Mains and Transmission Pipelines Using Trenchless Methods</b>	Completed	05/04/2016			Online	
K	ITSOQCM13.0C	<b>CM-13 Course Investigate Reported Gas Leaks and Odors In Buildings</b>	Completed	01/02/2014			Online	
K	ITSOQCM13.0	<b>CM-13 Exam Investigate Reported Gas Leaks and Odors In Buildings</b>	Passed	01/02/2014			Online	 No
K	ITSNG101.0c	<b>ITS Natural Gas 101: Properties of Natural Gas</b>	Completed	12/09/2013			Online	
K	TSK-70545851	<b>Material Safety Data Sheets</b>	Passed	09/02/2014			Online	
K	TSK-47656876	<b>OSHA: Active Shooter On-Site: What Every Employee Should Do</b>	Passed	02/09/2018			Online	
K	TSK-57181827	<b>OSHA: Avoiding Back Injuries</b>	Passed	08/31/2016			Online	
K	TSK-40374352	<b>OSHA: Avoiding Exposure to Bloodborne Pathogens</b>	Passed	09/04/2013			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-16333528	<b>OSHA: Battery Safety</b>	Passed	10/29/2018			Online	
K	TSK-19428631	<b>OSHA: Bloodborne Pathogens - General</b>	Passed	10/21/2016			Online	
K	TSK-49993361	<b>OSHA: Contractor Safety</b>	Passed	11/26/2018			Online	
K	TSK-94487089	<b>OSHA: Defensive Driving for Non-commercial Motorists</b>	Passed	05/05/2014			Online	
K	TSK-81206787	<b>OSHA: Disaster Planning for Employees</b>	Passed	02/11/2016			Online	
K	TSK-80650531	<b>OSHA: Electrical Safety - Unqualified Worker</b>	Passed	12/04/2014			Online	
K	TSK-43324205	<b>OSHA: Emergency Action and Fire Prevention</b>	Passed	03/03/2014			Online	
K	TSK-1863478	<b>OSHA: Exit Routes</b>	Passed	01/11/2018			Online	
K	TSK-88156636	<b>OSHA: Eye Protection</b>	Passed	11/29/2016			Online	
K	TSK-12431243	<b>OSHA: Fire Extinguishers</b>	Passed	12/15/2016			Online	
K	TSK-26325108	<b>OSHA: Fire Extinguishers Safe Use &amp; Handling</b>	Passed	01/22/2019			Online	
K	TSK-82208821	<b>OSHA: Foot Protection</b>	Passed	01/20/2017			Online	
K	TSK-59540464	<b>OSHA: Forklift Operator Safety</b>	Passed	02/23/2017			Online	
K	TSK-76505221	<b>OSHA: Good Housekeeping</b>	Passed	08/22/2018			Online	
K	TSK-89763766	<b>OSHA: Hazard Communication and GHS - Supervisors</b>	Passed	11/06/2013			Online	
K	TSK-23131903	<b>OSHA: Home Safety</b>	Passed	12/08/2017			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-16814140	<b>OSHA: Hydrogen Sulfide Safety</b>	Passed	04/12/2016			Online	
K	TSK-6855417	<b>OSHA: Introduction to OSHA General Duty Clause</b>	Passed	04/07/2015			Online	
K	TSK-18079533	<b>OSHA: Laboratory Safety</b>	Passed	01/22/2019			Online	
K	TSK-90329309	<b>OSHA: Lockout/Tagout - Affected Employee</b>	Passed	03/03/2016			Online	
K	TSK-68980468	<b>OSHA: Lockout/Tagout - Authorized Employee</b>	Passed	05/25/2017			Online	
K	TSK-28933376	<b>OSHA: Mold Hazards and Prevention</b>	Passed	12/16/2015			Online	
K	TSK-39871740	<b>OSHA: Noise and Hearing Conservation</b>	Passed	06/29/2017			Online	
K	TSK-84258098	<b>OSHA: OSHA Inspections, Citations, and Penalties</b>	Passed	10/16/2015			Online	
K	TSK-19197876	<b>OSHA: Personal Protective Equipment - What Employees Need To Know</b>	Passed	04/09/2018			Online	
K	TSK-58073640	<b>OSHA: Preparing for Weather Emergencies</b>	Passed	11/16/2017			Online	
K	TSK-34175129	<b>OSHA: Preventing Slips, Trips, and Falls</b>	Passed	06/14/2018			Online	
K	TSK-30539153	<b>OSHA: Preventing Workplace Violence for Employees</b>	Passed	03/28/2018			Online	
K	TSK-73543343	<b>OSHA: Process Safety Management</b>	Passed	08/02/2016			Online	
K	TSK-41577608	<b>OSHA: Recordkeeping</b>	Passed	07/18/2016			Online	
K	TSK-24151389	<b>OSHA: Safe Forklift Operation</b>	Passed	09/16/2015			Online	
K	TSK-90852211	<b>OSHA: Substance Abuse in the Workplace</b>	Passed	02/09/2015			Online	



K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-6305383	<b>OSHA: Trenching - Competent Person</b>	Passed	02/11/2014			Online	
K	TSK-98660073	<b>OSHA: Understanding Chemical Labels Under GHS</b>	Passed	08/07/2015			Online	
K	TSK-29694826	<b>OSHA: Working in Cold Conditions</b>	Passed	10/13/2017			Online	
K	TSK-93233025	<b>OSHA: Working in Hot Conditions</b>	Passed	05/09/2018			Online	
K	TSK-69030935	<b>OSHA: Working Safely Outdoors</b>	Passed	03/04/2019			Online	
K	TSK-27437815	<b>OSHA: Working Safely with Flammable Liquids</b>	Passed	10/03/2014			Online	
K	TSK-78342570	<b>OSHA: Workplace Safety for Employees</b>	Passed	09/13/2017			Online	
K	TSK-25594563	<b>OSHA: Workplace Security for Employees</b>	Passed	07/25/2018			Online	
K	TSK-5026184	<b>OSHA: Your Guide to PPE</b>	Passed	09/25/2018			Online	

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## Maiden, Jess (jmaiden)

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-47656876	<b>OSHA: Active Shooter On-Site: What Every Employee Should Do</b>	Passed	02/21/2018			Online	
K	TSK-57181827	<b>OSHA: Avoiding Back Injuries</b>	Passed	08/14/2017			Online	
K	TSK-1863478	<b>OSHA: Exit Routes</b>	Passed	01/18/2018			Online	
K	TSK-88156636	<b>OSHA: Eye Protection</b>	Passed	09/12/2017			Online	
K	TSK-76505221	<b>OSHA: Good Housekeeping</b>	Passed	09/05/2018			Online	
K	TSK-23131903	<b>OSHA: Home Safety</b>	Passed	02/21/2018			Online	
K	TSK-19197876	<b>OSHA: Personal Protective Equipment - What Employees Need To Know</b>	Passed	10/05/2018			Online	
K	TSK-58073640	<b>OSHA: Preparing for Weather Emergencies</b>	Passed	11/27/2017			Online	
K	TSK-34175129	<b>OSHA: Preventing Slips, Trips, and Falls</b>	Passed	10/05/2018			Online	
K	TSK-29694826	<b>OSHA: Working in Cold Conditions</b>	Passed	10/23/2017			Online	
K	TSK-78342570	<b>OSHA: Workplace Safety for Employees</b>	Passed	09/12/2017			Online	
K	TSK-5026184	<b>OSHA: Your Guide to PPE</b>	Passed	09/12/2017			Online	











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**Mahoney, Bill L** (bmahoney)





K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCF1.0	<b>CF-1 Exam Join plastic pipe with heat fusion</b>	Passed	03/03/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF1.1.0C	<b>CF-1.1 Course Join Plastic Pipe with Butt Fusion</b>	Completed	12/02/2014			Online	
K	ITSOQCF1.1.0	<b>CF-1.1 Exam Join Plastic Pipe with Butt Fusion</b>	Passed	02/05/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF1.2.0C	<b>CF-1.2 Course Join Plastic Pipe with Socket Fusion</b>	Completed	02/05/2015			Online	
K	ITSOQCF1.2.0	<b>CF-1.2 Exam Join Plastic Pipe with Socket Fusion</b>	Passed	02/05/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF1.3.0C	<b>CF-1.3 Course Join Plastic Pipe with Saddle Fusion</b>	Completed	02/05/2015			Online	
K	ITSOQCF1.3.0	<b>CF-1.3 Exam Join Plastic Pipe with Saddle Fusion</b>	Passed	02/05/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF1.4.0C	<b>CF-1.4 Course Join Plastic Pipe with Electrofusion</b>	Completed	02/05/2015			Online	
K	ITSOQCF1.4.0	<b>CF-1.4 Exam Join Plastic Pipe with Electrofusion</b>	Passed	12/02/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF2.0	<b>CF-2 Exam Join polyethylene pipe with mechanical fittings</b>	Passed	12/02/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF2.1.0C	<b>CF-2.1 Course Join Plastic Pipe with Threaded Nut Compression End Fittings</b>	Completed	12/02/2014			Online	



K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCF2.2.0C	<b>CF-2.2 Course Join Plastic Pipe with Stab-Type Mechanical Fittings</b>	Completed	02/05/2015			Online	
K	ITSOQCF2.2.0	<b>CF-2.2 Exam Join Plastic Pipe with Stab-Type Mechanical Fittings</b>	Passed	02/05/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF1-CF2.0C	<b>CF1-CF2 Course Join plastic pipe prerequisite</b>	Completed	04/03/2014			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Passed	08/17/2012			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Completed	07/18/2014			Online	
K	ITSOQCG1.0	<b>CG-1 Exam Verifying excavating and backfilling operations that minimize excavation damage</b>	Passed	08/17/2012	08/17/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ0981	Backfilling	Passed	08/23/2012		Pearson, Timothy W		
S	ITSOQ1321	Damage Prevention During Excavation Activities by or on Behalf of the Operator	Passed	08/23/2012		Pearson, Timothy W		

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
S	ITSOQ1331	Damage Prevention Inspection During Third-Party Excavation or Encroachment Activities as Determined Necessary by the Operator	Passed	08/23/2012		Pearson, Timothy W		
S	ITSOQ1341	Provide or Ensure Adequate Pipeline Support During Operator-Initiated Excavation Activities	Passed	08/23/2012		Pearson, Timothy W		
S	ITSOQ5051	Verified the Correct Marking of Permanently Marked Underground Pipeline Facilities	Passed	08/23/2012		Pearson, Timothy W		
S	ITSOQ5061	Verified the Correct Marking of Temporarily Marked Underground Pipeline Facilities	Passed	08/23/2012		Pearson, Timothy W		
K	ITSOQCG4.0C	<b>CG-4 Course Install Mains and Transmission Pipelines Using Trenchless Methods</b>	Completed	05/31/2016			Online	
K	ITSOQCI1.0C	<b>CI-1 Course Perform Pipe-to-Soil Potential Surveys on Effectively Coated Buried or Submerged Pipelines</b>	Completed	12/01/2014			Online	
K	ITSOQCI1.0	<b>CI-1 Exam Perform Pipe-to-Soil Potential Surveys on Effectively Coated Buried or Submerged Pipelines</b>	Passed	12/01/2014		Pearson, Timothy W	Online	 No
K	ITSOQCI3.0C	<b>CI-3 Course Measure Soil Resistivity</b>	Completed	03/03/2015			Online	



K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCI3.0	<b>CI-3 Exam Measure Soil Resistivity</b>	Passed	03/03/2015		Pearson, Timothy W	Online	 No
K	ITSOQCI5.0C	<b>CI-5 Course Inspect and Maintain Rectifiers</b>	Completed	02/05/2015			Online	
K	ITSOQCI5.0	<b>CI-5 Exam Inspect and Maintain Rectifiers</b>	Passed	02/05/2015		Pearson, Timothy W	Online	 No
K	ITSOQCL1.0C	<b>CL-1 Course Tap Pipelines Under Pressure</b>	Completed	02/05/2015			Online	
K	ITSOQCL1.0	<b>CL-1 Exam Tap Pipelines Under Pressure</b>	Passed	02/05/2015		Pearson, Timothy W	Online	 No
K	ITSOQCL2.0C	<b>CL-2 Course Purge Pipelines (Small &amp; Large Diameter)</b>	Completed	03/04/2014			Online	
K	ITSOQCL2.0	<b>CL-2 Exam Purge Pipelines (Small &amp; Large Diameter)</b>	Passed	03/04/2014			Online	 No
K	ITSOQCL3a.0C	<b>CL-3a Course Monitor Odorant Levels</b>	Completed	03/16/2014			Online	
K	ITSOQCL3a.0	<b>CL-3a Exam Monitor Odorant Levels</b>	Passed	03/16/2014			Online	 No
K	ITSOQCM1.0C	<b>CM-1 Course Perform Patrol and Leakage Surveys on Gas Pipeline Facilities</b>	Completed	03/17/2014			Online	
K	ITSOQCM1.0	<b>CM-1 Exam Perform Patrol and Leakage Surveys on Gas Pipeline Facilities</b>	Passed	03/17/2014			Online	 No

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCM10.0C	<b>CM-10 Course Abandon/Deactivate Gas Pipeline Facilities</b>	Completed	04/03/2014			Online	
K	ITSOQCM10.0	<b>CM-10 Exam Abandon/Deactivate Gas Pipeline Facilities</b>	Passed	04/03/2014			Online	 No
K	ITSOQCM11.0C	<b>CM-11 Course Recognize and React to Generic Abnormal Operating Conditions</b>	Completed	01/05/2014			Online	
K	ITSOQCM11.0	<b>CM-11 Exam Recognize and React to Generic Abnormal Operating Conditions</b>	Passed	01/05/2014	01/05/2017		Online	 Expired
K	ITSOQCM13.0C	<b>CM-13 Course Investigate Reported Gas Leaks and Odors In Buildings</b>	Completed	12/10/2013			Online	
K	ITSOQCM13.0	<b>CM-13 Exam Investigate Reported Gas Leaks and Odors In Buildings</b>	Passed	12/10/2013			Online	 No
K	ITSOQCM4.0C	<b>CM-4 Course Inspect and Test Pressure Limiting Stations, Relief Devices, and Pressure Regulating Stations</b>	Completed	04/12/2014			Online	
K	ITSOQCM4.0	<b>CM-4 Exam Inspect and Test Pressure Limiting Stations, Relief Devices, and Pressure Regulating Stations</b>	Passed	04/12/2014			Online	 No

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCM8.0C	<b>CM-8 Course Make Field Repairs on Gas Pipelines</b>	Completed	04/11/2016			Online	
K	ITSOQCM8.0	<b>CM-8 Exam Make Field Repairs on Gas Pipelines</b>	Passed	02/05/2015			Online	 No
K	TSK-70545851	<b>Material Safety Data Sheets</b>	Passed	09/20/2014			Online	
K	ITSNGT1101.0	<b>NGT 1101 EXAM Controlling/Preventing Fires Fueled by Natural Gas</b>	Passed	10/31/2012	10/31/2015	Dodson, Larry James	Paper	 Expired
S	ITSNGT1101.1	Recharge dry chemical fire extinguishers	Passed	10/31/2012				
S	ITSNGT1101.2	Extinguish gas fires with a dry chemical fire extinguisher including as a minimum, one of the following types: pit, meter set, flange, pipe or regulator	Passed	10/31/2012				
S	ITSNGT1101.3	Check and report the date of inspection and the type of extinguishing agent used in fire extinguishers at a worksite designated by your performance evaluator	Passed	10/31/2012				
K	TSK-57181827	<b>OSHA: Avoiding Back Injuries</b>	Passed	09/27/2016			Online	
K	TSK-40374352	<b>OSHA: Avoiding Exposure to Bloodborne Pathogens</b>	Passed	09/11/2013			Online	
K	TSK-16333528	<b>OSHA: Battery Safety</b>	Passed	10/02/2017			Online	
K	TSK-49993361	<b>OSHA: Contractor Safety</b>	Passed	06/29/2015			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-94487089	<b>OSHA: Defensive Driving for Non-commercial Motorists</b>	Passed	05/18/2014			Online	
K	TSK-81206787	<b>OSHA: Disaster Planning for Employees</b>	Passed	02/23/2016			Online	
K	TSK-80650531	<b>OSHA: Electrical Safety - Unqualified Worker</b>	Passed	01/15/2015			Online	
K	TSK-43324205	<b>OSHA: Emergency Action and Fire Prevention</b>	Passed	03/16/2014			Online	
K	TSK-88156636	<b>OSHA: Eye Protection</b>	Passed	09/27/2016			Online	
K	TSK-59540464	<b>OSHA: Forklift Operator Safety</b>	Passed	10/02/2017			Online	
K	TSK-89763766	<b>OSHA: Hazard Communication and GHS - Supervisors</b>	Passed	11/10/2013			Online	
K	TSK-16814140	<b>OSHA: Hydrogen Sulfide Safety</b>	Passed	04/11/2016			Online	
K	TSK-6855417	<b>OSHA: Introduction to OSHA General Duty Clause</b>	Passed	06/29/2015			Online	
K	TSK-90329309	<b>OSHA: Lockout/Tagout - Affected Employee</b>	Passed	04/11/2016			Online	
K	TSK-28933376	<b>OSHA: Mold Hazards and Prevention</b>	Passed	02/23/2016			Online	
K	TSK-39871740	<b>OSHA: Noise and Hearing Conservation</b>	Passed	02/23/2016			Online	
K	TSK-58073640	<b>OSHA: Preparing for Weather Emergencies</b>	Passed	01/15/2015			Online	







K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-34175129	<b>OSHA: Preventing Slips, Trips, and Falls</b>	Passed	10/13/2013			Online	
K	TSK-73543343	<b>OSHA: Process Safety Management</b>	Passed	09/27/2016			Online	
K	TSK-41577608	<b>OSHA: Recordkeeping</b>	Passed	07/29/2016			Online	
K	TSK-24151389	<b>OSHA: Safe Forklift Operation</b>	Passed	09/17/2015			Online	
K	TSK-90852211	<b>OSHA: Substance Abuse in the Workplace</b>	Passed	02/18/2015			Online	
K	TSK-6305383	<b>OSHA: Trenching - Competent Person</b>	Passed	02/11/2014			Online	
K	TSK-98660073	<b>OSHA: Understanding Chemical Labels Under GHS</b>	Passed	09/30/2015			Online	
K	TSK-29694826	<b>OSHA: Working in Cold Conditions</b>	Passed	11/22/2014			Online	
K	TSK-93233025	<b>OSHA: Working in Hot Conditions</b>	Passed	06/12/2014			Online	
K	TSK-69030935	<b>OSHA: Working Safely Outdoors</b>	Passed	08/17/2014			Online	
K	TSK-27437815	<b>OSHA: Working Safely with Flammable Liquids</b>	Passed	11/02/2014			Online	
K	TSK-78342570	<b>OSHA: Workplace Safety for Employees</b>	Passed	07/06/2016			Online	

**OnBoard Learning Management System**  
**Carrollton Utilities - Transcript**  
*Run By Timothy W Pearson on 3/28/2019 8:12:42 AM*





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K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCE1.0C	<b>CE-1 Course Weld on steel pipelines</b>	Completed	09/15/2016			Online	
K	ITSOQCF1.0	<b>CF-1 Exam Join plastic pipe with heat fusion</b>	Passed	12/04/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF1.1.0C	<b>CF-1.1 Course Join Plastic Pipe with Butt Fusion</b>	Completed	12/04/2014			Online	
K	ITSOQCF1.1.0	<b>CF-1.1 Exam Join Plastic Pipe with Butt Fusion</b>	Passed	12/04/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF1.2.0C	<b>CF-1.2 Course Join Plastic Pipe with Socket Fusion</b>	Completed	12/05/2014			Online	
K	ITSOQCF1.2.0	<b>CF-1.2 Exam Join Plastic Pipe with Socket Fusion</b>	Passed	12/05/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF1.3.0C	<b>CF-1.3 Course Join Plastic Pipe with Saddle Fusion</b>	Completed	12/05/2014			Online	
K	ITSOQCF1.3.0	<b>CF-1.3 Exam Join Plastic Pipe with Saddle Fusion</b>	Passed	12/05/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF1.4.0C	<b>CF-1.4 Course Join Plastic Pipe with Electrofusion</b>	Completed	12/05/2014			Online	
K	ITSOQCF1.4.0	<b>CF-1.4 Exam Join Plastic Pipe with Electrofusion</b>	Passed	12/05/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF2.0	<b>CF-2 Exam Join polyethylene pipe with mechanical fittings</b>	Passed	12/05/2014		Pearson, Timothy W	Online	 No




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K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCF2.1.0C	<b>CF-2.1 Course Join Plastic Pipe with Threaded Nut Compression End Fittings</b>	Completed	12/05/2014			Online	
K	ITSOQCF2.2.0C	<b>CF-2.2 Course Join Plastic Pipe with Stab-Type Mechanical Fittings</b>	Completed	12/05/2014			Online	
K	ITSOQCF2.2.0	<b>CF-2.2 Exam Join Plastic Pipe with Stab-Type Mechanical Fittings</b>	Passed	12/05/2014		Pearson, Timothy W	Online	 No
K	ITSOQCF1-CF2.0C	<b>CF1-CF2 Course Join plastic pipe prerequisite</b>	Completed	04/03/2014			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Passed	09/13/2012			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Completed	08/08/2014			Online	
K	ITSOQCG1.0	<b>CG-1 Exam Verifying excavating and backfilling operations that minimize excavation damage</b>	Passed	09/13/2012	09/14/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ1321	Damage Prevention During Excavation Activities by or on Behalf of the Operator	Passed	09/14/2012		Pearson, Timothy W		







K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
S	ITSOQ1331	Damage Prevention Inspection During Third-Party Excavation or Encroachment Activities as Determined Necessary by the Operator	Passed	09/14/2012		Pearson, Timothy W		
S	ITSOQ1341	Provide or Ensure Adequate Pipeline Support During Operator-Initiated Excavation Activities	Passed	09/14/2012		Pearson, Timothy W		
S	ITSOQ5051	Verified the Correct Marking of Permanently Marked Underground Pipeline Facilities	Passed	09/14/2012		Pearson, Timothy W		
S	ITSOQ5061	Verified the Correct Marking of Temporarily Marked Underground Pipeline Facilities	Passed	09/14/2012		Pearson, Timothy W		
K	ITSOQCG2.0C	<b>CG-2 Course Identify Basic Installation Methods for Mains and Transmission Pipelines</b>	Completed	03/19/2015			Online	
K	ITSOQCG4.0C	<b>CG-4 Course Install Mains and Transmission Pipelines Using Trenchless Methods</b>	Completed	05/12/2016			Online	
K	ITSOQCH2.0C	<b>CH-2 Course Install Customer Gas Service Lines</b>	Completed	01/25/2018			Online	
K	ITSOQCH2.0	<b>CH-2 Exam Install Customer Gas Service Lines</b>	Passed	01/25/2018	01/25/2021	Pearson, Timothy W	Online	<input checked="" type="radio"/> Yes
S	ITSOQ0861	Installation of Steel Pipe in a Ditch	Passed	01/26/2018		Pearson, Timothy W		

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
S	ITSOQ0901	Installation of Plastic Pipe in a Ditch	Passed	01/26/2018		Pearson, Timothy W		
S	ITSOQ0941	Install Tracer Wire	Passed	01/26/2018		Pearson, Timothy W		
S	ITSOQ0981	Backfilling	Passed	01/26/2018		Pearson, Timothy W		
K	ITSOQCI1.0C	<b>CI-1 Course Perform Pipe-to-Soil Potential Surveys on Effectively Coated Buried or Submerged Pipelines</b>	Passed	09/13/2012			Online	
K	ITSOQCI1.0	<b>CI-1 Exam Perform Pipe-to-Soil Potential Surveys on Effectively Coated Buried or Submerged Pipelines</b>	Passed	09/13/2012	09/13/2015	Pearson, Timothy W	Online	ⓘ Expired
S	ITSOQ0001	Measure Structure to Electrolyte Potential	Passed	10/05/2012		Pearson, Timothy W		
K	ITSOQCI10.0C	<b>CI-10 Course Inspect and Monitor Exposed Piping for Evidence of Atmospheric Corrosion</b>	Passed	09/14/2012			Online	
K	ITSOQCI10.0	<b>CI-10 Exam Inspect and Monitor Exposed Piping for Evidence of Atmospheric Corrosion</b>	Passed	09/14/2012	09/14/2015	Pearson, Timothy W	Online	ⓘ Expired
S	ITSOQ0141	Visual Inspection For Atmospheric Corrosion	Passed	10/08/2012		Pearson, Timothy W		
S	ITSOQ0191	Measure Atmospheric Corrosion	Passed	10/08/2012		Pearson, Timothy W		

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCI11.0C	<b>CI-11 Course Install Sacrificial Anodes and Test Stations</b>	Passed	09/14/2012			Online	
K	ITSOQCI11.0	<b>CI-11 Exam Install Sacrificial Anodes and Test Stations</b>	Passed	09/14/2012	09/14/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ0041	Installation And Maintenance of Mechanical Electrical Connections	Passed	10/08/2012		Pearson, Timothy W		
S	ITSOQ0051	Installation of Exothermic Electrical Connections	Passed	10/08/2012		Pearson, Timothy W		
S	ITSOQ5071	Install Sacrificial Anodes	Passed	10/08/2012		Pearson, Timothy W		
K	ITSOQCI12.0C	<b>CI-12 Course Measure the Extent of Corrosion on Pipeline Facilities</b>	Passed	09/14/2012			Online	
K	ITSOQCI12.0	<b>CI-12 Exam Measure the Extent of Corrosion on Pipeline Facilities</b>	Passed	09/14/2012	09/14/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ0181	Measure Internal Corrosion	Passed	10/08/2012		Pearson, Timothy W		
S	ITSOQ0191	Measure Atmospheric Corrosion	Passed	10/08/2012		Pearson, Timothy W		
K	ITSOQCI13.0C	<b>CI-13 Course Identify Procedures Basic to Inspecting, Applying, and Repairing Pipeline Coatings</b>	Passed	09/14/2012			Online	
K	ITSOQCI13.0	<b>CI-13 Exam Identify Procedures Basic to Inspecting, Applying, and Repairing Pipeline Coatings</b>	Passed	09/14/2012	09/14/2015	Pearson, Timothy W	Online	 Expired

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
S	ITSOQ0151	Visual Inspection of Buried Pipe and Components When Exposed	Passed	10/08/2012		Pearson, Timothy W		
S	ITSOQ0991	Coating Application and Repair: Brushed or Rolled	Passed	10/08/2012		Pearson, Timothy W		
S	ITSOQ1011	External Coating Application and Repair: Wrapped	Passed	10/08/2012		Pearson, Timothy W		
K	ITSOQCI2.0C	<b>CI-2 Course Determine Areas of Active Corrosion Using Close Interval Survey Methods</b>	Passed	09/20/2012			Online	
K	ITSOQCI2.0	<b>CI-2 Exam Determine Areas of Active Corrosion Using Close Interval Survey Methods</b>	Passed	09/20/2012	09/20/2015	Pearson, Timothy W	Online	ⓘ Expired
S	ITSOQ0011	Conduct Close Interval Survey	Passed	10/05/2012		Pearson, Timothy W		
K	ITSOQCI3.0	<b>CI-3 Exam Measure Soil Resistivity</b>	Passed	10/04/2012	10/05/2015	Pearson, Timothy W	Online	ⓘ Expired
S	ITSOQ0021	Measure Soil Resistivity	Passed	10/05/2012		Pearson, Timothy W		
K	ITSOQCI5.0C	<b>CI-5 Course Inspect and Maintain Rectifiers</b>	Passed	10/04/2012			Online	
K	ITSOQCI5.0	<b>CI-5 Exam Inspect and Maintain Rectifiers</b>	Passed	10/04/2012	10/04/2015	Pearson, Timothy W	Online	ⓘ Expired
S	ITSOQ0101	Inspect Rectifier And Obtain Readings	Passed	10/08/2012		Pearson, Timothy W		
S	ITSOQ0111	Maintain Rectifiers	Passed	10/08/2012		Pearson, Timothy W		

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCI6.0C	<b>CI-6 Course Inspect for the Effects of Interference Current</b>	Passed	10/04/2012			Online	
K	ITSOQCI6.0	<b>CI-6 Exam Inspect for the Effects of Interference Current</b>	Passed	10/04/2012	10/04/2015	Pearson, Timothy W	Online	❗ Expired
S	ITSOQ0061	Inspect or Test Cathodic Protection Bonds	Passed	10/08/2012		Pearson, Timothy W		
K	ITSOQCI7.0C	<b>CI-7 Course Install Test Leads to Monitor and Control External Corrosion</b>	Passed	10/04/2012			Online	
K	ITSOQCI7.0	<b>CI-7 Exam Install Test Leads to Monitor and Control External Corrosion</b>	Passed	10/04/2012	10/04/2015	Pearson, Timothy W	Online	❗ Expired
S	ITSOQ0041	Installation And Maintenance of Mechanical Electrical Connections	Passed	10/08/2012		Pearson, Timothy W		
S	ITSOQ0051	Installation of Exothermic Electrical Connections	Passed	10/08/2012		Pearson, Timothy W		
K	ITSOQCI8.0C	<b>CI-8 Course Install and Test Insulation to Control External Corrosion by Electrical Isolation</b>	Passed	10/04/2012			Online	
K	ITSOQCI8.0	<b>CI-8 Exam Install and Test Insulation to Control External Corrosion by Electrical Isolation</b>	Passed	10/04/2012	10/04/2015	Pearson, Timothy W	Online	❗ Expired
S	ITSOQ0071	Inspect or Test Cathodic Protection Electrical Isolation Devices	Passed	10/08/2012		Pearson, Timothy W		
S	ITSOQ0081	Install Cathodic Protection Electrical Isolation Devices	Passed	10/08/2012		Pearson, Timothy W		

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCI9.0C	<b>CI-9 Course Inspect for Evidence of Internal Corrosion</b>	Passed	10/04/2012			Online	
K	ITSOQCI9.0	<b>CI-9 Exam Inspect for Evidence of Internal Corrosion</b>	Passed	10/04/2012	10/04/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ0161	Visual Inspection for Internal Corrosion	Passed	10/08/2012		Pearson, Timothy W		
S	ITSOQ0181	Measure Internal Corrosion	Passed	10/08/2012		Pearson, Timothy W		
K	ITSOQCM11.0C	<b>CM-11 Course Recognize and React to Generic Abnormal Operating Conditions</b>	Completed	01/17/2014			Online	
K	ITSOQCM11.0	<b>CM-11 Exam Recognize and React to Generic Abnormal Operating Conditions</b>	Passed	01/17/2014	01/17/2017		Online	 Expired
K	ITSOQCM13.0C	<b>CM-13 Course Investigate Reported Gas Leaks and Odors In Buildings</b>	Completed	12/09/2013			Online	
K	ITSOQCM13.0	<b>CM-13 Exam Investigate Reported Gas Leaks and Odors In Buildings</b>	Passed	12/09/2013			Online	 No
K	ITSOQCM3.0C	<b>CM-3 Course Pressure Testing Gas Pipelines</b>	Completed	01/25/2018			Online	
K	ITSOQCM3.0	<b>CM-3 Exam Pressure Testing Gas Pipelines</b>	Passed	01/25/2018	01/25/2021	Pearson, Timothy W	Online	 Yes
S	ITSOQ0561	Pressure Test: Nonliquid Medium – MAOP Less Than 100 psi	Passed	01/26/2018		Pearson, Timothy W		

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
S	ITSOQ0571	Pressure Test: Nonliquid Medium – MAOP Greater Than or Equal to 100 psi	Passed	01/26/2018		Pearson, Timothy W		
S	ITSOQ0581	Pressure Test: Liquid Medium	Passed	01/26/2018		Pearson, Timothy W		
S	ITSOQ0591	Leak Test at Operating Pressure	Passed	01/26/2018		Pearson, Timothy W		
K	ITSOQCM8.0C	<b>CM-8 Course Make Field Repairs on Gas Pipelines</b>	Completed	12/01/2015			Online	
K	TSK-70545851	<b>Material Safety Data Sheets</b>	Passed	09/26/2014			Online	
K	TSK-47656876	<b>OSHA: Active Shooter On-Site: What Every Employee Should Do</b>	Passed	03/23/2018			Online	
K	TSK-57181827	<b>OSHA: Avoiding Back Injuries</b>	Passed	09/15/2016			Online	
K	TSK-40374352	<b>OSHA: Avoiding Exposure to Bloodborne Pathogens</b>	Passed	09/11/2013			Online	
K	TSK-16333528	<b>OSHA: Battery Safety</b>	Passed	11/05/2018			Online	
K	TSK-19428631	<b>OSHA: Bloodborne Pathogens - General</b>	Passed	12/13/2016			Online	
K	TSK-49993361	<b>OSHA: Contractor Safety</b>	Passed	02/08/2019			Online	
K	TSK-94487089	<b>OSHA: Defensive Driving for Non-commercial Motorists</b>	Passed	05/09/2014			Online	
K	TSK-81206787	<b>OSHA: Disaster Planning for Employees</b>	Passed	02/24/2016			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-80650531	<b>OSHA: Electrical Safety - Unqualified Worker</b>	Passed	12/04/2014			Online	
K	TSK-43324205	<b>OSHA: Emergency Action and Fire Prevention</b>	Passed	03/04/2014			Online	
K	TSK-1863478	<b>OSHA: Exit Routes</b>	Passed	03/23/2018			Online	
K	TSK-88156636	<b>OSHA: Eye Protection</b>	Passed	12/15/2016			Online	
K	TSK-12431243	<b>OSHA: Fire Extinguishers</b>	Passed	12/15/2016			Online	
K	TSK-26325108	<b>OSHA: Fire Extinguishers Safe Use &amp; Handling</b>	Passed	03/05/2019			Online	
K	TSK-82208821	<b>OSHA: Foot Protection</b>	Passed	01/30/2017			Online	
K	TSK-59540464	<b>OSHA: Forklift Operator Safety</b>	Passed	03/07/2017			Online	
K	TSK-76505221	<b>OSHA: Good Housekeeping</b>	Passed	09/07/2018			Online	
K	TSK-18089227	<b>OSHA: Hazard Communication and GHS - Employees</b>	Passed	11/08/2013			Online	
K	TSK-23131903	<b>OSHA: Home Safety</b>	Passed	12/14/2017			Online	
K	TSK-16814140	<b>OSHA: Hydrogen Sulfide Safety</b>	Passed	05/02/2016			Online	
K	TSK-6855417	<b>OSHA: Introduction to OSHA General Duty Clause</b>	Passed	04/13/2015			Online	
K	TSK-90329309	<b>OSHA: Lockout/Tagout - Affected Employee</b>	Passed	03/10/2016			Online	
K	TSK-68980468	<b>OSHA: Lockout/Tagout - Authorized Employee</b>	Passed	05/25/2017			Online	

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K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-28933376	<b>OSHA: Mold Hazards and Prevention</b>	Passed	12/14/2015			Online	
K	TSK-39871740	<b>OSHA: Noise and Hearing Conservation</b>	Passed	09/19/2017			Online	
K	TSK-84258098	<b>OSHA: OSHA Inspections, Citations, and Penalties</b>	Passed	10/27/2015			Online	
K	TSK-19197876	<b>OSHA: Personal Protective Equipment - What Employees Need To Know</b>	Passed	06/25/2018			Online	
K	TSK-58073640	<b>OSHA: Preparing for Weather Emergencies</b>	Passed	12/14/2017			Online	
K	TSK-34175129	<b>OSHA: Preventing Slips, Trips, and Falls</b>	Passed	06/25/2018			Online	
K	TSK-30539153	<b>OSHA: Preventing Workplace Violence for Employees</b>	Passed	03/23/2018			Online	
K	TSK-73543343	<b>OSHA: Process Safety Management</b>	Passed	09/19/2016			Online	
K	TSK-41577608	<b>OSHA: Recordkeeping</b>	Passed	07/27/2016			Online	
K	TSK-24151389	<b>OSHA: Safe Forklift Operation</b>	Passed	09/29/2015			Online	
K	TSK-90852211	<b>OSHA: Substance Abuse in the Workplace</b>	Passed	02/23/2015			Online	
K	TSK-6305383	<b>OSHA: Trenching - Competent Person</b>	Passed	02/10/2014			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-98660073	<b>OSHA: Understanding Chemical Labels Under GHS</b>	Passed	08/06/2015			Online	
K	TSK-29694826	<b>OSHA: Working in Cold Conditions</b>	Passed	12/04/2017			Online	
K	TSK-93233025	<b>OSHA: Working in Hot Conditions</b>	Passed	07/16/2018			Online	
K	TSK-69030935	<b>OSHA: Working Safely Outdoors</b>	Passed	03/05/2019			Online	
K	TSK-27437815	<b>OSHA: Working Safely with Flammable Liquids</b>	Passed	10/10/2014			Online	
K	TSK-78342570	<b>OSHA: Workplace Safety for Employees</b>	Passed	09/19/2017			Online	
K	TSK-25594563	<b>OSHA: Workplace Security for Employees</b>	Passed	07/16/2018			Online	
K	TSK-5026184	<b>OSHA: Your Guide to PPE</b>	Passed	11/05/2018			Online	







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## Hayden, Timothy W (thayden)

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCE1.0C	<b>CE-1 Course Weld on steel pipelines</b>	Completed	09/09/2016			Online	
K	ITSOQCF1.0	<b>CF-1 Exam Join plastic pipe with heat fusion</b>	Passed	01/02/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF1.1.0C	<b>CF-1.1 Course Join Plastic Pipe with Butt Fusion</b>	Completed	01/02/2015			Online	
K	ITSOQCF1.1.0	<b>CF-1.1 Exam Join Plastic Pipe with Butt Fusion</b>	Passed	01/02/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF1.2.0C	<b>CF-1.2 Course Join Plastic Pipe with Socket Fusion</b>	Completed	01/02/2015			Online	
K	ITSOQCF1.2.0	<b>CF-1.2 Exam Join Plastic Pipe with Socket Fusion</b>	Passed	01/02/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF1.3.0C	<b>CF-1.3 Course Join Plastic Pipe with Saddle Fusion</b>	Completed	01/09/2015			Online	
K	ITSOQCF1.3.0	<b>CF-1.3 Exam Join Plastic Pipe with Saddle Fusion</b>	Passed	01/09/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF1.4.0C	<b>CF-1.4 Course Join Plastic Pipe with Electrofusion</b>	Completed	01/09/2015			Online	
K	ITSOQCF1.4.0	<b>CF-1.4 Exam Join Plastic Pipe with Electrofusion</b>	Passed	01/09/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF2.0	<b>CF-2 Exam Join polyethylene pipe with mechanical fittings</b>	Passed	01/09/2015		Pearson, Timothy W	Online	 No






K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCF2.1.0C	<b>CF-2.1 Course Join Plastic Pipe with Threaded Nut Compression End Fittings</b>	Completed	01/09/2015			Online	
K	ITSOQCF2.2.0C	<b>CF-2.2 Course Join Plastic Pipe with Stab-Type Mechanical Fittings</b>	Completed	01/20/2015			Online	
K	ITSOQCF2.2.0	<b>CF-2.2 Exam Join Plastic Pipe with Stab-Type Mechanical Fittings</b>	Passed	01/20/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF1-CF2.0C	<b>CF1-CF2 Course Join plastic pipe prerequisite</b>	Completed	04/14/2014			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Passed	09/25/2012			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Completed	07/18/2014			Online	
K	ITSOQCG1.0	<b>CG-1 Exam Verifying excavating and backfilling operations that minimize excavation damage</b>	Passed	09/25/2012	09/27/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ0981	Backfilling	Passed	09/27/2012		Pearson, Timothy W		
S	ITSOQ1321	Damage Prevention During Excavation Activities by or on Behalf of the Operator	Passed	09/27/2012		Pearson, Timothy W		






K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
S	ITSOQ1331	Damage Prevention Inspection During Third-Party Excavation or Encroachment Activities as Determined Necessary by the Operator	Passed	09/27/2012		Pearson, Timothy W		
S	ITSOQ1341	Provide or Ensure Adequate Pipeline Support During Operator-Initiated Excavation Activities	Passed	09/27/2012		Pearson, Timothy W		
S	ITSOQ5051	Verified the Correct Marking of Permanently Marked Underground Pipeline Facilities	Passed	09/27/2012		Pearson, Timothy W		
S	ITSOQ5061	Verified the Correct Marking of Temporarily Marked Underground Pipeline Facilities	Passed	09/27/2012		Pearson, Timothy W		
K	ITSOQCG2.0C	<b>CG-2 Course Identify Basic Installation Methods for Mains and Transmission Pipelines</b>	Completed	03/06/2015			Online	
K	ITSOQCG4.0C	<b>CG-4 Course Install Mains and Transmission Pipelines Using Trenchless Methods</b>	Completed	05/12/2016			Online	
K	ITSOQCH1.0C	<b>CH-1 Course Install Customer Gas Meter and Regulator Sets</b>	Completed	11/24/2014			Online	
K	ITSOQCH1.0	<b>CH-1 Exam Install Customer Gas Meter and Regulator Sets</b>	Passed	11/24/2014			Online	 No
K	ITSOQCH2.0C	<b>CH-2 Course Install Customer Gas Service Lines</b>	Completed	11/24/2014			Online	




K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCH2.0	<b>CH-2 Exam Install Customer Gas Service Lines</b>	Passed	12/01/2014			Online	 No
K	ITSOQCI1.0C	<b>CI-1 Course Perform Pipe-to-Soil Potential Surveys on Effectively Coated Buried or Submerged Pipelines</b>	Completed	08/22/2013			Online	
K	ITSOQCI1.0	<b>CI-1 Exam Perform Pipe-to-Soil Potential Surveys on Effectively Coated Buried or Submerged Pipelines</b>	Passed	08/22/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI10.0C	<b>CI-10 Course Inspect and Monitor Exposed Piping for Evidence of Atmospheric Corrosion</b>	Completed	08/22/2013			Online	
K	ITSOQCI10.0	<b>CI-10 Exam Inspect and Monitor Exposed Piping for Evidence of Atmospheric Corrosion</b>	Passed	08/22/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI11.0C	<b>CI-11 Course Install Sacrificial Anodes and Test Stations</b>	Completed	08/22/2013			Online	
K	ITSOQCI11.0	<b>CI-11 Exam Install Sacrificial Anodes and Test Stations</b>	Passed	08/22/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI12.0C	<b>CI-12 Course Measure the Extent of Corrosion on Pipeline Facilities</b>	Completed	08/22/2013			Online	
K	ITSOQCI12.0	<b>CI-12 Exam Measure the Extent of Corrosion on Pipeline Facilities</b>	Passed	08/22/2013		Pearson, Timothy W	Online	 No



K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCI13.0C	<b>CI-13 Course Identify Procedures Basic to Inspecting, Applying, and Repairing Pipeline Coatings</b>	Completed	06/05/2015			Online	
K	ITSOQCI13.0	<b>CI-13 Exam Identify Procedures Basic to Inspecting, Applying, and Repairing Pipeline Coatings</b>	Passed	08/22/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI2.0C	<b>CI-2 Course Determine Areas of Active Corrosion Using Close Interval Survey Methods</b>	Completed	08/22/2013			Online	
K	ITSOQCI2.0	<b>CI-2 Exam Determine Areas of Active Corrosion Using Close Interval Survey Methods</b>	Passed	08/22/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI3.0C	<b>CI-3 Course Measure Soil Resistivity</b>	Completed	08/22/2013			Online	
K	ITSOQCI3.0	<b>CI-3 Exam Measure Soil Resistivity</b>	Passed	08/22/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI4.0C	<b>CI-4 Course Inspect the External Condition of Exposed Buried Metal Piping to Determine if Repair or Replacement is Necessary</b>	Completed	08/22/2013			Online	
K	ITSOQCI4.0	<b>CI-4 Exam Inspect the External Condition of Exposed Buried Metal Piping to Determine if Repair or Replacement is Necessary</b>	Passed	08/22/2013		Pearson, Timothy W	Online	 No



K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCI5.0C	<b>CI-5 Course Inspect and Maintain Rectifiers</b>	Completed	08/22/2013			Online	
K	ITSOQCI5.0	<b>CI-5 Exam Inspect and Maintain Rectifiers</b>	Passed	08/22/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI6.0C	<b>CI-6 Course Inspect for the Effects of Interference Current</b>	Completed	08/22/2013			Online	
K	ITSOQCI6.0	<b>CI-6 Exam Inspect for the Effects of Interference Current</b>	Passed	08/22/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI7.0C	<b>CI-7 Course Install Test Leads to Monitor and Control External Corrosion</b>	Completed	08/22/2013			Online	
K	ITSOQCI7.0	<b>CI-7 Exam Install Test Leads to Monitor and Control External Corrosion</b>	Passed	08/22/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI8.0C	<b>CI-8 Course Install and Test Insulation to Control External Corrosion by Electrical Isolation</b>	Completed	08/22/2013			Online	
K	ITSOQCI8.0	<b>CI-8 Exam Install and Test Insulation to Control External Corrosion by Electrical Isolation</b>	Passed	08/22/2013		Pearson, Timothy W	Online	 No
K	ITSOQCI9.0C	<b>CI-9 Course Inspect for Evidence of Internal Corrosion</b>	Completed	08/22/2013			Online	
K	ITSOQCI9.0	<b>CI-9 Exam Inspect for Evidence of Internal Corrosion</b>	Passed	08/22/2013		Pearson, Timothy W	Online	 No

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCL2.0C	<b>CL-2 Course Purge Pipelines (Small &amp; Large Diameter)</b>	Completed	11/24/2014			Online	
K	ITSOQCL2.0	<b>CL-2 Exam Purge Pipelines (Small &amp; Large Diameter)</b>	Passed	12/01/2014			Online	 No
K	ITSOQCL3a.0C	<b>CL-3a Course Monitor Odorant Levels</b>	Completed	12/01/2014			Online	
K	ITSOQCL3a.0	<b>CL-3a Exam Monitor Odorant Levels</b>	Passed	12/01/2014			Online	 No
K	ITSOQCM1.0C	<b>CM-1 Course Perform Patrol and Leakage Surveys on Gas Pipeline Facilities</b>	Completed	12/01/2014			Online	
K	ITSOQCM1.0	<b>CM-1 Exam Perform Patrol and Leakage Surveys on Gas Pipeline Facilities</b>	Failed	12/01/2014			Online	 No
K	ITSOQCM10.0C	<b>CM-10 Course Abandon/Deactivate Gas Pipeline Facilities</b>	Completed	12/01/2014			Online	
K	ITSOQCM10.0	<b>CM-10 Exam Abandon/Deactivate Gas Pipeline Facilities</b>	Passed	12/01/2014			Online	 No
K	ITSOQCM11.0C	<b>CM-11 Course Recognize and React to Generic Abnormal Operating Conditions</b>	Completed	01/03/2014			Online	
K	ITSOQCM11.0	<b>CM-11 Exam Recognize and React to Generic Abnormal Operating Conditions</b>	Passed	01/03/2014	01/03/2017		Online	 Expired

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCM13.0C	<b>CM-13 Course Investigate Reported Gas Leaks and Odors In Buildings</b>	Completed	12/04/2013			Online	
K	ITSOQCM13.0	<b>CM-13 Exam Investigate Reported Gas Leaks and Odors In Buildings</b>	Passed	12/04/2013			Online	 No
K	ITSOQCM2.0C	<b>CM-2 Course Locate and Mark Underground Pipeline Facilities</b>	Passed	09/25/2012			Online	
K	ITSOQCM2.0	<b>CM-2 Exam Locate and Mark Underground Pipeline Facilities</b>	Passed	09/25/2012	09/28/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ1291	Locate Underground Pipelines	Passed	09/28/2012		Pearson, Timothy W		
S	ITSOQ1301	Install and Maintain Pipeline Markers	Passed	09/28/2012		Pearson, Timothy W		
S	ITSOQ5101	Temporarily Mark Underground Pipeline Facilities	Passed	09/28/2012		Pearson, Timothy W		
K	ITSOQCM3.0C	<b>CM-3 Course Pressure Testing Gas Pipelines</b>	Completed	12/01/2014			Online	
K	ITSOQCM3.0	<b>CM-3 Exam Pressure Testing Gas Pipelines</b>	Failed	12/01/2014			Online	 No
K	ITSOQCM4.0C	<b>CM-4 Course Inspect and Test Pressure Limiting Stations, Relief Devices, and Pressure Regulating Stations</b>	Passed	09/25/2012			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCM4.0	<b>CM-4 Exam Inspect and Test Pressure Limiting Stations, Relief Devices, and Pressure Regulating Stations</b>	Passed	09/25/2012	09/28/2015	Pearson, Timothy W	Online	 Expired
S	ITSOQ0381	Spring-Loaded, Pressure-Regulating Device - Inspection and Testing, Preventive and Corrective Maintenance	Passed	09/28/2012		Pearson, Timothy W		
S	ITSOQ0391	Pilot-Operated, Pressure-Regulating Device-Inspection, Testing, Preventive and Corrective Maintenance	Passed	09/28/2012		Pearson, Timothy W		
S	ITSOQ0401	Controller-Type, Pressure-Regulating Device-Inspection, Testing, Preventive and Corrective Maintenance	Passed	09/28/2012		Pearson, Timothy W		
S	ITSOQ0411	Spring-Loaded, Pressure-Limiting, and Relief Device-Inspection, Testing, Preventive and Corrective Maintenance	Passed	09/28/2012		Pearson, Timothy W		
S	ITSOQ0421	Pilot-Operated, Pressure-Limiting, and Relief Device-Inspection, Testing, Preventive and Corrective Maintenance	Passed	09/28/2012		Pearson, Timothy W		
S	ITSOQ1351	Vault Inspection and Maintenance	Passed	09/28/2012		Pearson, Timothy W		
K	ITSOQCM5.0C	<b>CM-5 Course Inspect, Service, and Operate Line Valves</b>	Completed	12/01/2014			Online	
K	ITSOQCM5.0	<b>CM-5 Exam Inspect, Service, and Operate Line Valves</b>	Passed	12/01/2014			Online	 No

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCM7.0C	<b>CM-7 Course Prevent Accidental Ignition</b>	Completed	12/01/2014			Online	
K	ITSOQCM7.0	<b>CM-7 Exam Prevent Accidental Ignition</b>	Passed	12/01/2014	12/01/2017		Online	❗ Expired
K	ITSOQCM8.0C	<b>CM-8 Course Make Field Repairs on Gas Pipelines</b>	Completed	12/01/2015			Online	
K	ITSOQCM8.0	<b>CM-8 Exam Make Field Repairs on Gas Pipelines</b>	Passed	12/01/2014			Online	❗ No
K	ITSNGT1101.0	<b>NGT 1101 EXAM Controlling/Preventing Fires Fueled by Natural Gas</b>	Passed	11/05/2013	11/05/2016	Dodson, Larry James	Paper	❗ Expired
S	ITSNGT1101.1	Recharge dry chemical fire extinguishers	Passed	11/05/2013				
S	ITSNGT1101.2	Extinguish gas fires with a dry chemical fire extinguisher including as a minimum, one of the following types: pit, meter set, flange, pipe or regulator	Passed	11/05/2013				
S	ITSNGT1101.3	Check and report the date of inspection and the type of extinguishing agent used in fire extinguishers at a worksite designated by your performance evaluator	Passed	11/05/2013				
K	TSK-47656876	<b>OSHA: Active Shooter On-Site: What Every Employee Should Do</b>	Passed	03/01/2018			Online	
K	TSK-57181827	<b>OSHA: Avoiding Back Injuries</b>	Passed	08/26/2016			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-40374352	<b>OSHA: Avoiding Exposure to Bloodborne Pathogens</b>	Passed	09/18/2013			Online	
K	TSK-16333528	<b>OSHA: Battery Safety</b>	Passed	10/15/2018			Online	
K	TSK-19428631	<b>OSHA: Bloodborne Pathogens - General</b>	Passed	12/06/2016			Online	
K	TSK-49993361	<b>OSHA: Contractor Safety</b>	Passed	01/15/2019			Online	
K	TSK-94487089	<b>OSHA: Defensive Driving for Non-commercial Motorists</b>	Passed	05/14/2014			Online	
K	TSK-81206787	<b>OSHA: Disaster Planning for Employees</b>	Passed	02/26/2016			Online	
K	TSK-80650531	<b>OSHA: Electrical Safety - Unqualified Worker</b>	Passed	12/22/2014			Online	
K	TSK-43324205	<b>OSHA: Emergency Action and Fire Prevention</b>	Passed	03/20/2014			Online	
K	TSK-1863478	<b>OSHA: Exit Routes</b>	Passed	01/11/2018			Online	
K	TSK-88156636	<b>OSHA: Eye Protection</b>	Passed	12/06/2016			Online	
K	TSK-12431243	<b>OSHA: Fire Extinguishers</b>	Passed	01/30/2017			Online	
K	TSK-26325108	<b>OSHA: Fire Extinguishers Safe Use &amp; Handling</b>	Passed	01/22/2019			Online	
K	TSK-82208821	<b>OSHA: Foot Protection</b>	Passed	01/30/2017			Online	
K	TSK-59540464	<b>OSHA: Forklift Operator Safety</b>	Passed	03/07/2017			Online	
K	TSK-76505221	<b>OSHA: Good Housekeeping</b>	Passed	09/24/2018			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-18089227	<b>OSHA: Hazard Communication and GHS - Employees</b>	Passed	11/08/2013			Online	
K	TSK-23131903	<b>OSHA: Home Safety</b>	Passed	01/11/2018			Online	
K	TSK-16814140	<b>OSHA: Hydrogen Sulfide Safety</b>	Passed	04/11/2016			Online	
K	TSK-6855417	<b>OSHA: Introduction to OSHA General Duty Clause</b>	Passed	04/13/2015			Online	
K	TSK-90329309	<b>OSHA: Lockout/Tagout - Affected Employee</b>	Passed	03/30/2016			Online	
K	TSK-68980468	<b>OSHA: Lockout/Tagout - Authorized Employee</b>	Passed	05/25/2017			Online	
K	TSK-28933376	<b>OSHA: Mold Hazards and Prevention</b>	Passed	12/18/2015			Online	
K	TSK-39871740	<b>OSHA: Noise and Hearing Conservation</b>	Passed	09/12/2017			Online	
K	TSK-84258098	<b>OSHA: OSHA Inspections, Citations, and Penalties</b>	Passed	10/27/2015			Online	
K	TSK-19197876	<b>OSHA: Personal Protective Equipment - What Employees Need To Know</b>	Passed	04/13/2018			Online	
K	TSK-58073640	<b>OSHA: Preparing for Weather Emergencies</b>	Passed	11/15/2017			Online	
K	TSK-34175129	<b>OSHA: Preventing Slips, Trips, and Falls</b>	Passed	06/08/2018			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-30539153	<b>OSHA: Preventing Workplace Violence for Employees</b>	Passed	03/21/2018			Online	
K	TSK-41577608	<b>OSHA: Recordkeeping</b>	Failed	08/01/2016			Online	
K	TSK-24151389	<b>OSHA: Safe Forklift Operation</b>	Passed	09/29/2015			Online	
K	TSK-90852211	<b>OSHA: Substance Abuse in the Workplace</b>	Passed	02/25/2015			Online	
K	TSK-6305383	<b>OSHA: Trenching - Competent Person</b>	Passed	02/20/2014			Online	
K	TSK-98660073	<b>OSHA: Understanding Chemical Labels Under GHS</b>	Passed	08/11/2015			Online	
K	TSK-29694826	<b>OSHA: Working in Cold Conditions</b>	Passed	11/15/2017			Online	
K	TSK-93233025	<b>OSHA: Working in Hot Conditions</b>	Passed	06/08/2018			Online	
K	TSK-69030935	<b>OSHA: Working Safely Outdoors</b>	Passed	03/04/2019			Online	
K	TSK-78342570	<b>OSHA: Workplace Safety for Employees</b>	Passed	11/15/2017			Online	
K	TSK-25594563	<b>OSHA: Workplace Security for Employees</b>	Passed	10/15/2018			Online	
K	TSK-5026184	<b>OSHA: Your Guide to PPE</b>	Passed	10/15/2018			Online	






# **OnBoard Learning Management System Carrollton Utilities - Transcript**




*Run By Timothy W Pearson on 3/28/2019 8:11:21 AM*






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Witness: Chris Rose

## Hamilton, Ruth (HAMILTON6978)

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCF1.1.0C	<b>CF-1.1 Course Join Plastic Pipe with Butt Fusion</b>	Completed	02/20/2015			Online	
K	ITSOQCF1.1.0	<b>CF-1.1 Exam Join Plastic Pipe with Butt Fusion</b>	Passed	02/20/2015		Pearson, Timothy W	Online	 No
K	ITSOQCF1-CF2.0C	<b>CF1-CF2 Course Join plastic pipe prerequisite</b>	Completed	04/03/2014			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Completed	07/08/2014			Online	
K	ITSOQCG2.0C	<b>CG-2 Course Identify Basic Installation Methods for Mains and Transmission Pipelines</b>	Completed	03/13/2015			Online	
K	ITSOQCG4.0C	<b>CG-4 Course Install Mains and Transmission Pipelines Using Trenchless Methods</b>	Completed	06/07/2016			Online	
K	ITSOQCH1.0C	<b>CH-1 Course Install Customer Gas Meter and Regulator Sets</b>	Completed	02/20/2015			Online	
K	ITSOQCH1.0	<b>CH-1 Exam Install Customer Gas Meter and Regulator Sets</b>	Passed	02/20/2015		Pearson, Timothy W	Online	 No
K	ITSOQCH2.0C	<b>CH-2 Course Install Customer Gas Service Lines</b>	Completed	02/20/2015			Online	
K	ITSOQCH2.0	<b>CH-2 Exam Install Customer Gas Service Lines</b>	Failed	02/20/2015		Pearson, Timothy W	Online	 No

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCI10.0C	<b>CI-10 Course Inspect and Monitor Exposed Piping for Evidence of Atmospheric Corrosion</b>	Completed	06/02/2015			Online	
K	ITSOQCI10.0	<b>CI-10 Exam Inspect and Monitor Exposed Piping for Evidence of Atmospheric Corrosion</b>	Passed	06/02/2015		Pearson, Timothy W	Online	 No
K	ITSOQCI13.0C	<b>CI-13 Course Identify Procedures Basic to Inspecting, Applying, and Repairing Pipeline Coatings</b>	Completed	06/25/2015			Online	
K	ITSOQCL1.0C	<b>CL-1 Course Tap Pipelines Under Pressure</b>	Completed	09/08/2017			Online	
K	ITSOQCL3a.0C	<b>CL-3a Course Monitor Odorant Levels</b>	Completed	06/19/2014			Online	
K	ITSOQCL3a.0	<b>CL-3a Exam Monitor Odorant Levels</b>	Passed	06/19/2014	06/19/2017	Pearson, Timothy W	Online	 Expired
S	ITSOQ1211	Odorization: Periodic Sampling	Passed	06/20/2014		Pearson, Timothy W		
K	ITSOQCM13.0C	<b>CM-13 Course Investigate Reported Gas Leaks and Odors In Buildings</b>	Completed	01/02/2014			Online	
K	ITSOQCM13.0	<b>CM-13 Exam Investigate Reported Gas Leaks and Odors In Buildings</b>	Passed	01/02/2014			Online	 No
K	ITSOQCM3.0C	<b>CM-3 Course Pressure Testing Gas Pipelines</b>	Completed	10/14/2014			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCM3.0	<b>CM-3 Exam Pressure Testing Gas Pipelines</b>	Passed	10/14/2014		Pearson, Timothy W	Online	 No
K	ITSOQCM7.0C	<b>CM-7 Course Prevent Accidental Ignition</b>	Completed	10/14/2014			Online	
K	ITSOQCM7.0	<b>CM-7 Exam Prevent Accidental Ignition</b>	Passed	10/14/2014	10/14/2017	Pearson, Timothy W	Online	 Expired
K	ITSOQCM8.0C	<b>CM-8 Course Make Field Repairs on Gas Pipelines</b>	Completed	11/10/2015			Online	
K	ITSOQCM8.0	<b>CM-8 Exam Make Field Repairs on Gas Pipelines</b>	Failed	11/10/2015		Pearson, Timothy W	Online	 No
K	ITSNG101.0c	<b>ITS Natural Gas 101: Properties of Natural Gas</b>	Completed	12/05/2013			Online	
K	TSK-70545851	<b>Material Safety Data Sheets</b>	Passed	09/17/2014			Online	
K	TSK-47656876	<b>OSHA: Active Shooter On-Site: What Every Employee Should Do</b>	Passed	03/13/2018			Online	
K	TSK-57181827	<b>OSHA: Avoiding Back Injuries</b>	Passed	08/30/2016			Online	
K	TSK-40374352	<b>OSHA: Avoiding Exposure to Bloodborne Pathogens</b>	Passed	09/12/2013			Online	
K	TSK-16333528	<b>OSHA: Battery Safety</b>	Passed	11/01/2018			Online	
K	TSK-49993361	<b>OSHA: Contractor Safety</b>	Passed	05/14/2015			Online	
K	TSK-94487089	<b>OSHA: Defensive Driving for Non-commercial Motorists</b>	Failed	05/14/2014			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-81206787	<b>OSHA: Disaster Planning for Employees</b>	Passed	03/01/2016			Online	
K	TSK-80650531	<b>OSHA: Electrical Safety - Unqualified Worker</b>	Passed	12/03/2014			Online	
K	TSK-43324205	<b>OSHA: Emergency Action and Fire Prevention</b>	Passed	03/27/2014			Online	
K	TSK-1863478	<b>OSHA: Exit Routes</b>	Passed	03/13/2018			Online	
K	TSK-88156636	<b>OSHA: Eye Protection</b>	Passed	11/09/2016			Online	
K	TSK-12431243	<b>OSHA: Fire Extinguishers</b>	Passed	12/15/2016			Online	
K	TSK-82208821	<b>OSHA: Foot Protection</b>	Passed	01/27/2017			Online	
K	TSK-59540464	<b>OSHA: Forklift Operator Safety</b>	Passed	03/06/2017			Online	
K	TSK-76505221	<b>OSHA: Good Housekeeping</b>	Passed	09/10/2018			Online	
K	TSK-18089227	<b>OSHA: Hazard Communication and GHS - Employees</b>	Passed	11/01/2013			Online	
K	TSK-23131903	<b>OSHA: Home Safety</b>	Passed	12/27/2017			Online	
K	TSK-16814140	<b>OSHA: Hydrogen Sulfide Safety</b>	Passed	04/07/2016			Online	
K	TSK-6855417	<b>OSHA: Introduction to OSHA General Duty Clause</b>	Passed	04/07/2015			Online	
K	TSK-90329309	<b>OSHA: Lockout/Tagout - Affected Employee</b>	Passed	04/07/2016			Online	
K	TSK-68980468	<b>OSHA: Lockout/Tagout - Authorized Employee</b>	Passed	05/24/2017			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-28933376	<b>OSHA: Mold Hazards and Prevention</b>	Passed	12/14/2015			Online	
K	TSK-39871740	<b>OSHA: Noise and Hearing Conservation</b>	Passed	08/14/2017			Online	
K	TSK-84258098	<b>OSHA: OSHA Inspections, Citations, and Penalties</b>	Passed	10/20/2015			Online	
K	TSK-19197876	<b>OSHA: Personal Protective Equipment - What Employees Need To Know</b>	Passed	06/04/2018			Online	
K	TSK-58073640	<b>OSHA: Preparing for Weather Emergencies</b>	Passed	11/13/2017			Online	
K	TSK-34175129	<b>OSHA: Preventing Slips, Trips, and Falls</b>	Passed	07/30/2018			Online	
K	TSK-30539153	<b>OSHA: Preventing Workplace Violence for Employees</b>	Passed	03/13/2018			Online	
K	TSK-73543343	<b>OSHA: Process Safety Management</b>	Passed	09/26/2016			Online	
K	TSK-41577608	<b>OSHA: Recordkeeping</b>	Passed	07/28/2016			Online	
K	TSK-24151389	<b>OSHA: Safe Forklift Operation</b>	Passed	10/19/2015			Online	
K	TSK-90852211	<b>OSHA: Substance Abuse in the Workplace</b>	Passed	02/17/2015			Online	
K	TSK-6305383	<b>OSHA: Trenching - Competent Person</b>	Passed	02/27/2014			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-98660073	<b>OSHA: Understanding Chemical Labels Under GHS</b>	Failed	09/01/2015			Online	
K	TSK-29694826	<b>OSHA: Working in Cold Conditions</b>	Passed	11/13/2017			Online	
K	TSK-93233025	<b>OSHA: Working in Hot Conditions</b>	Passed	07/30/2018			Online	
K	TSK-69030935	<b>OSHA: Working Safely Outdoors</b>	Passed	08/07/2014			Online	
K	TSK-27437815	<b>OSHA: Working Safely with Flammable Liquids</b>	Passed	10/06/2014			Online	
K	TSK-78342570	<b>OSHA: Workplace Safety for Employees</b>	Passed	09/08/2017			Online	
K	TSK-25594563	<b>OSHA: Workplace Security for Employees</b>	Passed	07/30/2018			Online	
K	TSK-5026184	<b>OSHA: Your Guide to PPE</b>	Passed	09/10/2018			Online	

# OnBoard Learning Management System Carrollton Utilities - Transcript


*Run By Timothy W Pearson on 3/28/2019 8:10:28 AM*



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## Arney, Travis (tarney)

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	ITSOQCF1-CF2.0C	<b>CF1-CF2 Course Join plastic pipe prerequisite</b>	Completed	04/04/2014			Online	
K	ITSOQCG1.0C	<b>CG-1 Course Verifying excavating and backfilling operations that minimize excavation damage to pipeline facilities</b>	Completed	07/05/2014			Online	
K	ITSOQCG2.0C	<b>CG-2 Course Identify Basic Installation Methods for Mains and Transmission Pipelines</b>	Completed	03/06/2015			Online	
K	ITSOQCG4.0C	<b>CG-4 Course Install Mains and Transmission Pipelines Using Trenchless Methods</b>	Completed	05/17/2016			Online	
K	ITSOQCM13.0C	<b>CM-13 Course Investigate Reported Gas Leaks and Odors In Buildings</b>	Completed	01/06/2014			Online	
K	ITSOQCM13.0	<b>CM-13 Exam Investigate Reported Gas Leaks and Odors In Buildings</b>	Passed	01/06/2014			Online	 No
K	ITSNG101.0c	<b>ITS Natural Gas 101: Properties of Natural Gas</b>	Completed	12/05/2013			Online	
K	TSK-70545851	<b>Material Safety Data Sheets</b>	Passed	09/27/2014			Online	
K	TSK-47656876	<b>OSHA: Active Shooter On-Site: What Every Employee Should Do</b>	Passed	02/05/2018			Online	
K	TSK-70376491	<b>OSHA: Arc Flash Safety</b>	Passed	12/06/2013			Online	
K	TSK-57181827	<b>OSHA: Avoiding Back Injuries</b>	Passed	08/22/2016			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-40374352	<b>OSHA: Avoiding Exposure to Bloodborne Pathogens</b>	Passed	09/12/2013			Online	
K	TSK-16333528	<b>OSHA: Battery Safety</b>	Passed	10/16/2018			Online	
K	TSK-19428631	<b>OSHA: Bloodborne Pathogens - General</b>	Passed	10/26/2016			Online	
K	TSK-49993361	<b>OSHA: Contractor Safety</b>	Passed	11/28/2018			Online	
K	TSK-94487089	<b>OSHA: Defensive Driving for Non-commercial Motorists</b>	Passed	05/10/2014			Online	
K	TSK-81206787	<b>OSHA: Disaster Planning for Employees</b>	Passed	02/18/2016			Online	
K	TSK-80650531	<b>OSHA: Electrical Safety - Unqualified Worker</b>	Passed	12/20/2014			Online	
K	TSK-43324205	<b>OSHA: Emergency Action and Fire Prevention</b>	Passed	03/05/2014			Online	
K	TSK-1863478	<b>OSHA: Exit Routes</b>	Passed	01/08/2018			Online	
K	TSK-88156636	<b>OSHA: Eye Protection</b>	Passed	11/15/2016			Online	
K	TSK-12431243	<b>OSHA: Fire Extinguishers</b>	Passed	12/20/2016			Online	
K	TSK-26325108	<b>OSHA: Fire Extinguishers Safe Use &amp; Handling</b>	Passed	01/22/2019			Online	
K	TSK-82208821	<b>OSHA: Foot Protection</b>	Passed	01/23/2017			Online	
K	TSK-59540464	<b>OSHA: Forklift Operator Safety</b>	Passed	02/27/2017			Online	
K	TSK-76505221	<b>OSHA: Good Housekeeping</b>	Passed	09/02/2018			Online	

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K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-18089227	<b>OSHA: Hazard Communication and GHS - Employees</b>	Passed	11/07/2013			Online	
K	TSK-23131903	<b>OSHA: Home Safety</b>	Passed	12/04/2017			Online	
K	TSK-16814140	<b>OSHA: Hydrogen Sulfide Safety</b>	Passed	04/12/2016			Online	
K	TSK-6855417	<b>OSHA: Introduction to OSHA General Duty Clause</b>	Passed	04/07/2015			Online	
K	TSK-18079533	<b>OSHA: Laboratory Safety</b>	Passed	01/22/2019			Online	
K	TSK-90329309	<b>OSHA: Lockout/Tagout - Affected Employee</b>	Passed	03/06/2016			Online	
K	TSK-68980468	<b>OSHA: Lockout/Tagout - Authorized Employee</b>	Passed	05/29/2017			Online	
K	TSK-28933376	<b>OSHA: Mold Hazards and Prevention</b>	Passed	12/19/2015			Online	
K	TSK-39871740	<b>OSHA: Noise and Hearing Conservation</b>	Passed	06/28/2017			Online	
K	TSK-84258098	<b>OSHA: OSHA Inspections, Citations, and Penalties</b>	Passed	10/31/2015			Online	
K	TSK-19197876	<b>OSHA: Personal Protective Equipment - What Employees Need To Know</b>	Passed	04/04/2018			Online	
K	TSK-58073640	<b>OSHA: Preparing for Weather Emergencies</b>	Passed	11/08/2017			Online	
K	TSK-34175129	<b>OSHA: Preventing Slips, Trips, and Falls</b>	Passed	06/11/2018			Online	
K	TSK-30539153	<b>OSHA: Preventing Workplace Violence for Employees</b>	Passed	04/04/2018			Online	
K	TSK-73543343	<b>OSHA: Process Safety Management</b>	Passed	08/23/2016			Online	

K/S	Task Code	Task	Status	Date Taken	Expires	Proctor/Evaluator	Media	Is Qualified
K	TSK-41577608	<b>OSHA: Recordkeeping</b>	Passed	07/27/2016			Online	
K	TSK-24151389	<b>OSHA: Safe Forklift Operation</b>	Passed	09/20/2015			Online	
K	TSK-90852211	<b>OSHA: Substance Abuse in the Workplace</b>	Passed	02/10/2015			Online	
K	TSK-6305383	<b>OSHA: Trenching - Competent Person</b>	Passed	02/16/2014			Online	
K	TSK-98660073	<b>OSHA: Understanding Chemical Labels Under GHS</b>	Passed	08/23/2015			Online	
K	TSK-29694826	<b>OSHA: Working in Cold Conditions</b>	Passed	10/10/2017			Online	
K	TSK-93233025	<b>OSHA: Working in Hot Conditions</b>	Passed	05/07/2018			Online	
K	TSK-69030935	<b>OSHA: Working Safely Outdoors</b>	Passed	03/05/2019			Online	
K	TSK-27437815	<b>OSHA: Working Safely with Flammable Liquids</b>	Passed	10/14/2014			Online	
K	TSK-78342570	<b>OSHA: Workplace Safety for Employees</b>	Passed	09/06/2017			Online	
K	TSK-25594563	<b>OSHA: Workplace Security for Employees</b>	Passed	07/25/2018			Online	
K	TSK-5026184	<b>OSHA: Your Guide to PPE</b>	Passed	09/17/2018			Online	

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

16. Does the utility have a policy to identify errors that result in missed customer billings or under billings of customer accounts? If so, provide a copy of the policy.

**Response:**

Meters are manually read each month by a meter reader using a hand-held computer.

The computer has preset alarms to cause the reader to check a reading outside of the alarm settings. Once the hand-held computer is downloaded into the billing system, all data is again reviewed for errors by the Billing Supervisor. Any data that falls outside of what is considered a normal reading is verified by reading the meter a second time.

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

17. If the utility produces and treats water for its distribution system, provide the date that the utility's water treatment plant meter was last tested and state how frequently the utility's water treatment plant meter is tested. Provide a copy of the most recent meter test results.

**Response:**

The District does not operate a water treatment plant. All water is purchased from one of three wholesale providers pursuant to contracts.

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

18. Provide the dates on which the utility's master meters were last tested and the results of the tests.

**Response:**

West Carroll does not have any master meters.

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

19. Provide the utility's procedure and schedule for testing its master meters and customer meters.

**Response:**

West Carroll tests its customers' meters on a ten-year schedule. Meters that are due to be tested are removed from the customer's service and sent to a third-party testing company. After the testing is complete, the meters that are mechanically sound and compliant with drinking water standards and Commission regulations are placed back into inventory for future use. When the meters are removed for testing, they are replaced with a new meter.

West Carroll does not own any master meters.



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Appendix C to the Commission's Order entered March 12, 2019**

20. State the number of meters that have been replaced by the utility from January 1, 2018, to the date of the issuance of this Order.

**Response:**

West Carroll removed from service, tested and replaced 217 customer meters between January 1, 2018 and March 12, 2019.

**West Carroll Water District  
Case No. 2019-00041  
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Appendix C to the Commission's Order entered March 12, 2019**

21. Provide the type of metering equipment, including brands and model numbers, the utility uses.

**Response:**

West Carroll currently uses 5/8" by 3/4" Neptune T-10 meters for approximately eighty percent (80%) of its customers, the remaining approximately twenty percent (20%) are served with 5/8" by 3/4" Badger or Sensus brand meters. The Badger and Sensus brands are being phased out as a result of the lead free rule.

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

22. State whether the utility utilizes supervisory control and data acquisition (SCADA) technology within its system.

**Response:**

West Carroll utilizes Supervisory Control and Data Acquisition ("SCADA") for monitoring and controlling the distribution systems, tanks and booster stations. The SCADA system is comprised of a master HMI, RTUs and a wireless radio system. Lookout HMI software is used as the operator interface. Each site is equipped with a Coyote-Rio-28 field RTU for the purpose of collecting data, control set points and onsite alarms. GE-MDS 4710 remote data transceivers provides communications from the master HMI to all field RTUs.

Programming has been developed to allow for a completely automated control and monitoring system. The HMI system provides the operator with the abilities to control and monitor all set points, such as tank levels, pump controls, pump lead and lag selections, booster station temperatures, alarms, drywell leak monitoring, flow metering, and amp draw. The RTU collects and sends all data for all sites back to the HMI in real time where it is displayed, logged, plotted and or graphed. All information within the HMI is stored historically and available for the operator to access at any time. Operators can remotely access the HMI making data available to them at any given time with the use of a smartphone, computer or tablet.

The system utilizes a Sensaphone 800 for notifying operators and on-call personnel of any and all alarms. Each individual TRU has programmed alarm set points to notify operators of high and low tank levels, booster station low temperature, high and low distribution pressures and pump failures. Operators utilize the SCADA system on a continuous basis for proper distribution systems operations, maintenance to tanks and booster stations and flow monitoring for leak detection.

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

23. State whether the utility utilizes telemetry within its system.

**Response:** Please see Response 22 above. Telemetry is a component of the SCADA system.

**West Carroll Water District  
Case No. 2019-00041  
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Appendix C to the Commission's Order entered March 12, 2019**

24. State whether all meters within the utility's distribution area are read monthly. If all meters are not read monthly state the reasons why not.

**Response:**

West Carroll reads all meters monthly except during extreme cold weather or major snow events.

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

25. What training is provided to the utility's meter readers?

**Response:**

West Carroll is a small water district with no employees. Therefore, no employees are solely meter readers. The Carrollton Utilities employees who read meters also search for and repair leaks and perform any and all tasks associated with the operation of a water distribution system. Most employees either already have or are in the process of obtaining a certified water distribution license. The Response to Request 15 provides a comprehensive list of the training activities.

**West Carroll Water District  
Case No. 2019-00041  
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Appendix C to the Commission's Order entered March 12, 2019**

26. Does the utility utilize master meter zones in leak detection? If yes, for each of the utility's master meter zones, provide a monthly comparison of the master meter readings to the total customer meter readings for that zone for December 2018 and January 2019.

**Response:**

West Carroll has three master meter leak zones. The results of the master meter gallons purchased and the volume sold are provided for December 2018 and January 2019 in the chart below.

MASTER METER	MONTH	GALLONS PURCHASED	GALLONS BILLED
CARROLLTON	DECEMBER 2018	5,687,328	3,345,300
	JANUARY 2019	6,498,351	3,832,300
HENRY COUNTY	DECEMBER 2018	62,531	49,100
	JANUARY 2019	63,465	57,300
CITY OF MILTON	DECEMBER 2018	86,431	101,000
	JANUARY 2019	90,378	119,500



**West Carroll Water District  
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27. State whether the utility uses a system-wide hydraulic model to evaluate the pressure zones and flow in the utility's distribution system.

**Response:**

West Carroll has used hydraulic modeling to assist in the planning and design of water system improvements. West Carroll has access to hydraulic model software and expertise to design, calibrate and interpret model results through its management contract with Carrollton Utilities.

**West Carroll Water District  
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Appendix C to the Commission's Order entered March 12, 2019**

28. Does the utility manager regularly report the water loss reduction efforts to the water utility's board of commissioners? Provide copies of any written reports, memorandums letters, emails, or minutes from January 1, 2018, to the date of the issuance of this Order that details the efforts of the utility manager in reducing water loss as reported to the water utility's board of commissioners.

**Response:**

Water loss reports are provided to the West Carroll Board of Commissioners on a monthly basis. A copy of the report is provided in response to Request No. 1. In addition, the Board receives reports on the progress of leak surveys and leak repairs. Those discussions are briefly summarized in the minutes of the Board's meetings. A copy of the minutes for the meetings held between January 1, 2018 and February 28, 2019 are attached to this response.

**MINUTES  
WEST CARROLL WATER BOARD MEETING  
JANUARY 18, 2018**

**WEST CARROLL BOARD:**

VICKIE EDWARDS  
DAVID PIRTLE  
DAN REISNER  
JAMES LUCAS

**CARROLLTON UTILITIES:**

BILL OSBORNE  
CHRIS ROSE  
TRACIE STEWART

**CALL TO ORDER**

THE MEETING WAS CALLED TO ORDER AT 6:00 P.M.

**READING OF MINUTES**

MOTION WAS MADE BY MR LUCAS AND SECONDED BY MR REISNER TO APPROVE THE MINUTES OF THE MEETING OF DECEMBER 13<sup>th</sup>, 2017.

VOTE:           4 AYES                   0 NAYS

**COMMISSIONER'S REPORT**

- Ms. Edwards wanted to make note that 90% of leaks from December 2017- January 2018 were from frozen lines.
- Ms. Edwards asked to have Chas Robbins follow up on the Rate Increase Case and notify her on a time frame.
- Ms. Edwards suggested looking for a keychain type leak gage for customer appreciation or for public awareness on how many gallons of water can be lost with a leak.
- Mr. Pirtle announced he has plans to run for Magistrate in Trimble County. Resignation may be in the future.
- Election of officers on hold due to Karen Lovins absence.

**MAINTENANCE REPORT**

**SERVICE ORDERS**

12/13/17-1/17/18

**NEW SERVICES**

**LEAK REPAIR**

12/1/17 42 KINGS RIDGE-HAND DUG NO PLACE FOR EXCAVATOR-6MAN HRS, 1-FULL  
CIRCLE 1" CLAMP-LOSS 57,600 GALS DEC  
12/14/18 745 GREENS BOTTOM RD-FLUSH PLUG WAS LEAKING-NO REPAIRS MADE-LOSS  
446,400 GALS LOSS NOV, 201,600 GALS LOSS DEC  
1/5/18 3291 HWY 55-METER FROZE AND BUST- LOSS 20,000 GALS  
1/8/18 3291 HWY 55-METER FROZE AND BUST-LOSS 20,000 GALS  
1/8/18 5909 HWY 42 E-METER FROZE AND BUST- LOSS 20,000 GALS

METER CHANGES	4
TURN OFF	12
TURN ON	3
READ OUTS	4
RE-READS	35
WATER LEAK CHECK	3
NON PAY TURN OFFS	7
RECONNECT FOR PAYMENT	2

TEMPORARY TURN OFF DUE TO LEAK IN CUSTOMER LINES 5

**BROWN WATER**

12/15/17 533 #1 MILL CREEK-BROWN WATER- FLUSHED PLUG FOR 15,000 GAL LOSS  
12/16/17 2615 MILL CREEK-BROWN WATER- FLUSHED FOR AN HOUR AND IT GOT BETTER  
12/16/17 1442 MILL CREEK-BROWN WATER- FLUSHED PLUG FOR AN HOUR  
12/17/17 2629 MILL CREEK-BRONW WATER-FLUSHED METER AND TOLD CUSTOMER TO  
RUN WATER INSIDE DUE TO BEING IN HOT WATER HEATER  
1/7/18 523 WINDY RIDGE RD- BROWN WATER- TOLD HIM TO RUN FOR 15 MIN AND IF  
NOT CLEAR CALL BACK  
1/9/18 736 WRIGHTS RIDGE-CUSTOMER IS RUNNNG COLD WATER TO CLEAR  
1/10/18 1214 WRIGHTS RIDGE-CUSTOMER IS RUNNING COLD WATER TO CLEAR  
1/11/18 886 WRIGHTS RIDGE-BROWN WATER- CLEAR WHEN WE GOT THERE  
1/11/18 980 WRIGHTS RIDGE-BROWN WATER-CLEAR WHEN WE GOT THERE

**ROUTINE MAINTENANCE**

12/12/17 180 HWY 55- NO WATER- HAVE WATER THRU METER FROZE ON CUSTOMER  
SIDE  
12/21/17 137 FRONT ST- FIXED YARD WITH DIRT, SEED AND STRAW FROM PREVIOUS  
LEAK  
12/18/17 3468 CARLISLE RD- METER WAS FOUND ON AND LOCK WAS CUT- LOCKED  
BACK OFF AND HAVE BILLED OWNER OF PROPERTY FOR USAGE OF 1100 GALS PLUS CUT  
LOCK

12/27/17 1716 HWY 55- NO WATER- BROKE METER LOOSE, WATER WAS FLOWING- LET CUSTOMER KNOW FINDINGS  
12/28/17 21 KEMPER LANE-NO WATER-CUSTOMER HAS WATER RUNNIGN THROUGH METER PROBLEM ON THEIR SIDE  
12/29/17 1851 WOODROW WILSON- NO WATER- WATER WAS FROZE AND TRAILER BUT FLOWING NOW  
1/2/18 1089 HWY 36 W- BOARD MEMBER REPORTED WATER RUNNING INTO ROAD AND POOLING IN DITCH AND FREEZING-FOUND NOT A WATER LEAK ON EITHER SIDE, WET SPRING FROM THE HILL DUG UP DURING THE SUMMER AND CONFIRMED NO CHLORINE IN WATER. NEEDS TO BE DITCHED OUT BY STATE ROAD DEPT.  
1/3/18 1488 E PRONG LOCUST- NO WATER- FLOWIGN THROUGH METER SOMETHING ON CUSTOMER SIDE  
1/3/18 24 MATTICK RD- METER LEAKING- LEAKS ON THEIR SIDE ABOUT 1 TO 2 FEET BEHIND VAULT  
1/3/18 2256 E PRONG LOCUST- NO WATER-LINE FROZEN IN CREEK, TIRED TO HEAT WITH TORCH NOTHING, COVERED WITH STRAW TO SEE IF IT WOULD THAW OUT.  
1/4/18 3291 HWY 55- NO WATER- FROZEN SOMEWHERE. HEATED UP METER AND VAULT AND STILL NO WATER 1-8-18 HAVE WATER NOW  
1/5/18 189 NORA LANE- NO WATER- THAWED WATER RUNNING NOW  
1/5/18 1084 GILGAL RD- NO WATER- THAWED WATER RUNNING NOW  
1/5/18 1350 GILGAL RD- NO WATER- CUSTOMER HAS WATER GOING  
1/5/18 135 HARDY CREEK RD- NO WATER- THAWED METER HAVE WATER GOING THROUGH METER AND CUSTOMER IS STILL FROZE ON THEIR SIDE.  
1/5/18 443 RD KENDALL RD- NO WATER-FROZE ON CUSTOMER SIDE  
1/6/18 584 CALENDAR RD- DITCH FULL OF WATER- POSSIBLE LEAK- JUST FROZEN WATER- NO LEAK FOUND  
1/6/18 1312 W PRONG LOCUST- FROZEN METER- CUSTOMER FIXED  
1/7/18 844 BELLS RIDGE-NO WATER- PULLED METER AND NO WATER, SERVICE LINE FROZEN UP  
1/7/18 1170 RD KENDALL-BUSTED WATER LINE-SHUT OFF METER  
1/7/18 2600 CARLISLE RD- METER FROZEN UP-FIXED METER AND PUT AN INSULATOR IN VAULT  
1/7/18 3457 KINGS RIDGE-FROZEN METER, THAWED OUT METER AND PUT INSULATOR IN VAULT  
1/8/18 232 HARDY CREEK- NO WATER-FROZEN ON THEIR SIDE  
1/5/18 3291 HWY 55-NO WATER- METER FROZE AND BUSTED  
1/8/18 3291 HWY 55- METER FROZE AND BUSTED AGAIN  
1/8/18 798 BELLS RIDGE-CUSTOMER COMPLAINING OF STANDING WATER-ICE MELTED AND IS GONE FROM AREA NOW.  
1/8/18 844 BELLS RIDGE-WENT OUT AND HEATED VAULT AND SERVICE LINE AGAIN ON WEDNESDAY 1/10/18 WITH NO CHANGE. WORKED ON AGAIN 1/11/18 HAVE WATER NOW

#### PRESSURE PROBLEM

12/22/17 847 GEORGES CREEK RD- ORIGINAL CALL FOR LOW PRESSURE- GUYS GOT THERE AND CUSTOMER HAD FOUND LEAK ON HER SIDE AND TURNED METER OFF HERSELF

#### SPECIAL INFORMAION

## **MAINTENANCE REPORT, CONTINUED**

Staff reported on the above maintenance issues and:

- 1089 Hwy 36 W Board member reported. Natural spring not a leak. Ditch needs cleaned out by State Road Dept.
- 1488 E Prong Locust no water flowing at meter on customer side
- 24 Mattick Rd Meter leaking on their side
- 2256 E Prong Locust Rd. no water line froze in creek tried to heat with torch nothing, covered with straw to see if it would thaw. No water for almost 2 weeks
- 3291 Hwy 55 no water heated vault and meter still no water. Water returned 4 days later
- 189 Nora Ln no water
- 1084 Gilgal Rd no water
- 1350 Gilgal Rd no water
- 135 Hardy Creek Rd no water on customer side
- 443 RD Kendall Rd no water on customer side
- 584 Calendar Rd frozen water in ditch no leak
- 1312 W Prong Locust frozen meter customer fixed
- 844 Bells Ridge no water customer side
- 1170 RD Kendall Rd busted water line shut off at meter
- 2600 Carlisle Rd meter froze fixed meter and insulated
- 3457 Kings Ridge frozen meter thawed and insulated
- 232 Hardy Creek no water on customer side
- 3291 Hwy 55 no water meter froze and busted
- 3291 Hwy 55 meter froze and busted again
- 798 Bells Ridge customer complained of standing water-ice melted and gone from area now
- 844 Bells Ridge heated vault and service line again on 1/10/18 no change 1/11/18 tried again and now have water
- 847 Georges Creek Rd low pressure customer had turned off leak found on customer side.
- Kings Ridge station froze ( heater failed) no damage. Suggested adding temp alert to SCADA when temperature drops below freezing. Cost to add Kings Ridge and Gilgal stations about \$250.00.
- Gilgal station telemetry froze and busted- repaired
- Main was found exposed on Hwy 42-covered.
- Gilgal tank used 2x more water than normal. Same with Mound Hill.
- CU master meter showed 3x higher usage than normal.
- Bills had to be estimated last month due to weather. Next reading will show actual usage. Meter reader will report any leaks while reading for new bill.
- Chris Rose feels the bulk of high usage is from customers running water to prevent frozen pipes and actual leaks on customer side.
- Chris Rose updated frozen meter list to see how many more insulators need purchase again. We used the last in stock. He asked board to order more for stock.

## **GENERAL MANAGER'S REPORT**

Mr. Bill Osborne reported on:

- Mr. Osborne gave copies of the BroadLinc Communications lease to review. He explained that the Butler tank would be where BroadLinc would install the receiver and shoot signal to WC towers and tie in that way for wireless system.
- Mr. Osborne is going to have Ed James review the lease. Board spoke about revisions of lease to add more to protect WC towers and equipment and adjust the right to cancel lease when wanted.
- Issue with JL Davis discussed.
- The green sand project is underway with iron going up for structure.
- Mr. Osborne said the refi of the WC loans are not advised until the rate increase with PSC is resolved. Once rate increase is approved then we can go for refi. Local Banks look to be the best rate.

**FINANCIAL REPORT**

MOTION WAS MADE BY MR LUCAS AND SECONDED BY MR REISNER TO PURCHASE 12 METER VAULT INSULATORS.

VOTE:            4 AYES            0 NAYS

MOTION WAS MADE BY MR PRITILE AND SECONDED BY MR REISNER TO APPROVE THE CHECKS AS WRITTEN.

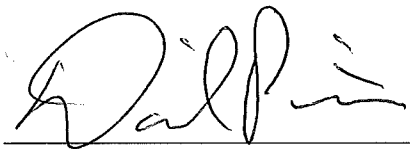
VOTE:            4 AYES            0 NAYS

**ADJOURNMENT**

MOTION WAS MADE BY MR. LUCAS AND SECONDED BY MR PIRTLE TO ADJOURN AT 7:20 P.M.

VOTE:            4 AYES            0 NAYS

  
\_\_\_\_\_  
Vickie Edwards, Chair

  
\_\_\_\_\_  
David Pirtle, Secretary

**MINUTES**  
**WEST CARROLL WATER BOARD MEETING**  
**FEBRUARY 15, 2018**

**WEST CARROLL BOARD:**

VICKIE EDWARDS  
DAVID PIRTLE  
DAN REISNER  
JAMES LUCAS  
KAREN LOVINS

**CARROLLTON UTILITIES:**

CHRIS ROSE  
TRACIE STEWART

**CALL TO ORDER**

THE MEETING WAS CALLED TO ORDER AT 6:00 P.M.

**READING OF MINUTES**

MOTION WAS MADE BY MR PIRTLE AND SECONDED BY MR REISNER TO APPROVE THE MINUTES OF THE MEETING OF JANUARY 18<sup>th</sup>, 2018.

VOTE:           5 AYES                   0 NAYS

**COMMISSIONER'S REPORT**

- Mrs. Edwards inquired about Mr. Pirtle and his candidacy for Trimble County Magistrate. She explained that Mr. Pirtle can remain on the Board until election. In the event he should win, a letter must be sent to the Judge of Trimble for a replacement to be appointed.
- Mr. Reisner will be absent for the March Board meeting.



**MAINTENANCE REPORT**

**SERVICE ORDERS**

1/17/18-2/15/18

**NEW SERVICES**

**LEAK REPAIR**

1/1/18 2812 E PRONG LOCUST-FOUND JUST OUTSIDE OF METER BY READER, 9 MAN HRS, 3 BACKHOE HRS, VARIOUS FITTING FOR OLD STYLE 1" LINE, LOSS JAN 44,640 GALS, LOSS FEB 17,280 GALS

1/1/18 328 HARDY CREEK-10" FROM METER UNDER DRIVEWAY, 6 MAN HRS, 3 MINI HRS, 1-3/4" CLAMP, LOSS JAN 89,280 GALS, LOSS FEB 40,320 GALS

1/10/18 405 E PRONG LOCUST-DEAD METER, REPLACED 1" METER, LOSS JAN 259,200 GALS

1/30/18 1777 HWY 36 E-10' FROM EDGE OF HWY 36, 8 MAN HRS, 2 MINI EXCAVATOR HRS, 1-3" CLAMP, LOSS JAN 878,400 GALS

1/30/18 CARLISLE RD-WATER COMING OUT OF HILLSIDE, LAB DATA INCONCLUSIVE, CU DIG IN LOOKING FOR WATER LEAK, LOSS JAN 20,000 GALS, 10,000 GALS FLUSHED

METER CHANGES	10
TURN OFF	7
TURN ON	3
READ OUTS	5
RE-READS	95
WATER LEAK CHECK	4
NON PAY TURN OFFS	4
RECONNECT FOR PAYMENT	3

TEMPORARY TURN OFF DUE TO LEAK IN CUSTOMER LINES 1

**BROWN WATER**

**ROUTINE MAINTENANCE**

12/20/17 59A BRIDGE ST- CLEANED OUT METER VAULT

1/5/18 2621 PALMYRA RD- NO LEAK FOUND JUST MELTING ICE

1/23/18 239 HARDY CREEK RD- CHECK FOR POSSIBLE CUT LOCK-LOCK IS STILL ON AND NO EVIDENCE OF DAMAGE

2/2/18 182 ALS DRIVE- BAD LEAK-TURNED OFF FOR CUSTOMER

2/9/18 2514 MOUND HILL RD- MET WITH OWNERS SO THEY COULD LOCATE WATER LEAK PRESSURE PROBLEM

1/23/18 1467 NOTCHLICK RD- CUSTOMER REPORTED LOW PRESSURE-WHEN ARRIVED PRESSURE WAS FINE

1/25/18 2000 GILGAL RD- VALVE WAS ON INSIDE OF THE METER AND INDICATOR IS TURNING SLOWLY

2/6/18 3781 CARLISLE RD- 70 PSI AT THEIR HOUSE

2/7/18 2055 MOUND HILL RD- 90 PSI AT THEIR HOUSE

SPECIAL INFORMATION

**MAINTENANCE REPORT, CONTINUED**

Staff reported on the above maintenance issues and:

- Looking for leak on 36w. Accounts for 50% of water loss. This area has two inactive accounts. 100 feet of service line might need relocated due to the state road and lack of embankment from erosion. River rising so the area was cleared for now.
- 300 block of Carlisle Rd. replaced 2 feet of main line we hit line. BWA
- 1700 block of 36 W. leak found and fixed
- 405 E Prong Locust meter busted and ran for 7days or so. Water loss was about 35 gal per min.
- December water loss was substantial but we kept customers with water and we are back to 22% loss.
- Insulators are installed. 10 more customers were added to the list. We were able to get twelve of the \$40.00 insulators for the price of \$25.00 each. Because they were sold out of the cheaper ones.
- Chris repurposed the head off a radio read that broke for monitoring in vaults to find leaks.
- Temperature sensor installed and active in stations to alarm when temp. drops to freezing.
- Broadline lease reviewed. Board concerned with excessively exceeding historical electric bills. They want the lease revised to include protection of cost from using our electric. Contract to be continued until next meeting.
- Three accounts need radio read meters. We need at least five more ordered.

**GENERAL MANAGER'S REPORT**

Mr. Bill Osborne was absent.

**FINANCIAL REPORT**

ELECTION OF OFFICERS –

MOTION WAS MADE BY MR REISNER ANDSECONDED BY MR LUCAS TO NOMINATE MRS EDWARDS AS CHAIRPERSON

VOTE:            4 AYES                    0 NAYS

MOTION WAS MADE BY MR LUCAS AND SECONDED BY MRS LOVINS TO NOMINATE MR PIRTLE AS SECRETARY

VOTE            4 AYES                    0 NAYS

MOTION WAS MADE BY MR LUCAS AND SECONDED BY MR REISNER TO PURCHASE 5 MORE RADIO READ METERS NOT TO EXCEED \$2,187.50.

VOTE:            5 AYES                    0 NAYS

MOTION WAS MADE BY MR REISNER AND SECONDED BY MRS LOVINS TO APPROVE THE CHECKS AS WRITTEN.

VOTE:           5 AYES                   0 NAYS

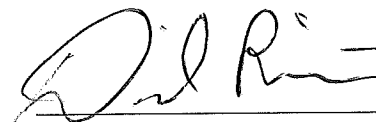
**ADJOURNMENT**

MOTION WAS MADE BY MR. PIRTLE AND SECONDED BY MRS LOVINS TO ADJOURN AT 7:00 P.M.

VOTE:           5 AYES                   0 NAYS



\_\_\_\_\_  
Vickie Edwards, Chair



\_\_\_\_\_  
David Pirtle, Secretary

**MINUTES  
WEST CARROLL WATER BOARD MEETING  
MARCH 15, 2018**

**WEST CARROLL BOARD:**

VICKIE EDWARDS  
KAREN LOVINS  
DAVID PIRTLE arrived at 6:25  
JAMES LUCAS

*Alan Macatwin*

**CARROLLTON UTILITIES:**

BILL OSBORNE  
CHRIS ROSE  
CHAS ROBBINS

**GUESTS**

Jerilyn Zapp, Raisor, Zapp and Woods

**CALL TO ORDER**

THE MEETING WAS CALLED TO ORDER AT 6:07 P.M.

**2017 AUDIT**

Mrs. Jerilyn Zapp presented the audited financial statements for Fiscal Year end 2017.

MOTION WAS MADE BY MR LUCAS AND SECONDED BY MRS LOVINS TO APPROVE THE 2017 AUDIT AS PRESENTED.

VOTE:           3 AYES                   0 NAYS

**READING OF MINUTES**

MOTION WAS MADE BY MRS LOVINS AND SECONDED BY MR LUCAS TO APPROVE THE MINUTES OF THE MEETING OF FEBRUARY 15, 2018.

VOTE:           3 AYES                   0 NAYS

**COMMISSIONER'S REPORT**

Mr. Lucas reported that Mrs. Lucien Cole has requested a load of gravel to be delivered to the Gilgal tank access road. The board did not approve this purchase last year. The board decided to table the discussion regarding this request until they can discuss further with Chris Rose regarding staff use of the road.

**MAINTENANCE REPORT**

SERVICE ORDERS

2/15/18-3/14/18

NEW SERVICES

LEAK REPAIR

- 2/15/18 3041 HWY 55-FOUND BY VALVING & MONITORING- 2-3/4" COUPLINGS, 3'-3/4" PIPE, 6 MAN HRS, 3 MINI EXCAVATOR HRS, TOTAL LOSS FEB 64,800 GALS
- 2/20/18 418 LOCUST RD-FOUND BY CU-DUE TO GROUND SHIFT FROM HEAVY RAIN AND FLOODING-1-3" MJ 22.5 FITTING, 6'-3" PVC PIPE, 16 MAN HRS, 8 MINI EXCAVATOR HRS, 2-3" MJ RESTRAINTS-TOTAL LOSS 228,000 GALS
- 2/26/18 1405 HWY 42 W-FOUND BY CU-GROUND SHIFT-3'-3" PVC PIPE, 16MAN HRS, 6 MINI EXCAVATOR HRS, 1-3" FULL CIRCLE CLAMP, TOTAL LOSS 168,000 GALS
- 2/27/18 1330 HWY 42 W-FOUND BY CU-DUE TO GROUND SHIFT-24 MAN HRS, 6 MINI EXCAVATOR HRS, 2-3" COUPLINGS, 3-3" PVC PIPE, TOTAL LOSS 168,000 GALS
- 3/14/18 244 CALENDAR RD-FOUND BY HOMEOWNER-SPLIT IN PIPE-32 MAN HRS, 10 MINI EXCAVATOR HRS, 1-3" CLAMP, TOTAL LOSS-302,400 GALS, FEB 201,600 GALS, MAR 100,800 GALS

METER CHANGES	3
TURN OFF	3
TURN ON	1
READ OUTS	5
RE-READS	26
WATER LEAK CHECK	6
NON-PAY TURN OFFS	1
RECONNECT FOR PAYMENT	1

TEMPORARY TURN OFF DUE TO LEAK IN CUSTOMER LINES 0

BROWN WATER

3/1/18 2477 HWY 42 W- WHITE WATER- FLUSHED 600 GALS

ROUTINE MAINTENANCE

- 2/13/18 3468 CARLISLE RD- OWENER OF PROPERTY WANTED METER PULLED
- 2/13/18 1226 CULLS RIDGE-DAVID PIRTLE CALLED ABOUT POSSIBLE LEAK- CHECKED BUT DIDN'T SEEM TO BE A LEAK- WILL KEEP MONITORING AREA

PRESSURE PROBLEM

- 2/20/18 3361 HWY 55- CUSTOMER SAID METER NOT TURNING AND NO WATER- CHANGED METER AND FULL PRESSURE ON OUR SIDE OF THE METER
- 2/20/18 1982 W PRONG LOCUST- PRESSURE LOW DUE TO MAIN LEAK ON LOCUST
- 2/20/18 1990B W PRONG LOCUST- PRESSURE LOW DUE TO MAIN LEAK ON LOCUST

SPECIAL INFORMATION

**MAINTENANCE REPORT, CONTINUED**

Staff reported on the above maintenance issues and:

- Found leak on Hwy 36 West – it's in a deep area, will replace line
- Possible leak on Hardy Creek – still investigating
- Fixed main line leak on Hwy 55 on 3/14/18, replaced 14 feet of line

**GENERAL MANAGER'S REPORT**

Mr. Bill Osborne reported on:

- Flooding – (2) main line breaks due to slide areas on Hwy 42 West; also exposed lines in various areas that Chris estimates \$30,000 to cover up. Damages estimate reported to local EMC Ed Webb \$35,000 for West Carroll
- Discussed response to PSC request for 20% rate increase and answers to their request for further information. Discussed attainable water loss targets and AWWA software program use to assist in establishing those targets.
- JL Davis lawsuit – Had to name Hargus Davis as part of the lawsuit and then serve him with a summons to appear.
- Broadline Communications agreement – board added a provision for excess electric usage to be paid by Broadline

MOTION WAS MADE BY MR PIRTLE AND SECONDED BY MR LUCAS TO APPROVE THE CONTRACT WITH BROADLINC COMMUNICATIONS.

VOTE:            4 AYES                    0 NAYS

**FINANCIAL REPORT**


MOTION WAS MADE BY MR LUCAS AND SECONDED BY MRS LOVINS TO APPROVE THE CHECKS AS WRITTEN.

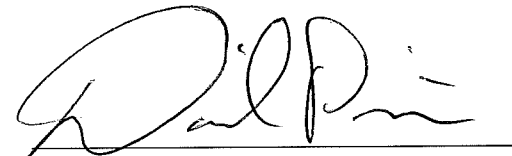
VOTE:            4 AYES                    0 NAYS

**ADJOURNMENT**

MOTION WAS MADE BY MRS LOVINS AND SECONDED BY MR PIRTLE TO ADJOURN AT 7:16 P.M.

VOTE:            4 AYES                    0 NAYS

  
Vickie Edwards, Chair

  
David Pirtle, Secretary

**MINUTES  
WEST CARROLL WATER BOARD MEETING  
APRIL 19<sup>TH</sup>, 2018**

**WEST CARROLL BOARD:**

VICKIE EDWARDS  
DAVID PIRTLE  
DAN REISNER  
JAMES LUCAS  
KAREN LOVINS

**CARROLLTON UTILITIES:**

BILL OSBORNE  
CHRIS ROSE  
TRACIE STEWART

**CALL TO ORDER**

THE MEETING WAS CALLED TO ORDER AT 6:00 P.M.

**READING OF MINUTES**

MOTION WAS MADE BY MR PIRTLE AND SECONDED BY MRS LOVINS TO APPROVE THE MINUTES OF THE MEETING OF MARCH 15<sup>th</sup>, 2018.

VOTE:           5 AYES                   0 NAYS

**COMMISSIONER'S REPORT**

None.

**MAINTENANCE REPORT**

**SERVICE ORDERS**

**3/14/18-4/18/18**

**NEW SERVICES                   0**

**LEAK REPAIR**

- **4/11/2018 418 LOCUST RD-PULLED APART AT COUPLING-FOUND BY VALVING-16 MAN HRS, 6 HRS MINI EXCAVATOR, 6'-3" PVC PIPE, 2-3" DRIVE ON COUPLINGS- TOTAL LOSS 118,080GALS-86,400 GALS MARCH, 31,680 GALS APRIL**
- **4/12/2018 1842 MOUND HILL RD-SPLIT IN PIPE FOUND BY OWNER-16 MAN HRS, 6 HRS MINI EXCAVATOR, 6'-4" PNC PIPE, 2-4" DRIVE ON COUPLINGS-TOTAL LOSS APRIL 73,200 GALS**

- **4/16/2018 2617 PALMYRA RD-LEAK AT COUPLING FOUND BY BOARD MEMBER-30 MAN HRS, 8 HRS MINI EXCAVATOR, 1-6" FULL CIRCLE CLAMP-TOTAL LOSS 198,720 GALS-129,600 GALS MARCH, 69,120 GALS APRIL**
- **4/18/2018 1089 HWY 36 W-FOUND DEEP ON RIVER BANK JUST PRIOR TO PINK PALACE-300' OF 3" PVC, 300 MAN HRS, 100 HRS MINI EXCAVATOR, 100 HRS BACKHOE, 30 TON OF SAND-TOTAL LOSS 124,4160 GALS JAN, 357,120 GALS FEB, 357,120 GALS MAR, 207,360 GALS APR.**

<b>METER CHANGES</b>	<b>0</b>
<b>TURN OFF</b>	<b>5</b>
<b>TURN ON</b>	<b>7</b>
<b>READ OUTS</b>	<b>2</b>
<b>RE-READS</b>	<b>39</b>
<b>WATER LEAK CHECK</b>	<b>3</b>
<b>NON PAY TURN OFFS</b>	<b>10</b>
<b>RECONNECT FOR PAYMENT</b>	<b>5</b>

**TEMPORARY TURN OFF DUE TO LEAK IN CUSTOMER LINES           0**

**BROWN WATER**

- **3/19/2018 764 GEORGE'S CREEK-BROWN WATER- CLEAR WHEN SERVICE TECH ARRIVED**

**ROUTINE MAINTENANCE**

- **3/16/2018 4440 HWY 389-CALLED IN POSSIBLE LEAK-TECH SAYS NO LEAK**
- **3/17/2018 2003 HWY 389-METER WAS LEAKING-WASHER NEEDED TO BE TIGHTENED**
- **3/22/2018 778 CARLISLE ST-SOMEONE REPORTED USE OF WATER TO SHUT OFF ACCT-METER WAS PULLED**
- **3/23/2018 15929 RIVER ROAD-CUSTOMER SAYS VAULT IS UNEVEN CAUSING LINE TO BREAK-TECH SAYS FITTING ON CUSTOMER SIDE CRACKED CAUSING VAULT TO TIP**

**PRESSURE PROBLEM**

**SPECIAL INFORMATION**

**MAINTENANCE REPORT, CONTINUED**

Staff reported on the above maintenance issues and:

- Leaks to find- Hardy Creek, 5 GPM
- Valving and monitoring.
- After Hwy 36 repair we have had a 15-17 GPM drop in water loss.
- Gravel requested for both Gilgal Rd Tank and Mound Hill Rd Tank.
- 96-3/4" meters lead free sent out to be tested 10-1" meters lead free sent out to be tested Around 160 meters on change out list for this year.



- Design and advertise for washout creek crossing repair FEMA declaration DR-4358 CU looking to purchase directional drill.
- CU completed hydrant flushing since last Board meeting.
- Air issue - 1467 Notch Lick at Supplee residence when installing new 36 mainline.
- JL Davis update-no updates. Delay due to Mr. Hargis' involvement.
- PSC rate increase update-no updates.

### **GENERAL MANAGER'S REPORT**

Mr. Bill Osborne reported on:

- CU has budgeted for a Directional Drill. We have met with Ditchwitch and Vermeer for quotes.
- PSC expressed a need to improve the water loss to 15% in the current rate case. Mr. Osborne reviewed a water audit analysis tool that was prepared by AWWA. The water audit considers many factors to arrive at a water loss factor. Based on a comparison of all systems in the state of Georgia, West Carroll has a very favorable water loss factor. Mr. Osborne indicated he would attempt to have an outside firm validate the audit before citing it in reports to the PSC.
- Green Sand Project is hooked up. Waiting on bids for Media Sand. Hoping to have the system up and running by the end of May plus be clear of all brown water calls by late summer.

### **FINANCIAL REPORT**

- Board decided to Table discussion on gravel request to Tanks.


MOTION WAS MADE BY MR PIRTLE AND SECONDED BY MRS LOVINS TO APPROVE THE CHECKS AS WRITTEN.

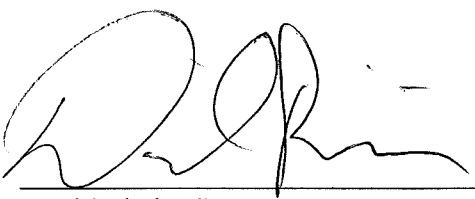
VOTE:        5 AYES                0 NAYS

### **ADJOURNMENT**

MOTION WAS MADE BY MRS LOVINS AND SECONDED BY MR REISNER TO ADJOURN AT 7:19 P.M.

VOTE:        5 AYES                0 NAYS

  
\_\_\_\_\_  
Vickie Edwards, Chair

  
\_\_\_\_\_  
David Pirtle, Secretary

**MINUTES  
WEST CARROLL WATER BOARD MEETING  
MAY 17<sup>TH</sup>, 2018**

**WEST CARROLL BOARD:**

VICKIE EDWARDS  
DAVID PIRTLE  
DAN REISNER  
JAMES LUCAS  
KAREN LOVINS

**CARROLLTON UTILITIES:**

BILL OSBORNE  
CHRIS ROSE  
TRACIE STEWART

**CALL TO ORDER**

THE MEETING WAS CALLED TO ORDER AT 6:02 P.M.

**READING OF MINUTES**

MOTION WAS MADE BY MR PIRTLE AND SECONDED BY MRS LOVINS TO APPROVE THE MINUTES OF THE MEETING OF APRIL 19<sup>th</sup>, 2018.

VOTE:           5 AYES                   0 NAYS

**COMMISSIONER'S REPORT**

Mr. Pirtle reported brown water on Palmyra Rd.

**MAINTENANCE REPORT**

SERVICE ORDERS

4/18/18-5/16/18

NEW SERVICES     0

**LEAK REPAIR**

5/16/2018 498 W PRONG LOCUST-FOUND BY HOMEOWNER UNDER FENCE IN FRONT YARD-SPLIT IN PIPE-1-3/4" CLAMP, 12 MAN HRS, 6 MINI EXCAVATOR HRS- TOTAL LOSS 106,560 GALS, 86,400 GALS APRIL, 20,160 GALS MAY

5/16/2018 397 HWY 42 W-FOUND BY CU-SPLIT IN PIPE- 100' ¾ PE SERVICE LINE, 24 HRS MINI EXCAVATOR, 4 HRS VAC MACHINE, 40 MAN HRS- TOTAL LOSS 194,400 GALS, 129,600 GALS APR, 64,800 GALS MAY

METER CHANGES	4
TURN OFF	1
TURN ON	10
READ OUTS	2

RE-READS	28
WATER LEAK CHECK	8
NON PAY TURN OFFS	11
RECONNECT FOR PAYMENT	11

TEMPORARY TURN OFF DUE TO LEAK IN CUSTOMER LINES 0

#### BROWN WATER

4/2/2018 208 CONNECTOR RD-CUSTOMER REPORTED WATER HAD CLEARED UP WHEN TECH GOT TO PROPERTY  
4/23/2018 3101 CARLISLE RD-CUSTOMER REPORTED WATER HAD CLEARED UP WHEN TECH GOT TO PROPERTY  
5/14/2018 2296 PALMYRA RD-BROWN WATER WHILE FILLING POOL- COUNT AS FLUSH OF 5000 GALS-PER BILL O  
4/12/2018 280 WESTRICK LANE-FLUSHED FOR 1 HR UNTIL CLEAR- 1800 GALS  
4/17/2018 2256 E PRONG LOCUST-FLUSHED FOR 4 ½ HRS UNTIL CLEAR-7200 GALS  
5/16/2018 2296, 2287, & 2617 PALMYRA RD-FLUSHED UNTIL CLEAR- 40,000 GALS

#### ROUTINE MAINTENANCE

4/19/2018 24 MATTICK RD- VERIFIED LEAK IS FIXED. SAW WHERE THEY HAD DUG IT OUT.  
PRESSURE PROBLEM  
4/20/2018 1467 NOTCHLICK RD- HAD TO FLUSH DUE TO HIGH PRESSURE FROM LINE FIX IN AREA-FLUSHED 3000 GALS  
4/30/2018 732 DRIPPING SPRINGS RD-AIR IN LINE- FLUSHED FOR AN HR AT FLUSH PLUG- 18,000 GALS

#### SPECIAL INFORMATION

#### MAINTENANCE REPORT, CONTINUED

Staff reported on the above maintenance issues and:

- Leaks repaired on Locust service line 1" copper, repaired with clamp. Prestonville- Marsh residence, pulled new service under road to north side, leak under HWY 42. 5049 Hwy 389, small leak on setter, tighten setter fittings. Hwy 55 old boat dock, small leak on setter, tighten setter fittings
- Looking for suspected leaks based on high usage. However, most have turned out to be customers filling swimming pools.
- Lots of valving and monitoring over the past few weeks
- Brown water Palmyra, flushed 40,000 gallons to clear all mains. Need a way to flush dead end section of main on Palmyra at TCWD master meter. The cost to install a flush plug is estimated at \$2000.
- Working on clean up list and want to complete all cleanup within next couple weeks
- Leaks currently under investigation - 5 GPM at Hardy Creek still not located, will continue searching. Also looking along a wet area Hwy 42 near Maiden Lane, excavated but haven't found main yet.
- Adjacent land owners to tank sites have requested gravel on tank access road. Staff provided pictures of the roads.

- CU's Greensand Project is proceeding. Currently installing media, plumbing completed, controls and chemical feed system will be next.
- Telemetry issue at Mound Hill tank, lost communication, overflowed tank. Will try raising antenna tomorrow and also check controls.

### **GENERAL MANAGER'S REPORT**

Mr. Bill Osborne reported on:

- Rate case was approved for increase by 17.37% not 20%.
- PSC requests an annual water loss report. R-Cap of Lexington to assist with validation of water loss report.
- Refinance of the three loans can proceed. Bill will have quotes with a 20yr term for next meeting.
- CU has purchased a horizontal directional drill from Vermeer.

### **FINANCIAL REPORT**

MOTION WAS MADE BY MR LUCAS AND SECONDED BY MR PIRTLE TO PURCHASE FLUSH PLUG FOR CULLS RIDGE LINE NOT TO EXCEED \$2,000.00.

VOTE:           5 AYES                   0 NAYS

MOTION WAS MADE BY MR LUCAS AND SECONDED BY MR REISNER TO NEGOTIATE RENEWAL OF \$10,000.00 CD FOR 24 MONTH TERM WITH BEST RATE.

VOTE:           5 AYES                   0 NAYS

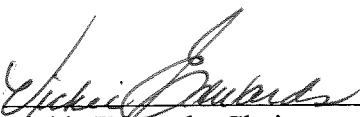
MOTION WAS MADE BY MRS LOVINS AND SECONDED BY MR PIRTLE TO APPROVE THE CHECKS AS WRITTEN.

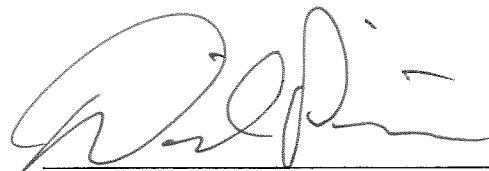
VOTE:           5 AYES                   0 NAYS

### **ADJOURNMENT**

MOTION WAS MADE BY MR PIRTLE AND SECONDED BY MR REISNER TO ADJOURN AT 7:32 P.M.

VOTE:           5 AYES                   0 NAYS

  
\_\_\_\_\_  
Vickie Edwards, Chair

  
\_\_\_\_\_  
David Pirtle, Secretary

**MINUTES  
WEST CARROLL WATER BOARD MEETING  
JUNE 21, 2018**

**WEST CARROLL BOARD:**

VICKIE EDWARDS  
DAVID PIRTLE  
DAN REISNER  
JAMES LUCAS  
KAREN LOVINS

**CARROLLTON UTILITIES:**

BILL OSBORNE  
CHAS ROBBINS  
JESS MAIDEN

**CALL TO ORDER**

THE MEETING WAS CALLED TO ORDER AT 6:08 P.M.

**READING OF MINUTES**

MOTION WAS MADE BY MR REISNER AND SECONDED BY MR LUCAS TO APPROVE THE MINUTES OF THE MEETING OF MAY 17, 2018.

VOTE:           5 AYES                   0 NAYS

**COMMISSIONER'S REPORT**

Mr. Reisner reported that he will not be here for the July 2018 meeting.

**MAINTENANCE REPORT**

**SERVICE ORDERS**

5/16/18-6/20/18

**NEW SERVICES**

**LEAK REPAIR**

- 6/15/2018 - 371 FRONT ST-SPLIT IN PIPE 11'LONG CAUSED BY MISMARKED LINE, 16 MAN HRS, 4 HRS BACKHOE, 12'-6" PVC, 1-6" DRIVE ON COUPLING, TOTAL LOSS JUNE 150,000 GALS

METER CHANGES	12
TURN OFF	5
TURN ON	8
READ OUTS	2
RE-READS	27
WATER LEAK CHECK	9

**NON-PAY TURN OFFS** 6  
**RECONNECT FOR PAYMENT** 6

**TEMPORARY TURN OFF DUE TO LEAK IN CUSTOMER LINES** 1

**BROWN WATER**

- 5/14/2018 2617 PALMYRA RD-WATER WAS CLEAR WHEN TECH GOT TO PROPERTY
- 5/21/2018 1066 HWY 389-WATER WAS CLEAR WHEN TECH GOT TO PROPERTY
- 5/21/2018 228 GEORGES CREEK RD-FLUSHED 5600 GALS UNTIL CLEAR
- 5/21/2018 890 CALENDAR RD-FLUSHED 2500 GALS UNTIL CLEAR
- 5/21/2018 228 GEORGES CREEK RD-FLUSHED 2500 GALS UNTIL CLEAR
- 5/22/2018 3111 W PRONG LOCUST-FLUSHED 5400 GALS UNTIL CLEAR
- 5/23/2018 839 GEORGES CREEK RD-FLUSHED 6600 GALS UNTIL CLEAR
- 6/13/2018 936 GREENS BOTTOM RD-FLUSHED 1500 GALS UNTIL CLEAR
- 6/15/2018 3376 HWY 42 W-WATER WAS CLEAR WHEN TECH GOT TO PROPERTY

**ROUTINE MAINTENANCE**

- 5/15/2018 2141 GILGAL RD-NEEDED TO FIND METER- FOUND AND REPORTED METER NUMBER TO OFFICE
- 5/29/2018 4242 HWY 389-BROKEN LID-REPLACED BROKEN LID
- 6/1/2018 15929 RIVER RD-DUG OUT AND LOWERED VAULT AND LID
- 6/4/2018 1521 MOUND HILL RD-SEEDED AND STRAWED FROM WORK DONE
- 6/18/2018 1698 KINGS RIDGE RD-REPLACED LID

**PRESSURE PROBLEM**

- 5/15/2018 2055 MOUND HILL RD-LOW PRESSURE COMPLAINT-WHEN SERVICE TECH REPORTED PRESSURE WAS FIND, LEAK HAND NOT TURNIGN EITHER
- 6/15/2018 46 MADISON ST-LOW PRESSURE COMPLAINT-PRBLEM WAS IN THE HOUSE, PRESSURE COMING INTO HOUSE WAS FINE

**SPECIAL INFORMATION**

**MAINTENANCE REPORT, CONTINUED**

Staff reported on the above maintenance issues and:

- Leaks to find - Hardy Creek area, 5-6 GPM
- (1) water leak repaired this month, 6" water main hit by contractor under the Prestonville Bridge – caused a large boil water advisory
- Pulled lead and copper samples for the Henry County system
- Found and repaired (1) small service line leak at 52 Kemper Lane
- Still working on clean up areas
- Ruthie started reading meters this week

**GENERAL MANAGER'S REPORT**

Mr. Bill Osborne reported on:

- Broadlinc Internet Service – Connection on Gilgal tank is operational, Bells Ridge area will be next, then Mound Hill area. Owner is not really making it public until he gets all areas up and running so that he has time to set up individual services later
- Greensand Project – waiting for media to be delivered; should be online by next board meeting
- Debt Refinance – Mrs. Robbins sent out a request for proposals for refinancing the District's debt. All banks/financial institutions responded saying they could not beat the District's current loan interest rates so it is not financially feasible to refinance at this time.

**FINANCIAL REPORT**

MOTION WAS MADE BY MR REISNER AND SECONDED BY MRS LOVINS TO APPROVE THE CHECKS AS WRITTEN.

VOTE:           5 AYES               0 NAYS

MOTION WAS MADE BY MR REISNER AND SECONDED BY MRS LOVINS TO APPROVE THE AMENDED ORDERS OF THE TREASURER FROM MAY 2018.

VOTE:           5 AYES               0 NAYS

MOTION WAS MADE BY MR. PIRTLE AND SECONDED BY MRS. LOVINS TO APPROVE THE RESOLUTION DESIGNATING CHASTITY ROBBINS AS APPLICANT'S AGENT FOR FEMA DISASTER 4361-DR.

VOTE:           5 AYES               0 NAYS

MOTION WAS MADE BY MR. LUCAS AND SECONDED BY MR. PIRTLE TO APPROVE RENEWAL OF THE ANNUAL INSURANCE POLICY WITH KACO FOR 7/18-6/19.

VOTE:           5 AYES               0 NAYS

MOTION WAS MADE BY MR. LUCAS AND SECONDED BY MR. REISNER TO APPROVE THE BAD DEBT WRITE OFFS FOR 2018 IN THE AMOUNT OF \$10,094.00.

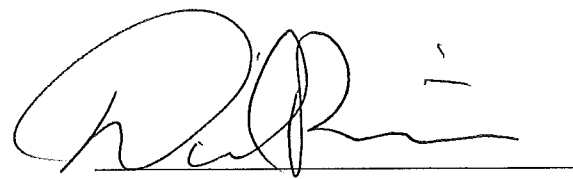
VOTE:           5 AYES               0 NAYS

**ADJOURNMENT**

MOTION WAS MADE BY MR PIRTLE AND SECONDED BY MRS LOVINS TO ADJOURN AT 6:55 P.M.

VOTE:           5 AYES               0 NAYS

  
Vickie Edwards, Chair

  
David Pirtle, Secretary

**MINUTES  
WEST CARROLL WATER BOARD MEETING  
JULY 19, 2018**

**WEST CARROLL BOARD:**

VICKIE EDWARDS  
DAVID PIRTLE  
JAMES LUCAS  
KAREN LOVINS

**CARROLLTON UTILITIES:**

BILL OSBORNE  
CHAS ROBBINS  
CHRIS ROSE

**CALL TO ORDER**

THE MEETING WAS CALLED TO ORDER AT 6:00 P.M.

**READING OF MINUTES**

MOTION WAS MADE BY MR LOVINS AND SECONDED BY MR PIRTLE TO APPROVE THE MINUTES OF THE MEETING OF JUNE 21, 2018.

VOTE:            4 AYES                    0 NAYS

**COMMISSIONER'S REPORT**

Mrs. Edwards reported that she will not be here for the August 2018 meeting.

**MAINTENANCE REPORT**

**SERVICE ORDERS**

6/20/18-7/18/18

**NEW SERVICES**

**LEAK REPAIR**

- 7/5/2018 391 GILGAL RD-SPLIT IN 1" PIPE, 9 MAN HRS, 3 MINI HOE HRS, 1-1" CLAMP, TOTAL LOSS 103,680 GALLONS, 86,400 GALLONS JUNE, 17,280 GALLONS JULY
- 7/7/2018 4244 HWY 389-CUSTOMER DIG IN 4", 20 MAN HRS, 2 MINI HOE HRS, 5' PVC, 2-DRIVE ON 4" COUPLINGS, TOTAL JULY LOSS 50,000 GALLONS
- 7/11/2018 2967 KINGS RIDGE- SPLIT IN 1" PIPE, 2 HRS BACKHOE, 1-1" CLAMP, 8 MAN HRS, TOTAL JULY LOSS 31,680 GALLONS
- 7/11/2018 1554 HWY 389- SPLIT IN 1" PIPE, 3 HRS BACKHOE, 6 MAN HRS, 1-1" CLAMP, TOTAL JULY LOSS 47,520 GALLONS
- 7/12/2018 PRV STATION-SPLIT IN 4" IRON PIPE, 1-4X12" CLAMP, 16 MAN HRS, TOTAL LOSS 432,000 GALLONS- JUNE LOSS 172,800 GALLONS, JULY LOSS 259,200 GALLONS



- 7/12/2018 3039 GILGAL RD-DUE TO SLIDE, OF HILL, 3 HRS BACKHOE, 6 MAN HRS, 1-1" CLAMP, TOTAL LOSS 12,0960, JUNE LOSS 86,400 GALLONS, JULY LOSS 34,560 GALLONS
- 7/16/2018 2829 KINGS RIDGE-SPLIT IN 4" LINE, 16 MAN HRS, 4 MINI HOE HRS, 1-4" CLAMP, 1-3/4 COUPLING, 3'-3/4 PIPE, TOTAL JULY LOSS 316,800 GALLONS

METER CHANGES	6
TURN OFF	9
TURN ON	6
READ OUTS	1
RE-READS	58- A LOT OF PEOPLE FILLING POOLS BUT NOT REPORTING
WATER LEAK CHECK	7
NON -PAY TURN OFFS	6
RECONNECT FOR PAYMENT	2

TEMPORARY TURN OFF DUE TO LEAK IN CUSTOMER LINES 0

#### BROWN WATER

- 6/14/2018 1442 MILL CREEK RD-BROWN WATER-FLUSHED 24,000 GALLONS
- 7/10/2018 533 #1 MILL CREEK RD- BROWN WATE-FLUSHED 2300 GALLONS
- 7/10/2018 MILL CREEK RD-BROWN WATER-FLUSHED 1000 GALLONS

#### ROUTINE MAINTENANCE

- 6/21/2018 1949 KINGS RIDGE RD-METER CHECK-METER IN WORKING ORDER
- 6/27/2018 2477 HWY 42 W-REPLACED SETTER; HAD SLID AGAINST SIDE OF VAULT
- 6/25/2018 691 LOCUST RD-CHECKED TO SEE ABOUT MOVING METER FOR CUSTOMER- CHANGED MIND ABOUT MOVING IT
- 6/26/2018 690 WRIGHTS RIDGE-REPLACED LID
- 6/29/2018 159 HARDY CREEK-READER FOUND LOCK CUT-WENT AND PULLED METER
- 6/29/2018 3796 HWY 42 E-READER COULDN'T FIND WHAT METER WENT TO; TECHS LOCATED FOR HER
- 7/9/2018 318 WINDY RIDGE- CUSTOMER COMPLAINED OF HIGH USAGE AND LEAK HAND TURNING AT RANDOM TIMES- FOUND NOTHING WRONG WITH METER BUT CHANGED OUT METER FOR CUSTOMER AND LEAK HAND STILL TURNED
- 7/3/2018 418 LOCUST RD-RELOCATED METER PER BILL O.

#### PRESSURE PROBLEM

- 7/12/2018 3040 GILGAL RD-CHANGED OUT REGULATOR
- 7/9/2018 4432 HWY 42 W- ADJUSTED REGULATOR

#### SPECIAL INFORMATION

- 6/19/2018 2141 GILGAL RD- JOHN HATTON @ 2434 GILGAL CALLED ABOUT POSSIBLY WANTING NEW WATER SERVICE-LOOKED AT AREA WATER NEVER THERE BUT CAN BE ADDED IF THEY CHOOSE

#### MAINTENANCE REPORT CONTINUED

Staff reported on the above maintenance issues and:

- 9 leaks repaired; 7 in maintenance report and 2 repaired today
- 3 leaks still to repair on Hwy 36 West, at Paul's Tire in Prestonville, and on Hardy Creek
- Gilgal Booster Station hit by lightning – insurance claim submitted
- Moved water meter on Locust Road at Eugene Banks home, better area for meter out of a slide area and we have had 3 service line leaks there in the past
- Clean up complete under Prestonville bridge
- Monitoring meter under the Prestonville bridge vandalized; the lid was missing, and the glass was broken on the meter face; will have to replace meter and lid

- FEMA recovery scoping meeting was held on Monday 7/16/18; site inspections set up for 8/15 & 8/16; we are hoping to get permission to direction drill creek crossing
- 52 Kemper Lane – staff exposed main and service line on this property to show the owner there was no leaks; not sure where water is coming from
- Greensand Project to be start up next Tuesday

**GENERAL MANAGER'S REPORT**

Mr. Bill Osborne reported on:

- JL Davis case – Hargis Davis was served; restarted the discovery process
- Water audit – AWWA Spreadsheet – 3<sup>rd</sup> party validity model to certify our numbers are correct. Slow process because its free. Once the numbers are verified, we will be able to include this information with the PSC audit to validate the water loss percentage due to the number of customers per mile.

**FINANCIAL REPORT**

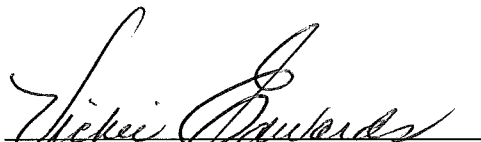
MOTION WAS MADE BY MR PIRTLE AND SECONDED BY MRS LOVINS TO APPROVE THE CHECKS AS WRITTEN.


VOTE:            4 AYES                    0 NAYS

**ADJOURNMENT**

MOTION WAS MADE BY MR PIRTLE AND SECONDED BY MRS LOVINS TO ADJOURN AT 6:40 P.M.

VOTE:            4 AYES                    0 NAYS

  
\_\_\_\_\_  
Vickie Edwards, Chair

  
\_\_\_\_\_  
David Pirtle, Secretary

**MINUTES**  
**WEST CARROLL WATER BOARD MEETING**  
**AUGUST 16<sup>TH</sup>, 2018**

**WEST CARROLL BOARD:**

DAVID PIRTLE  
DAN REISNER  
JAMES LUCAS  
KAREN LOVINS

**CARROLLTON UTILITIES:**

BILL OSBORNE  
CHRIS ROSE  
TRACIE STEWART

**CALL TO ORDER**

THE MEETING WAS CALLED TO ORDER AT 5:58 P.M.

**READING OF MINUTES**

MOTION WAS MADE BY MR PIRTLE AND SECONDED BY MRS LOVINS TO APPROVE THE MINUTES OF THE MEETING OF JULY 19<sup>th</sup>, 2018.

VOTE:           4 AYES                   0 NAYS

**COMMISSIONER'S REPORT**

No reports.

**MAINTENANCE REPORT**

**SERVICE ORDERS**

7/18/18-8/15/18

**NEW SERVICES**

**LEAK REPAIR**

- **8/6/2018 107 HWY 42 W-SPLIT** IN PIPE BETWEEN MAIN AND SETTER- 9MAN HRS, 4 MINI EXCAVATOR HRS, 2 VAC MACHINE HRS, VARIOUS FITTINGS ¾-1"-TOTAL LOSS 106,560 GALS, JULY 89,280 GALS, AUG 17,280 GALS
- **8/7/2018 850 HWY 36 W-SHUT OFF VALVE** BROKEN AT VAULT OF RESIDENCE-12 MAN HRS, 1-3/4" SETTER-TOTAL AUG LOST 11,520 GALS
- **8/15/2018 1713 HWY 55-SPLIT** IN SERVICE LINE AT OLD BOAT DOCK-3/4 SETTER, VAULT, LID, 6'-3/4" LINE, 30 MAN HRS, 8 MINI EXCAVATOR HRS-TOTAL LOSS 56,160 GALS, JULY 44,640 GALS, AUG 11,520 GALS
- **8/9/2018 2639 HWY 389-SPLIT** IN LINE 20' FROM METER-6 MAN HRS, 2 MINI EXCAVATOR HRS, 1-11" CLAMP-TOTAL LOSS 115,200 GALS, JULY 89,280 GALS, AUG 25,920 GALS
- **8/9/2018 533 #1 MILL CREEK RD-EROSIONS** AT OLD POND DAM AND CREEK CROSSING-20'-3" PIPE, 2-3" COUPLINGS, 16 MAN HRS, 4 MINI EXCAVATOR HRS, 2-15" CULVERTS-TOTAL AUGUST LOSS 60,000 GALS
- **8/9/2018 23 BRIDGE ST-2'** FROM METER-2 MINI EXCAVATOR HRS, 2 MAN HRS, 1-1" CLAMP-TOTAL AUGUST LOSS 25,920 GALS
- **8/14/2018 657 CULLS RIDGE-DEFECTIVE TAP** ON MAIN-1-3" SADDLE TAP, VARIOUS ¾-1" FITTINGS, 9 MAN HRS, 3 MINI EXCAVATOR HRS-TOTAL AUGUST LOSS 201,600 GALS

METER CHANGE 8  
TURN OFF 3  
TURN ON 10  
READ OUTS 4  
RE-READS 32  
WATER LEAK CHECK 4  
NON-PAY TURN OFFS 15  
RECONNECT FOR PAYMENT 9

TEMPORARY TURN OFF DUE TO LEAK IN CUSTOMER LINES 1

**BROWN WATER**

**ROUTINE MAINTENANCE**

- 7/19/2018 BELLS RIDGE-CALLED IN POSSIBLE LEAK BU CUSTOMER-LEAK ON CUSTOMER SIDE THEY DROVE OVER AND BROKE IT
- 7/25/2018 HWY 389- DEAD METER CHECK-METER FINE
- 7/27/2018 3977 CARLISLE RD-CHECKING TO VERIFY LEAK FIXED-FIXED
- 8/6/2018 620 CULLS RUDGE-DEAD METER CHECK-METER FINE
- 8/6/2018 W PRONG LOCUST- DEAD METER CHECK-METER FINE
- 8/6/2018 3005A W PRONG LOCUST-DEAD METER CHECK-METER FINE
- 8/6/2018 417 LOCUST RD-DEAD METER CHECK-METER FINE
- 8/6/2018 381 BANKS DRIVE-DEAD METER CHECK-METER FINE
- 8/6/2018 379 BANKS DRIVE-DEAD METER CHECK-METER FINE
- 8/6/2018 391 GILGAL RD-DEAD METER CHECK-METER FINE
- 8/9/2018 842 HAMPTON LANE-NO WATER- WAS SHUT OFF DOWN AT MAIN DUE TO LEAK
- 8/9/2018 1564 MILL CRK RD-CUSTOMER WANTED TO DISCUSS INSTALL OF NEW HOME AND SHAPE OF VAULT-EVERYTHING IS GOOD AND OKAY TO USE
- 8/13/2018 427 MILL CRK RD-CUSTOMER REPORT NO WATER- VALVE WAS OFF TO HOUSE
- 8/15/2018 894 HWY 55-CUSTOMER BROKE VALVE OFF OF THE SETTER-REPLACED THE SETTER, WAS ABLE TO SQUEEZE OFF FOR NOW WATER LOSS
- 8/8/2018 1467 NOTCHLICK RD- FLUSHED LINES TO REMOVE PRESSURE ONCE TURNED WATER BACK ON IN AREA FROM A LINE BREAK- FLUSHED 1500 GALS
- 8/15/2018 15760 RIVER RD-DEAD METER CHECK-METER FINE
- 8/15/2018 3138 MILL CRK RD-DEAD METER CHECK-METER FINE
- 8/15/2018 1533 WOODROW WILSON RD-DEAD METER CHECK-METER FINE

**PRESSURE PROBLEM**

**SPECIAL INFORMATION**

**MAINTENANCE REPORT, CONTINUED**

Staff reported on the above maintenance issues and:

- Leaks repaired –
  - George's Creek had a busted bottom we replaced meter
  - Paul's Tire had a split in service line repaired
  - 23 Bridge Street had a split in service line repaired
  - Hartman's on Hwy 389 split in service line repaired
  - 3" PVC main break on Mill Creek broke due to erosion and settlement
  - Hwy 55 - Gillespie service line broken at setter we replaced entire service
  - Hwy 36W- Gillespie broken setter valve (bleeding thru) leak on customer side
  - Culls Ridge main line leak repaired; saddle tap broke off main due to corrosion.

- 894 Hwy 55 the customer broke valve setter, we replaced setter-no loss.
- 3 new monitoring meters installed in Hardy Creek to isolate 10 gpm leak.
- Gilgal booster station telemetry was hit by lightning. Filed insurance claim.
- Greensand Filter project complete and operational since July 30<sup>th</sup>.
- Hydrant flushing for CU system starting August 27th finishing September 7<sup>th</sup>.
- FEMA washout site visit inspections completed 8-15-18
- DOW Sanitary Survey scheduled for August 30th
- Annual PSC inspection scheduled for September 4th
- Collected annual TTHM and HAA5 samples from all distribution systems
- Annual meter changes - need to purchase 50 new 3/4" meters to complete, 150 to change, roughly 100 refurbished/tested meters in stock. Hope to scrap old meters and have enough to purchase new for 2019.
- Another meter lid stolen from under Prestonville bridge we installed a locking type lid and hauled in dirt.
- Division of Water will be here on Aug 30<sup>th</sup> to review records for sanitary survey.
- The new directional drill was used for the new splash park and went well.
- PSC scheduled for annual inspection Sept. 4<sup>th</sup>. Water loss will be up for discussion.

**GENERAL MANAGER'S REPORT**

Mr. Bill Osborne reported on:

- Moving on with JL Davis case.
- PSC fines to increase for 811 call before you dig.

**FINANCIAL REPORT**

MOTION WAS MADE BY MR REISNER AND SECONDED BY MR LUCAS TO PURCHASE 50 ¾ in WATER METERS FOR AN AMOUNT NOT TO EXCEED \$2,735.00.

VOTE:        4 AYES                0 NAYS

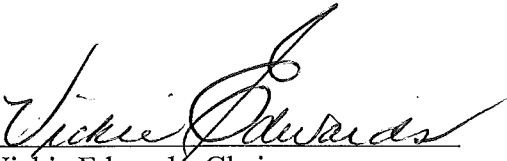
MOTION WAS MADE BY MR REISNER AND SECONDED BY MRS LOVINS TO APPROVE THE CHECKS AS WRITTEN.


VOTE:        4 AYES                0 NAYS

**ADJOURNMENT**

MOTION WAS MADE BY MS LOVINS AND SECONDED BY MR LUCAS TO ADJOURN AT 6:39 P.M.

VOTE:        4 AYES                0 NAYS

  
Vickie Edwards, Chair

  
David Pirtle, Secretary

**MINUTES  
WEST CARROLL WATER BOARD MEETING  
SEPTEMBER 20<sup>TH</sup>, 2018**

**WEST CARROLL BOARD:**

VICKIE EDWARDS  
DAVID PIRTLE  
DAN REISNER  
JAMES LUCAS  
KAREN LOVINS

**CARROLLTON UTILITIES:**

BILL OSBORNE  
CHRIS ROSE  
CHAS ROBBINS

**CALL TO ORDER**

THE MEETING WAS CALLED TO ORDER AT 6:01 P.M.

**READING OF MINUTES**

MOTION WAS MADE BY MR LUCAS AND SECONDED BY MR. PIRTLE TO APPROVE THE MINUTES OF THE MEETING OF AUGUST 16TH, 2018.

VOTE:           5 AYES                   0 NAYS

**COMMISSIONER'S REPORT**

Mrs. Edwards reported that Vickie Georgiev with River Valley Winery on Mound Hill called her to request gravel on the access road to the Mound Hill tank. Mrs. Edwards explained that the board had reviewed all areas traveled and decided that no gravel was warranted on that road at this time. District employees only travel that road 6-7 times per month to access the tank and board doesn't feel the district is responsible for gravel on the road at this time.

**MAINTENANCE REPORT**

**SERVICE ORDERS**

**8/15/18-9/19/18**

**NEW SERVICES**

**LEAK REPAIR**

- **8/1/18 226 HWY 55-8 MAN HRS, 4 MINI EXCAVATOR HRS, 4'-3/4 CTS TUBING, NEW SETTER AND VARIOUS FITTINGS TO ADAPT TO 1", TOTAL LOSS AUG 83,520 GALS**

- **8/20/18 982 HWY 42 W**-10' FROM METER, 8 MAN HRS, 4 MINI EXCAVATOR HRS, 2-3/4 CLAMPS, 31,680-GALS LOSS IN AUGUST 11,520-GALS LOSS IN SEPTEMBER-TOTAL LOSS 43,200 GALS
- **8/22/18 1856 HWY 36 W**-WOODED AREA ALONG OHIO RIVER, SPLIT IN PIPE, 18 MAN HRS, 6 MINI EXCAVATOR HRS, 2-3" DRIVE ON COUPLINGS, 4'-3" PVC PIPE, 1-3" CLAMP, 453,600-GALS LOSS IN AUGUST 252,000-GALS LOSS IN SEPTEMBER, TOTAL LOSS 705,600 GALS
- **8/23/18 3499 HWY 389**-3' FROM METER, SPLIT IN PIPE, 4 MANHRS, 2 MINI EXCAVATOR HRS, 1-1" CLAMP, TOTAL LOSS AUG 12,960 GALS
- **8/24/18 69 HARDY CREEK RD**-INSTALLED 2 VALVES ON MAIN LINE, 2-3" MT GATE VALVES, 4-4X3/4 TAPPING SADDLES, 24 MAN HRS, 8 MINI EXCAVATOR HRS, 2-3/4 SETTERS W/METERS, 2-METER VAULTS W/LIDS, 2-VALVE VAULTS, 2000-GALS LOSS IN AUGUST 6000-GALS LOSS IN SEPTEMBER, TOTAL LOSS 8000 GALS
- **8/24/18 510 CULLS RIDGE**-UNDER ROAD SERVICE LINE LEAK, SPLIT IN PIPE, INSERTED 30' OF 3/4 CTS TUBING, 16 MAN HRS, 6 MINI EXCAVATOR HRS, 1-3"X3/4 SADDLE TAP AND CORP STOP, TOTAL LOSS AUG 50,400 GALS
- **8/29/18 1255 KINGS RIDGE RD**-SPLIT IN SERVICE LINE, 6 MAN HRS, 3 MINI EXCAVATOR HRS, 1-1" FULL CIRCLE CLAMP, TOTAL LOSS AUG 31,680 GALS
- **9/5/18 1984 W PRONG LOCUST RD**-EDGE OF CREEK BANK IN FRONT OF RESIDENCE, SPLIT IN PIPE, 12 MAN HRS, 2 MINI EXCAVATOR HRS, 1-3" FULL CIRCLE CLAMP, 1 TON DUMP OF #2 ROCK, TOTAL LOSS SEPT 86,400 GALS
- **9/14/18 1894 HUNTERS RIDGE RD**-DIG IN-MISLOCATED, 12 MAN HRS, 2-3" DRIVE ON COUPLINGS, 10'-3" PVC PIPE, 1 SINGLE AXLE LOAD OF SAND, TOTAL LOSS SEPT 10,000 GALS

<b>METER CHANGES</b>	<b>2</b>
<b>TURN OFF</b>	<b>1</b>
<b>TURN ON</b>	<b>4</b>
<b>READ OUTS</b>	<b>5</b>
<b>RE-READS</b>	<b>37</b>
<b>WATER LEAK CHECK</b>	<b>9</b>
<b>NON-PAY TURN OFFS</b>	<b>8</b>
<b>RECONNECT FOR PAYMENT</b>	<b>3</b>

**TEMPORARY TURN OFF DUE TO LEAK IN CUSTOMER LINES 0**

**BROWN WATER**

- **8/30/18 950 HWY 36 W**-BROWN WATER-FLUSHED 30 MIN AT METER, 1000 GALS FLUSHED AUG

**ROUTINE MAINTENANCE**

- **8/16/18 305 E PRONG LOCUST**-REPLACED SETTER
- **9/12/18 339 HWY 42 W**-CUSTOMER WANTED TO SPEAK WITH TECH ABOUT POSSIBLY ADDED A TRAILER TO PROPERTY
- **9/17/18 405 E PRONG LOCUST**-LEAK AT METR-NUT WAS LOOSE AND OUTLET SIDE OF CONNECTING-TIGHTENED AND THIS FIXED THE ISSUE

**PRESSURE PROBLEM**

- **9/4/18 1467 NOTCHLICK RD**-LOW PRESSURE- WATER WAS FINE WHEN SERVICE TECH WAS AT PROPERTY-THINKS DUE TO VALVING IN AREA

## **SPECIAL INFORMATION**

### **MAINTENANCE REPORT CONTINUED**

Staff reported on the above maintenance issues and:

- Leaks repaired
  - Culls Ridge, service line leak under road, inserted new line, rebuilt saddle and corp
  - 1984 West Prong, main line leak in creek bank, repaired hot
  - Installed 2 new main line valves at Hardy creek, 4 new monitoring meters
  - Hunter's Heights - dig in on 3" main, mis-located
  - Hwy 36, just west of 1856, main line break in woods, cleared 1/2 mile of right of way
  - Service line leak repaired 982 Hwy 42, 2 leaks on service line
  - 1255 Kings Ridge service line repair, old clamp leaking, rock wall issue
    - Mr. Rose and Mrs. Robbins informed the board that an insurance claim has been submitted for this address because the homeowner is claiming that the water leak near her retaining wall and foundation caused damage to her home.
  - 226 Hwy 55 in Prestonville, service line leak repaired
  - Hwy 389, Downey in English, service line repair
- Leaks to be repaired
  - Hubert Bowen, Hwy 36, service line leak to repair
  - Hardy Creek, 10 GPM leak, turned into two 5 GPM leaks
- Division of water Sanitary Survey completed, two different inspections in two days
- PSC annual inspection completed, talked a lot about water loss, inspection went well
- RCAP, Validation of water loss audit created by AWWA
- Hydrant flushing completed on CU system since last meeting
- Start on meter change outs 2nd week of October
- 811 called in for Hardy Creek, found old phone lines over main while stripping main
- Excavate and expose main near 1400 Hwy 55, new septic system being installed
- Installed jumper line to take section of main out of service on Hunter's Heights

### **GENERAL MANAGER'S REPORT**

Mr. Bill Osborne reported on:

- Discussed the RCAP review of water loss analysis. According to staff analysis WCWD would place in the top 20% of water districts in Georgia (who uses the RCAP system to calculate their water loss)
- However, PSC does not consider this analysis in their inspection and the board should expect a mention of water loss in the PSC inspection report

### **FINANCIAL REPORT**

MOTION WAS MADE BY MR REISNER AND SECONDED BY MRS LOVINS TO APPROVE THE



CHECKS AS WRITTEN.

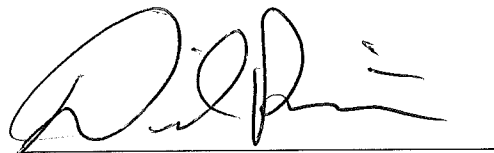
VOTE:        5 AYES                    0 NAYS

**ADJOURNMENT**

MOTION WAS MADE BY MR. PIRTLE AND SECONDED BY MRS LOVINS TO ADJOURN AT 7:13 P.M.

VOTE:        5 AYES                    0 NAYS

  
\_\_\_\_\_  
Vickie Edwards, Chair

  
\_\_\_\_\_  
David Pirtle, Secretary

**MINUTES  
WEST CARROLL WATER BOARD MEETING  
October 18<sup>th</sup>, 2018**

**WEST CARROLL BOARD:**

VICKIE EDWARDS (PHONE)  
KAREN LOVINS  
JAMES LUCAS  
DAN REISNER  
DAVID PIRTLE

**CARROLLTON UTILITIES:**

BILL OSBORNE  
CHRIS ROSE  
TRACIE STEWART

**CALL TO ORDER**

THE MEETING WAS CALLED TO ORDER AT 6:01 P.M.

**READING OF MINUTES**

MOTION WAS MADE BY MR REISNER AND SECONDED BY MRS LOVINS TO APPROVE THE MINUTES OF THE MEETING OF SEPTEMBER 20<sup>th</sup>, 2018.

VOTE:           4 AYES                   0 NAYS

**COMMISSIONER'S REPORT**

- Nothing to report.

**MAINTENANCE REPORT**

**SERVICE ORDERS**

**9/19/18-10/17/18**

**NEW SERVICES**

**LEAK REPAIR**

- **9/1/18 52 KEMPER LANE-LEAKING AROUND SETTER-NEW SETTER, VAULT AND LID-8 MAN HRS, 4 MINI EXCAVATOR HRS, 10' ¾" PE PIPE AND VARIOUS FITTINGS-EXCAVATED ENTIRE SERVICE TO VERIFY NO LEAK AND SETTER BLEW APART ONCE EXCAVATED-TOTAL SEPT LOSS 15,120 GALS**
- **9/1/18 920 HWY 36 W-6' WC SIDE OFR WATER SERVICE-FOUND BY RUTHIE WHILE READING-1 ¾" CLAMP, 6 MAN HRS, 3 HRS MINI EXCAVATOR- TOTAL LOSS 164,160 GALS, SEPT 129,600 GALS, OCT 34,560 GALS**
- **10/16/18 3005 W PRONG LOCUST-CUSTOMER DIG IN, LINE MISMARKED BY 4 FT-CUT OUT AND REPLACE 36" OF 3" PVC MAIN-2-3" DRIVE ON COUPLINGS, 12 MAN HRS, 4 MINI EXCAVATOR HRS- TOTAL LOSS 32,000 GALS**

**METER CHANGES**

**45**

<b>TURN OFF</b>	<b>2</b>
<b>TURN ON</b>	<b>3</b>
<b>READ OUTS</b>	<b>3</b>
<b>RE-READS</b>	<b>32</b>
<b>WATER LEAK CHECK</b>	<b>7</b>
<b>NON PAY TURN OFFS</b>	<b>3</b>
<b>RECONNECT FOR PAYMENT</b>	<b>1</b>

**TEMPORARY TURN OFF DUE TO LEAK IN CUSTOMER LINES 1**

## **BROWN WATER**

### **ROUTINE MAINTENANCE**

- **10/2/18 579 CARLISLE RD-LEAK CHECK-NO LEAK**
- **10/2/18 305 CULL RIDGE-HIGH WEEDS-MOWED THE AREA**
- **10/8/18 1255 KINGS RIDGE RD-NOTICED WATER AGAIN- SERVICE CREW WILL BE MONITORING**

### **PRESSURE PROBLEM**

- **10/10/18 3797 PALMYRA RD-LOW PRESSURE- WAS DUE TO METER BEING CHANGED**
- **10/12/18 982 HWY 42 W- NO WATER-DUE TO METER BEING CHANGED**

## **SPECIAL INFORMATION**

### **MAINTENANCE REPORT, CONTINUED**

Staff reported on the above maintenance issues and:

- Leaks repaired
  - 52 Kemper lane, exploratory digging, service blew apart once uncovered, installed complete new service, about 6th time at this residence
  - 920 Hwy 36, service line leak repair, 2nd time in past couple years
  - Culls ridge, repaired dig in by Pike, was mis located by 4 ft.
  - Dunn Conley, repaired leak at service connection on 2" pvc main
- Stripped main Hardy creek, 25% complete, no leaks found yet, phone company not marking their lines
- Leaks to be repaired
  - One to check at 767 Gilgal Rd
  - Hardy Creek 10-12 gpm still
  - Prestonville area, intersection of Hwy 42 and 55 on northwest side, exploratory digging
- 1255 Kings Ridge insurance claim, answered more questions and provided details to adjuster
- PSC, received audit report, respond due for one deficiency, water loss
- Sanitary survey, received audit report, no significant deficiencies, response due by Jan, requested that we update O&M manuals
- Meter change outs. 80 meters change 70 old meters sent for testing to reuse in system. Out of 1" meters.

**GENERAL MANAGER'S REPORT**

Mr. Bill Osborne:

- Board members wanted to check the cost of I-pads for future Board Meetings if a member is unable to attend in person.

**FINANCIAL REPORT**

MOTION WAS MADE BY MR. LUCAS AND SECONDED BY MR. REISNER TO APPROVE THE PURCHASE OF FIVE 1" METERS.

VOTE:            4 AYES            0 NAYS

MOTION WAS MADE BY MR. LUCAS AND SECONDED BY MR. REISNER TO APPROVE THE BUDGET AS PRESENTED TO BE FILED WITH THE DEPARTMENT OF LOCAL GOVERNMENT AND THE FISCAL COURTS FOR 2019.

VOTE:            4 AYES            0 NAYS

MOTION WAS MADE BY MS. LOVINS AND SECONDED BY MR. REISNER TO APPROVE THE CHECKS AS WRITTEN.

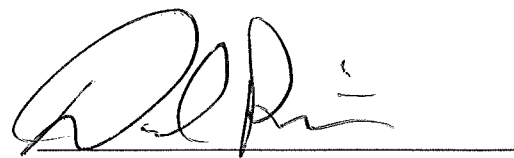
VOTE:            4 AYES            0 NAYS

**ADJOURNMENT**

MOTION WAS MADE BY MR. LUCAS AND SECONDED BY MRS. LOVINS TO ADJOURN AT 6:46 P.M.

VOTE:            4 AYES            0 NAYS

  
Vickie Edwards, Chair

  
David Pirtle, Secretary

**MINUTES  
WEST CARROLL WATER BOARD MEETING  
November 15<sup>th</sup>, 2018**

**WEST CARROLL BOARD:**

VICKIE EDWARDS  
KAREN LOVINS (absent)  
JAMES LUCAS  
DAN REISNER  
DAVID PIRTLE (absent)

**CARROLLTON UTILITIES:**

BILL OSBORNE  
CHRIS ROSE  
TRACIE STEWART

**GUESTS:**

Mrs. Kim Hall 1248 Hardy Creek Rd. Mrs. Hall requested to speak to board members about WC water expansion to her property. She has resided at this location for 15yrs and has recently become widowed and is unable to haul water. Board members encouraged her to bring other neighbors to next meeting. Mr. Osborne will look in to grant money for extension.

**CALL TO ORDER**

THE MEETING WAS CALLED TO ORDER AT 6:10 P.M.

**READING OF MINUTES**

MOTION WAS MADE BY MR REISNER AND SECONDED BY MR LUCAS TO APPROVE THE MINUTES OF THE MEETING OF OCTOBER 20<sup>th</sup>, 2018.

VOTE:            3 AYES                    0 NAYS

**COMMISSIONER'S REPORT**

- Nothing to report.

**MAINTENANCE REPORT**

**SERVICE ORDERS**

11/17/18-12/19/18

**NEW SERVICES**

**LEAK REPAIR**

- 10/1/18 767 GILGAL RD-SERVICE LINE LEAK- 15' FROM METER TOWARDS MAIN- SPLIT IN PIPE-1-

**METER CHANGES                    4**  
**TURN OFF                                12**

<b>TURN ON</b>	<b>7</b>
<b>READ OUTS</b>	
<b>RE-READS</b>	<b>36</b>
<b>WATER LEAK CHECK</b>	<b>2</b>
<b>NON-PAY TURN OFFS</b>	<b>16</b>
<b>RECONNECT FOR PAYMENT</b>	<b>13</b>

**TEMPORARY TURN OFF DUE TO LEAK IN CUSTOMER LINES 0**

**BROWN WATER**

**ROUTINE MAINTENANCE**

- **12/3/18 920 HWY 35 W-WENT BACK AND FIXED YARD A BIT AFTER FIXING HIS LEAK AND THINGS COULD SETTLE**
- **12/11/18 595 CULLS RIDGE-CALLED IN POSSIBLE LEAK-WILL KEEP AN EYE ON THIS AREA**

**PRESSURE PROBLEM**

- **11/16/18 244 HARTMAN LANDING- LOW PRESSURE- SERVICE TECHS FOUND NO ISSUE UPON ARRIVAL**

**SPECIAL INFORMATION**

**MAINTENANCE REPORT, CONTINUED**

Staff reported on the above maintenance issues and:

Leaks repaired

- Hwy 389 near Glauber farm, 4" main break repaired, blew out at 45
- Cole residence Gilgal Rd, service line leak repaired, split in pipe
- 942 Hwy 42, service line leak repaired, split in pipe
- Locust, 3" man break hole on pipe repaired

Leaks to be repaired

- Hardy Creek, exposed more main, still no luck, ran into more unmarked phone lines
- Still investigating wet area at intersection of 42/55, plan to vac out all lines in area

Meter change outs, 140 of 167 completed for the year.

Meter Vault insulation list needs checked for the season.

We are researching cost of and how Thermal imaging can be used to detect leaks.

New service install Hartman Landing

PSC response letter sent out

We are set up to test our own meters. CU meter test bench certified, hope to save by doing in house. Dyers charges \$10-\$15.

All old leaded meters tore down and ready to scrap, declare as surplus.

Main extension Hardy Creek, 2500 ft 3" PVC, 4 unserved homes, one creek crossing and cross Texas Gas

Possible Main extension for Travis Leap property on George's Creek, 1200 ft 2" pvc. potential for two more to connect in future. Or we can place meter at end of main.

**GENERAL MANAGER'S REPORT**

Mr. Bill Osborne:  
Nothing to report.

**FINANCIAL REPORT**

MOTION WAS MADE BY MR. LUCAS AND SECONDED BY MR. REISNER TO PURCHASE 10 NEW METER INSULATORS FOR STOCK AND REPLACEMENT.

VOTE:        3 AYES                0 NAYS

MOTION WAS MADE BY MR. REISNER AND SECONDED BY MR. LUCAS TO ADVERTISE OR SELL SURPLUS OF OLD METERS.

VOTE:        3 AYES                0 NAYS

MOTION WAS MADE BY MR. REISNER AND SECONDED BY MR. LUCAS TO APPROVE THE CHECKS AS WRITTEN.

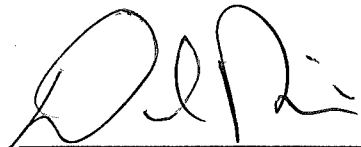
VOTE:        3 AYES                0 NAYS

**ADJOURNMENT**

MOTION WAS MADE BY MR. REISNER AND SECONDED BY MR. LUCAS TO ADJOURN AT 7:30 P.M.

VOTE:        3 AYES                0 NAYS

  
\_\_\_\_\_  
Vickie Edwards, Chair

  
\_\_\_\_\_  
David Pirtle, Secretary

**MINUTES  
WEST CARROLL WATER DISTRICT  
BOARD MEETING  
December 20th, 2018**

**WEST CARROLL BOARD:**

VICKIE EDWARDS  
KAREN LOVINS  
JAMES LUCAS  
DAN REISNER  
DAVID PIRTLE

**CARROLLTON UTILITIES:**

CHAS ROBBINS  
CHRIS ROSE  
SARAH HUDGINS

**GUESTS:**

Mrs. Kim Hall 1248 Hardy Creek Rd and her son, Lance Hall. Lance and Kim Hall discussed that they were still wanting water to the residence. Chris Rose stated that the project cost would be \$131,142.00 to offer an extension to Kim Hall on Hardy Creek. This included labor, line, design, inspection, and materials. Vickie Edwards stated that the project was not feasible at this time and encouraged them to contact their county judge. She also encouraged them to gather other neighbors who would be interested in the extension and have them come to the meetings as well.

**CALL TO ORDER**

THE MEETING WAS CALLED TO ORDER AT 6:04 P.M.

**READING OF MINUTES**

MOTION WAS MADE BY MR REISNER AND SECONDED BY MR LUCAS TO APPROVE THE MINUTES OF THE MEETING OF NOVEMBER 15<sup>TH</sup>, 2018.

VOTE:           5 AYES                   0 NAYS

**COMMISSIONER'S REPORT**

- Nothing to report.

**MAINTENANCE REPORT**

Chris Rose gave the maintenance report.

Leaks fixed:

- 200 block East Prong Locust Service
  - Dirty Turtle Water Meter- leaking out of bottom
  - Service Line leak HWY 42 at M&M – old double besides Kellys
- Leaks to fix:
- Hardy Creek – Dug more on mains, still no luck, will continue to work on it



- HWY 36 – new development between Pink Palace and Locust. Need to possibly add a valve to help isolate
- Mound Hill Bladder Booster – New contacts in meter starter contacts welded shut – need to repair or replace
- PSC Annual Water Loss Letter sent in
- Sanitary Survey Response Letter sent in
- Completed updating O&M Manuals
- Changed more meters on change out list
- Rearranged radio reads last month to appropriate places
- Jess Maiden obtained Distribution License
- Davis Update: Berry scheduled in court January 9<sup>th</sup> to set trial dates

Chris Rose reported that Carrollton Utilities now has a certified meter test bench and could begin testing meters in house for a smaller fee than Dyer Meter Services.

MOTION WAS MADE BY MR. PIRTLE AND SECONDED BY MR. REISNER FOR WEST CARROLL WATER DISTRICT TO ALLOW CARROLLTON UTILITIES TO TEST THEIR METERS INSTEAD OF OUTSOURCING FOR A COST OF \$10.00 PER TEST.

VOTE: 5 AYES      0 NAYS

### **GENERAL MANAGER'S REPORT**

Mr. Bill Osborne was not present at this meeting.

### **OTHER BUSINESS**

BOARD REVIEWED INFORMATION FROM THE NKADD SRF PROJECT MEETING. NO BOARD MEMBERS WERE PRESENT AT THE MEETING. JUDGE WESTRICK PROVIDED MR. PIRTLE WITH INFORMATION FROM THE MEETING.

### **ELECTION OF OFFICERS 2019**

MOTION WAS MADE BY MR. REISNER TO APPOINT MRS. EDWARDS AS CHAIR OF THE BOARD. THIS WAS SECONDED BY MR. LUCAS.

VOTE: 4 AYES      0 NAYS (MRS EDWARD ABSTAINED)

MOTION WAS MADE BY MR. LUCAS TO APPOINT MR. PIRTLE AS SECRETARY. MRS. LOVINS SECONDED.

VOTE: 4 AYES      0 NAYS (MR PIRTLE ABSTAINED)

**FINANCIAL REPORT**

MOTION WAS MADE BY MR. REISNER AND SECONDED BY MRS. LOVINS TO APPROVE THE CHECKS AS WRITTEN.

VOTE:        5 AYES            0 NAYS

The Board was provided an agreement for the assignment of the contract with Broadline to Bowlin Communications.

MOTION WAS MADE BY MR. LUCAS AND SECONDED BY MR. PIRTLE TO APPROVE THE ASSIGNMENT.


VOTE:        5 AYES            0 NAYS

**ADJOURNMENT**

MOTION WAS MADE BY MR. PIRTLE AND SECONDED BY MRS. LOVINS TO ADJOURN AT 7:10 P.M.

VOTE:        5 AYES            0 NAYS

  
Vickie Edwards, Chair

  
David Pirtle, Secretary

**MINUTES  
WEST CARROLL WATER DISTRICT  
BOARD MEETING  
January 17<sup>th</sup>, 2019**

**WEST CARROLL BOARD:**

VICKIE EDWARDS  
KAREN LOVINS (ABSENT)  
JAMES LUCAS  
DAN REISNER  
DAVID PIRTLE

**CARROLLTON UTILITIES:**

BILL OSBORNE  
CHAS ROBBINS  
SARAH HUDGINS

**CALL TO ORDER**

THE MEETING WAS CALLED TO ORDER AT 6:03 P.M.

**GUESTS:**

Kim Hall, Lance Hall, and Chuck Ferguson from Hardy Creek Rd. were present to request an extension on Hardy Creek to five unserved customers. Bill Osborne reported that the project had been submitted to the Northern Kentucky Area Development District to receive a project number. Once this number was received, grants could be applied for. Vickie Edwards encouraged the guests to attend a Trimble County Fiscal Court meeting, create a petition signed by the unserved families, and to get their wells tested for possible contamination. Vickie Edwards told the guests that at this time, the project was not feasible.

**READING OF MINUTES**

MOTION WAS MADE BY MR REISNER AND SECONDED BY MR PIRTLE TO APPROVE THE MINUTES OF THE MEETING OF DECEMBER 20TH, 2018.

VOTE:           4 AYES                   0 NAYS

**COMMISSIONER'S REPORT**

- Vickie Edwards requested that employees check on a possible leak on HWY 36 between Locust and Notchlick.
- David Pirtle reported that there was a fire and he believed the lock had been cut on the Culls Ridge Tank by the fire department. He requested employees to check on this.

**MAINTENANCE REPORT**

Bill Osborne gave the maintenance report.

- Eight radio reads have been installed
- No bids were received for the scrap meters.

MOTION WAS MADE BY MR. PIRTLE AND SECONDED BY MR. LUCAS TO SELL SURPLUS METERS AS SCRAP TO COMPANY WITH HIGHEST QUOTE.

VOTE: 4 AYES      0 NAYS

- PSC Case 2018-00394 – PSC required all water districts to respond regarding methods of tracking and reporting water loss and use of a new reporting form. This response was submitted on 1-16-19.
- Sunstrand – New hemp manufacturer going into old Kawneer building will be a small water user.
- Insulators – Insulators are needed due to cold weather approaching and low numbers in stock.

MOTION WAS MADE MY MR. LUCAS TO PURCHASE 10 INSULATORS AND SECONDED BY MR. PIRTLE.

VOTE: 4 AYES      0 NAYS

- JL Davis – nothing new to report
- Georges Creek Subdivision proposed by Travis Leap – nothing new to report

### **GENERAL MANAGER'S REPORT**

Bill Osborne reported:

- Purchased Water Adjustment – West Carroll received notice from Carrollton Utilities that the wholesale water rate has been increased. West Carroll needs to do a purchased water adjustment change.

MOTION WAS MADE BY MR. PIRTLE AND SECONDED BY MR. LUCAS TO SUBMIT THE PURCHASED WATER ADJUSTMENT TO THE PUBLIC SERVICE COMMISSION.

VOTE:          4 AYES                  0 NAYS

### **FINANCIAL REPORT**

MOTION WAS MADE BY MR. REISNER AND SECONDED BY MRS. LOVINS TO APPROVE THE CHECKS AS WRITTEN.

VOTE:          4 AYES                  0 NAYS

THE BOARD WAS INFORMED OF THE RETIREMENT OF FINANCE DIRECTOR, CHASTITY ROBBINS, AND THE HIRING OF SARAH HUDGINS AS HER REPLACEMENT.

MOTION WAS MADE BY MR. REISNER AND SECONDED BY MR. PIRTLE TO ADD SARAH HUDGINS AS AN AUTHORIZED SIGNER ON WEST CARROLL WATER DISTRICTS BANK


ACCOUNTS AND REMOVE CHASTITY ROBBINS EFFECTIVE IMMEDIATELY.


VOTE: 4 AYES      0 NAYS

**ADJOURNMENT**

MOTION WAS MADE BY MR. PIRTLE AND SECONDED BY MRS. LOVINS TO ADJOURN AT 7:37 P.M.

VOTE:      4 AYES      0 NAYS

  
\_\_\_\_\_  
Vickie Edwards, Chair

  
\_\_\_\_\_  
David Pirtle, Secretary

**MINUTES**  
**WEST CARROLL WATER BOARD MEETING**  
**February 21<sup>st</sup>, 2019**

**WEST CARROLL BOARD:**

VICKIE EDWARDS  
DAVID PIRTLE (arrived at 6:30 p.m)  
DAN REISNER  
JAMES LUCAS  
KAREN LOVINS

**CARROLLTON UTILITIES:**

BILL OSBORNE  
JESS MAIDEN  
CHAS ROBBINS  
SARAH HUDGINS

**CALL TO ORDER**

THE MEETING WAS CALLED TO ORDER AT 6:03 P.M.

**GUESTS**

Kim Hall and Lance Hall presented a petition to the board with signatures from residents of Hardy Creek. They also presented the board with water quality reports from their wells. Bill Osborne discussed with Lance Hall and Kim Hall that a meeting needed to be setup with the county judges to discuss the project.

**READING OF MINUTES**

MOTION WAS MADE BY MR LUCAS AND SECONDED BY MR. PIRTLE TO APPROVE THE MINUTES OF THE MEETING OF JANUARY 17<sup>TH</sup>, 2019

VOTE:           5 AYES                   0 NAYS

**COMMISSIONER'S REPORT**

Nothing new to report.

**MAINTENANCE REPORT**

Mr. Osborne gave the maintenance report.

**LEAK REPAIR**

- **1/1/19 HWY 36 AT NOTCHLICK CREEK – DEFECTIVE WELD – FOUND BY CU ACTIVELY SEARCHING THE AREA. HAND DUG, COULD NOT GET EQUIPMENT TO LINE TO DIG. 12**

MAN HRS, 1-3" CLAMP, TOTAL LOSS: 1,094,400 GALS FEB 172800 GAL JAN 921,600 GALS

- **1/1/19 620 CULLS RIDGE- SPLIT IN PIPE FOUND BY HOMEOWNER – 9 MAN HRS, 3 HRS MINI, 1-1" CLAMP, TOTAL LOSS 109,440 FEB 20,160 GALS JAN 89,280 GALS**
- **1/15/19 791 CALENDAR RD – DITCHLINE ON CALENDAR RD – FOUND BY CU VALVING AND MONITORING. 12 MAN HRS, 4 HRS MINI, 1-4" CLAMP, TOTAL LOSS 144,000 GALS, FEB 36,000 GALS JAN 108,000 GALS**
- **1/21/19 39 BRIDGE ST – 5FT FROM METER – CU DRIVING PAST – 6 MAN HRS, 2 HRS, MINI, 1-CLAMP, TOTAL LOSS 64,800 GALS, FEB 21,600 GALS JAN 43,200 GALS**
- **1/21/19 2500 BELLS RIDGE – UNDER BELLS RIDGE ROAD IN CASING PIPE – FOUND BY CU, 40 MAN HRS, 8 HRS MINI, 50 FT OF 4" PVC, TOTAL LOSS 648,000 TOTAL GALS, FEB 216,000 GALS, JAN 432,000 GALS**
- **2/14/19 39 BRIDGE ST – 6FT FROM METER – FOUND BY CU VALVING AND MONITORING, 6 MAN HRS, 3 HRS MINI, 2-1" CLAMPS, TOTAL LOSS FEB 17,280 GALS**

<b>METER CHANGES</b>	<b>2</b>
<b>TURN OFF</b>	<b>15</b>
<b>TURN ON</b>	<b>6</b>
<b>READ OUTS</b>	<b>16</b>
<b>RE-READS</b>	<b>5</b>
<b>WATER LEAK CHECK</b>	<b>2</b>
<b>NON-PAY TURN OFFS</b>	<b>12</b>
<b>RECONNECT FOR PAYMENT</b>	<b>6</b>

## **MAINTENANCE REPORT CONTINUED**

Mr. Osborne gave the maintenance report.

### Leaks Repaired:

- 791 Calendar Rd, main line leak, sitting on rock, surrounded by rock, improper bedding
- Hwy 36 at Notch Lick Creek, main line leak at welded PE joint, 3rd repair on this section of line within a year, estimated 20 more possible joints
- 620 Culls Ridge, service line leak, split in service
- 2500 Bells Ridge Rd, main line leak, blow out under road in casing pipe, difficult repair due to steepness of bank, inserted 50ft new pipe under rd.
- 39 Bridge street, service line leak, installed 1" clamp
- 39 Bridge street, service line leak, again, installed 2-1" clamps

### Leaks known:

- Hardy Creek, 10 gpm
- Hwy 36, again, over 20 gpm, actively searching
- Lots of cleanup to do come spring time
- Demo at Hardy Creek with new PVC sound correlators and listening device, pin pointed area to dig, excavating this week, CU looking to purchase equipment if proven success.

- Someone ran into fence at Kings Ridge Booster during bad weather, possible CU to straighten post and repair, if not will get price from Carroll County Fence to present
- 3 new customers added to the frozen meter list and insulators installed, no other issues during extreme cold.
- Low pressure event due to Carrollton Fire on Highland Avenue, BWA, all clear, going to set up meeting with local fire departments to discuss lines of communications during events
- One bad routine bac-t sample in Pville, re-sampled, all clear
- Pink Water, minimal on west side, flushed CU system, one active 911 for pink water on Pate Lane, seen it slightly at my house for a couple minutes then all clear.
- Water service to abandon and make safe for home demo in P-ville Hwy 55, due to house fire.

### **GENERAL MANAGER'S REPORT**

Mr. Bill Osborne reported on:

- 811 Law
- FEMA Update

MOTION WAS MADE BY MR. LUCAS AND SECONDED BY MRS. LOVINS TO DESIGNATE SARAH HUDGINS AS THE APPLICANTS AGENT FOR FEMA FOR DISASTER 4039 AND ANY FUTURE DISASTERS.

VOTE:        5 AYES        0 NAYS

### **FINANCIAL REPORT**

MOTION WAS MADE BY MR. PIRTLE AND SECONDED BY MR. REISNER TO APPROVE THE AUDIT ENGAGEMENT LETTER. THE TOTAL COST OF THE AUDIT IS NOT TO EXCEED \$5,125.00.

VOTE:        5 AYES        0 NAYS

MOTION WAS MADE BY MR. PIRTLE AND SECONDED BY MR. LUCAS TO APPROVE SARAH HUDGINS AS AN AUTHORIZED SIGNER ON WEST CARROLL WATER DISTRICTS BANK ACCOUNTS, AND TO REMOVE CLIFF SIMMONS AND CHASTITY ROBBINS FROM THESE ACCOUNTS. WEST CARROLL WATER DISTRICTS ACCOUNTS INCLUDE:

FIRST NATIONAL BANK OF KENTUCKY

- ACCOUNT NUMBER 659398

US BANK

- ACCOUNT NUMBER 145804317280
- ACCOUNT NUMBER 000490527694
- CERTIFICATE OF DEPOSIT NUMBER 1021456124



FARMERS BANK OF MILTON

- ACCOUNT NUMBER 1840932

MOTION WAS MADE BY MR REISNER AND SECONDED BY MRS LOVINS TO APPROVE THE CHECKS AS WRITTEN.

VOTE:           5 AYES                   0 NAYS

**ADJOURNMENT**

MOTION WAS MADE BY MR. REISNER AND SECONDED BY MRS LOVINS TO ADJOURN AT 7:01 P.M.

VOTE:           5 AYES                   0 NAYS

---

Vickie Edwards, Chair

---

David Pirtle, Secretary

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

29. For the period from January 1, 2015, to the date of the issuance of this Order, discuss whether the water utility's board of commissioners has placed any deadlines or target dates on the utility for achieving a reduction in the amount of water loss.

**Response:**

West Carroll's Board of Commissioners established a goal of fifteen percent (15%) water loss on July 1, 2014. Since that date West Carroll has worked to reach this water loss goal. However, the Board has not established a date to reach that goal. The Board consistently discusses the water loss percentage, the efforts taking place to improve the water loss percentage and actions taken. The Board will establish a target date at its upcoming meeting.

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

30. Provide a list of the utility management's five most critical projects, listed in order of priority, notwithstanding the opinions of the county judge/executive nor the opinions of the water district board of commissioners.

**Response:**

The following are the five most critical projects listed in order of priority along with the planning cost estimates:

1. Hardy Creek Main Replacement.....7,120 LF.....\$306,729
2. Highway 36 from US 42 to Locust Creek.....15,050 LF.....\$615,187
3. US 42 from Highway 36 to Hardy Creek.....38,777 LF.....\$1,481,096
4. Kentucky River Crossing (Directional Drill).....1.000 LF.....\$190,074
5. Highway 55 from Mound Hill Road to Hwy 389.....11,020 LF.....\$475,670

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

31. Provide the total salary of the general manager/superintendent of the water utility for calendar years 2017 and 2018.

**Response:**

West Carroll doesn't have employees. West Carroll is operated by a third party, Carrollton Utilities, under an operating agreement.

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

32. Provide a copy of the most recent signed employment contract between the general manager/superintendent and the utility.

**Response:**

Please see the response to Request 31 above.

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

33. State the average age, with the high and low ages, of the utility's distribution mains.

**Response:**

Attached is a list of mains and the associated age of each. Please note the average is a straight average of each section of main and not a weighted average based on the length of each main.

West Carroll, Mains	Description	Year
All of Prestonville	includes, 42, bridge crossing, bridge st, front and mattick	1976
Hwy 36 Phase 1	Pville to Locust Creek	1976
Hwy 55 Phase 1	Pville to end of Cton system just past Eberenz	1976
Hwy 389 Phase 1	Hwy 55 to Interstate	1976
Greens Bottom	All 4" in Bottom including Sandlin and Pate	1976
All of English	All 4" north side of tracks	1976
Old Carlisle Rd	All of old Carlisle Rd	1976
Carlisle Rd Phase 1	42 to Barn/ first valve	1976
Notch Lick Phase 1	Hwy 36 1800 ft.	1976
Hwy 42 Phase 1	Hwy 36 to Kings Ridge	1976
Kings Ridge/Palmyra	Top of hill from KR to Trimble Co line	1976
Culls Ridge Phase 1	Palmyra to curve before Clint Yokum	1976
Bells Ridge 3"	Kings Ridge to Noah Lane	1976
Henry Co Hwy 55	Henry co master meter over to Calender Rd	1976
Calender Rd	Georges Creek to Moundhill	1976
Moundhill	Winery to Calender Rd	1976
Vories Rd	All of Vories Rd, later tied onto for dripping springs	1976
Millcreek Phase 1	Hwy 389 to first flush plug	1976
Fox Hill Line	Moundhill to Carlisle Rd	1976
Pville Madison St	Tie in front street to end of Madison St.	1982
Hwy 389 Phase 2	English at Railroad tracks to Gilgal booster	1982
Gilgal	All of Gilgal	1982
Notch Lick Phase 2	Monitoring meter to end of main	1982

Hwy 42 Phase 2	Kings Ridge to Millers Branch	1983
Locust Phase 1	East and West to sharp curve prior to 36	1983
East prong Locust	Tie in at Kings Ridge ends at locust tie in	1983
West prong Locust	Locust to end of West Prong	1983
Carlisle Rd Phase 2	Barn to County line	1983
Wrights Ridge	All of Wrights Ridge	1983
Hwy 42 Phase 3	Millers Branch to Hardy Creek	1993
Hardy Booster to Bells	Booster station to Bells 3" including Noah Lane	1993
Fairview Ridge, Milton System	All of Fairview from Master Meter to end	1993
Moundhill booster and tank	From foot of Moundhill to Joe Martin Bladder Booster	1993
Hwy 389 Phase 3	Vance to County Line	1993
Old gilgal	All of old gilgal to include Sheehan Rd	1993
Millcreek Phase 2	Flush plug to interstate bridges	1993
Woodrow Wilson Phase 1	Tie in Henry co to sharp curve on Woodrow Wilson	1993
Moundhill Tank	110k standpipe storage tank	1993
Landy Hill	All of Landy Hill	1998
Hwy 389 Phase 4	Co line to Gividen	1998
Als Drive	All of Als Drive	1998
Connector Rd	All of Connector Rd	1998
Carlisle Rd Phase 3	Tie in prior to county line, crossing river, tie at Ruby Dr.	1998
Woodrow Wilson Phase 2	Connects middle section from sharp curve to Millcreek	1998
Dripping Springs	All of Dripping Springs	1998
Georges Creek	All of Georges Creek	1998
Hartman Landing	All of Hartman Landing	1999
Hwy 389 Phase 5	Gividen to end of line	2000
8" Interstate to Gilgal Booster	Tie in at Mcdonald all the way to Gilgal Booster	2005
Hunters Heights	tie in at 36 to flug plug at foot of hill	2005
Hampton Lane	All of Hampton Lane	2005
Conway Rd	All of Conway Rd, tie in at 36	2005
Hardy Creek Phase 3	Last valve to end of main	2005
Culls Ridge Phase 2	Yokum to Duncan	2005
Millcreek Phase 3	Interstate bridges to end of main	2005
Bells Ridge 4"	Tie in at Kings Ridge ends at Noah lane tie in with 3"	2005
Hwy 55 Phase 2	tie in at Harold Clifton over hill to 55	2005
Locust Phase 2	Hwy 36 to first flush plug	2005
Hwy 36 Phase 2	Locust creek to Spillman Lane	2005
Priors Branch Rd	All of Priors Branch	2005

Tom Town Rd	All of Tom Town Rd	2005
Gilgal Tank	50k elevated storage tank	2005
Bells Ridge Tank	100k elevated storage tank	2005
Greens Bottom Line to Plant	Tie in at Greens bottom 8" back to WWTP	2006
RD Kendal Rd	All of RD Kendall Rd	2012
6" Pville to KR Booster	New booster suction line to Kings Ridge	2012
Gilgal Booster to Tank	New booster discharge line to tank	2012
Nora Lane	All of Nora Lane	2012

<b>Average Year</b>	<b>1991</b>
<b>Average Age</b>	<b>28</b>
<b>Oldest Main Line</b>	<b>43</b>
<b>Newest Main Line</b>	<b>7</b>

Please also see the attached map for additional information.



# WEST CARROLL WATER SYSTEM - LINE AGE

## Legend

### Year Installed

<Null>

1976

1982

1983

1993

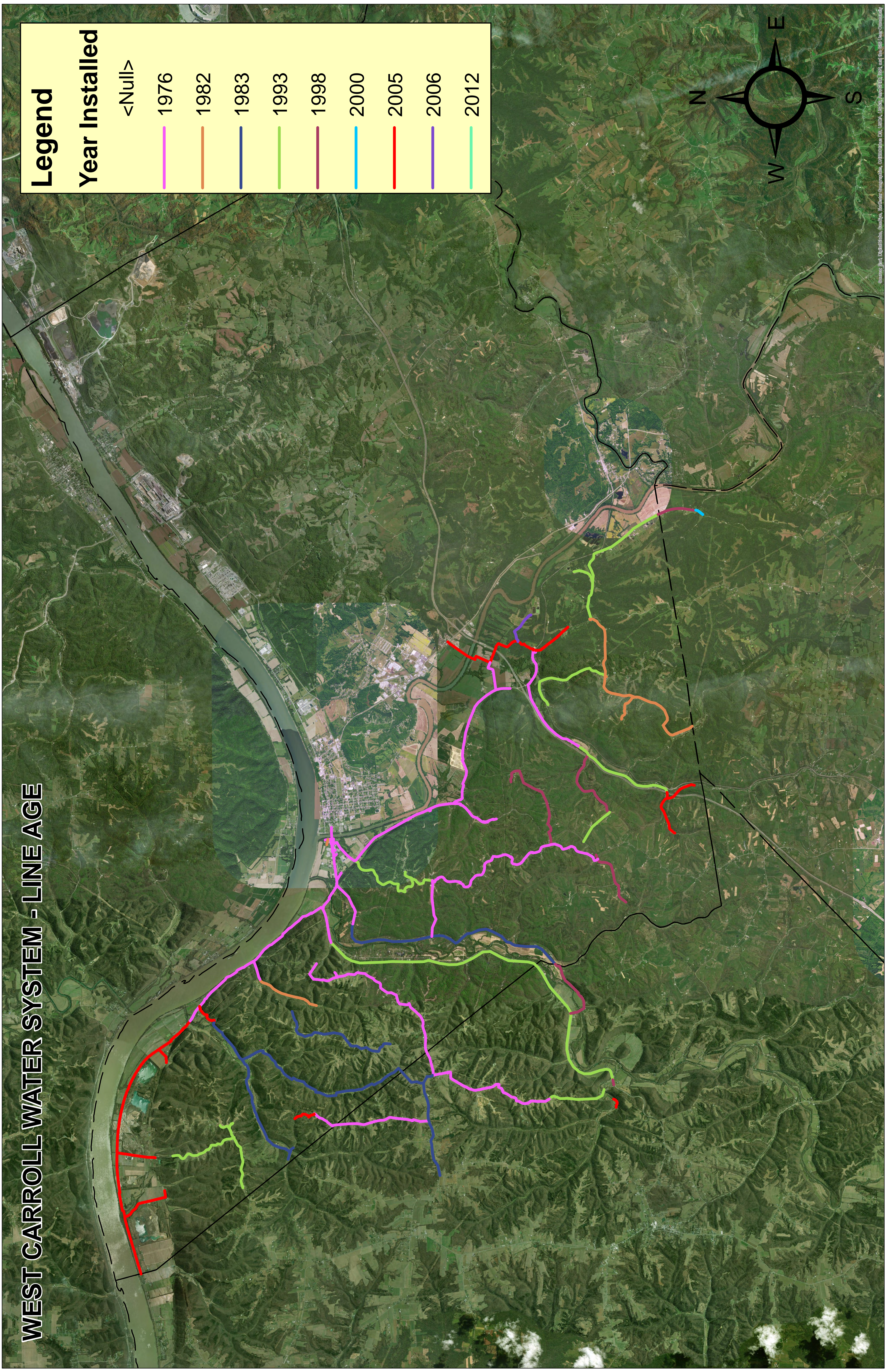
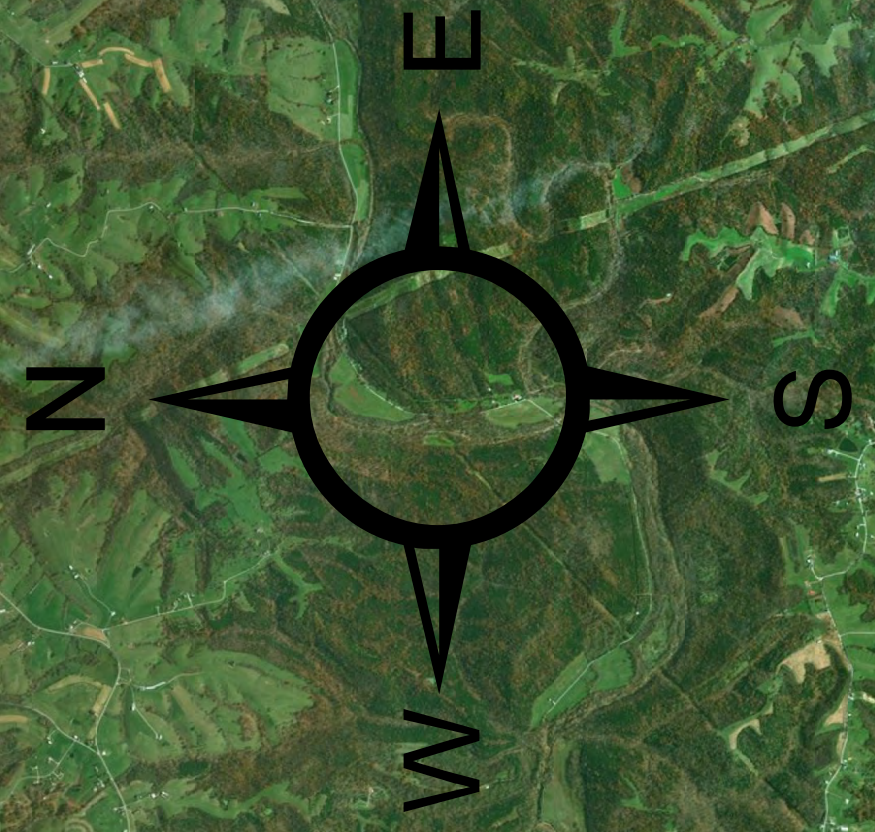
1998

2000

2005

2006

2012



**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

34. "Service connection," as defined by 807 KAR 5:066(6), means the line from the main to the customer's point of service, and shall include the pipefittings and valves necessary to make the connection. State the average age of the utility's service connections.

**Response:**

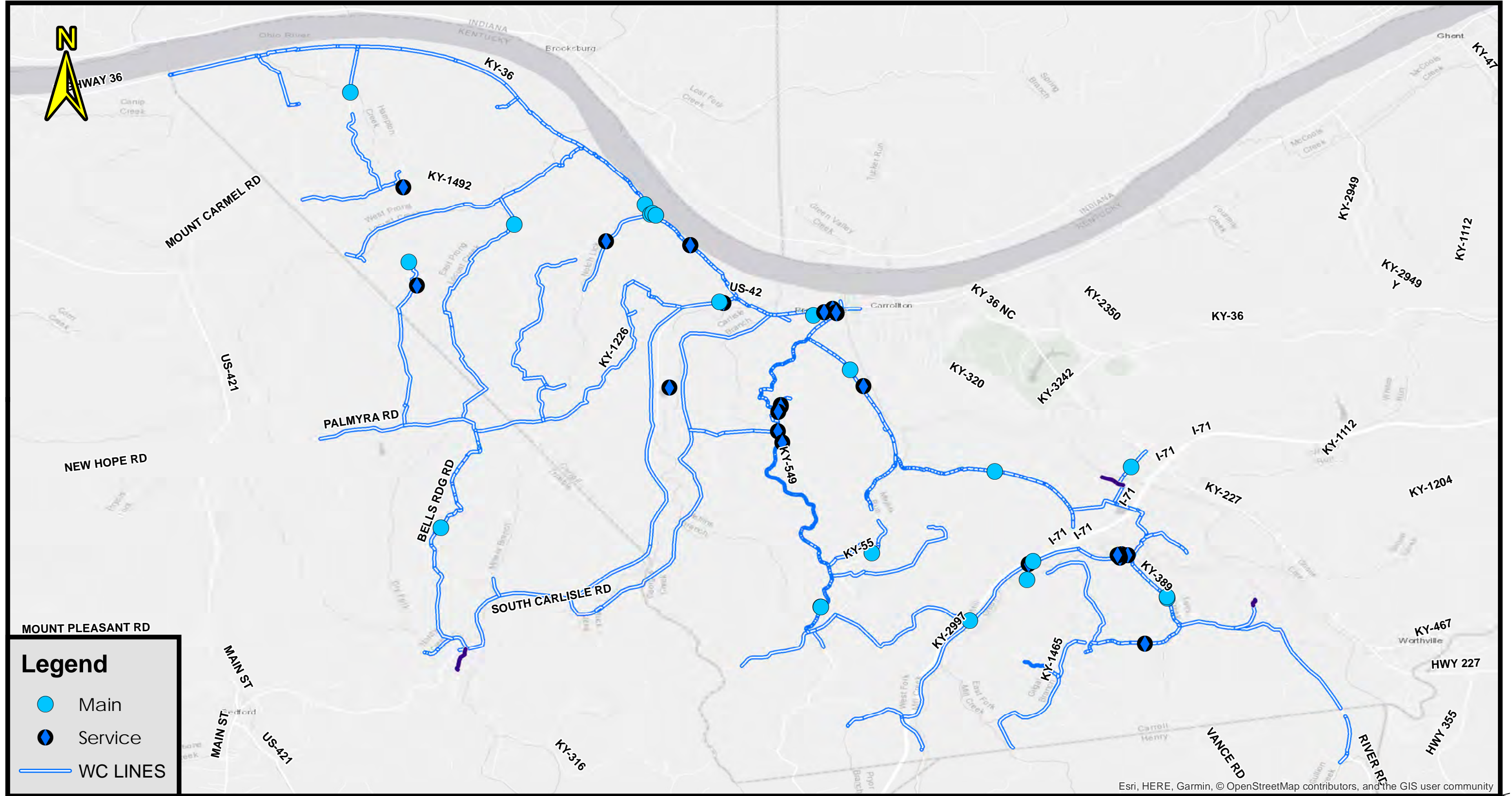
West Carroll does not have this information available. The majority of the service connections were installed during the inaugural project establishing West Carroll in 1976. Please see the map attached to the responses to Request 33 above for additional information.

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

35. Has the utility mapped the entire distribution area for service connections to include mapping of its system, and identifying parts of its system with repeated breaks?

**Response:**

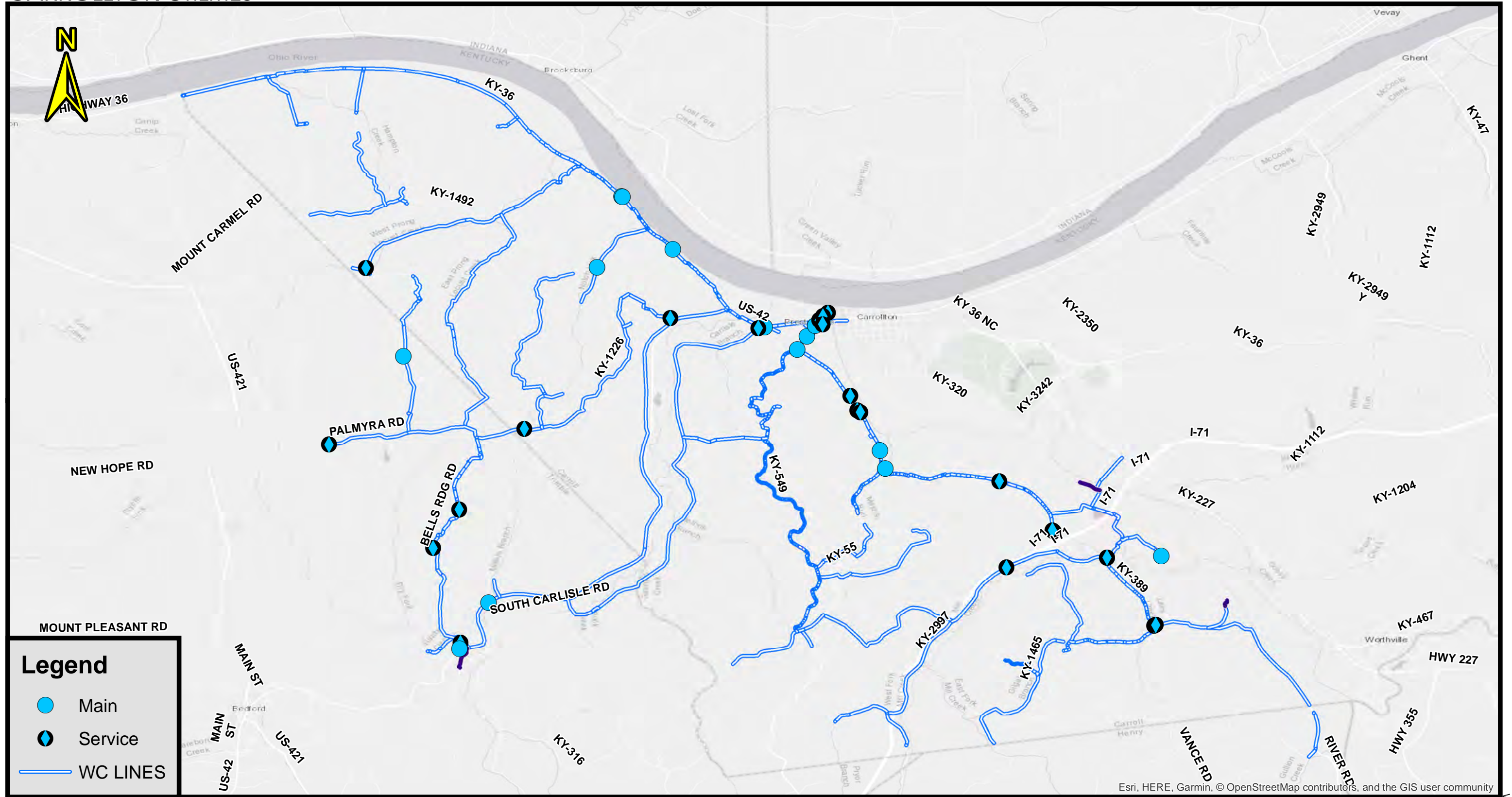
West Carroll has mapped the main and service lines breaks from January 2016 until present. Copies of the maps are attached to this response.



WCWD 2016 LINE REPAIR STUDY

THIS MAP SHOWS EACH OF THE LINE REPAIRS THAT OCCURRED IN 2016.

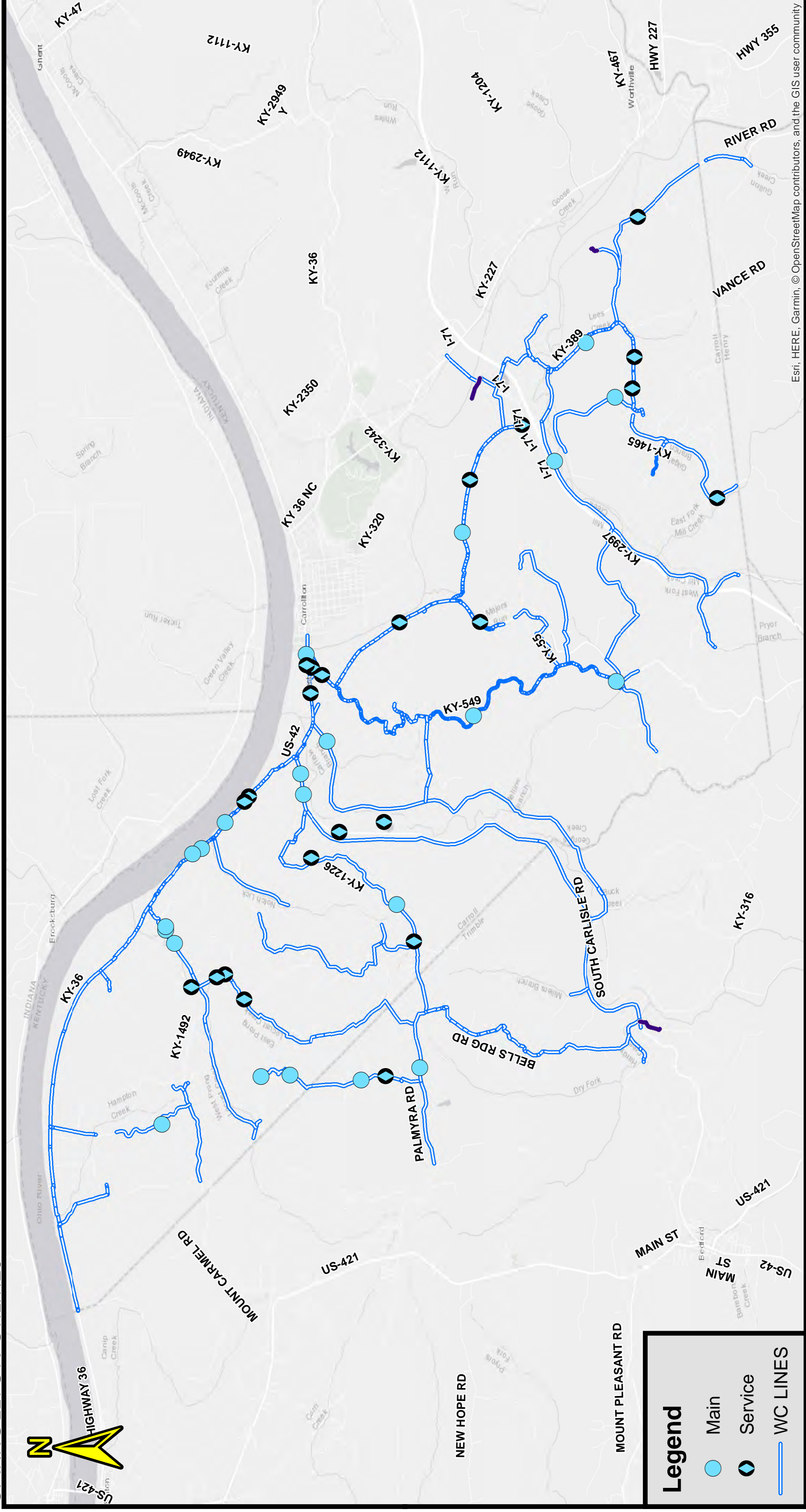




### WCWD 2017 LINE REPAIR STUDY

THIS MAP SHOWS EACH OF THE LINE REPAIRS THAT OCCURRED IN 2017.

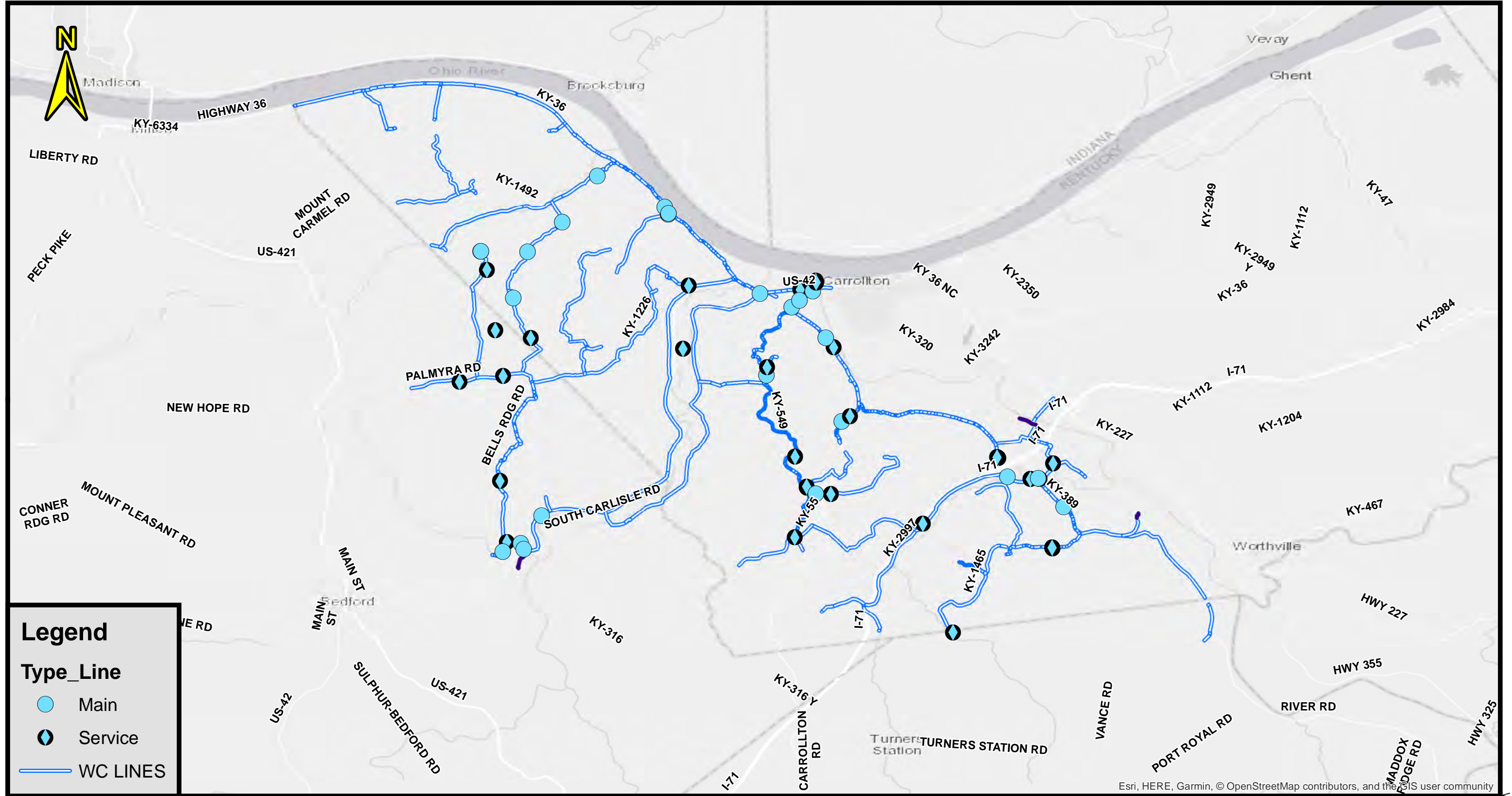




Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

## WCWD 2018 LINE REPAIR STUDY

THIS MAP SHOWS EACH OF THE LINE REPAIRS THAT OCCURRED IN 2018.



### WCWD 2019 LINE REPAIR STUDY

THIS MAP SHOWS EACH OF THE LINE REPAIRS THAT HAVE OCCURRED SO FAR IN 2019.



**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

36. Provide a copy of the utility's policy for dealing with apparent theft of water.

**Response:**

West Carroll locks the meters off as part of the normal shut off procedure for non-payment. If the service is not re-established, personnel will inspect the meter for tampering. On rare occasions, West Carroll has discovered tampering with the meter or meter setter. In these circumstances, West Carroll documents the findings with photographs and usage print outs and then contacts the Carroll County Attorney's office for prosecution and recovery of all charges and costs.



**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

37. Provide documentation of any request by the utility from January 1, 2017, to the date of the issuance of this Order to the county attorney or commonwealth attorney's office for the prosecution of any person for the theft of water.
- a. State whether the utility provided information related to the request for prosecution to the county attorney or commonwealth attorney's office for this time frame.
  - b. If the response to Item 37a. above is confirmed, state to which office the utility provided the information, whether any action was taken on behalf of the utility to prosecute any person for theft of water, and provide copies of the documentation and correspondence related to the prosecution.

**Response:**

West Carroll has had no instances of a reported theft to the Carroll County Attorney's Office or the Commonwealth Attorney's Office since January 1, 2017.

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

38. Provide the utility's policy for determining whether a leak adjustment to a customer's account is warranted and identify the person(s) that approve leak adjustments.

**Response:**

In order to qualify for a leak adjustment, the customer's bill must be 20,000 gallons or more above the normal monthly bill and evidence of the leak must be verified. Customers are only permitted one leak adjustment per year. The Billing Supervisor is responsible for calculating and performing the adjustment.

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

39. State whether the utility's tariff permits the utility to adjust late charges when making a leak adjustment.

**Response:**

If a customer qualifies and receives a leak adjustment, the late charges are removed from the bill.

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

40. Provide a copy of the utility's most recent Leak Adjustment Worksheet that was used by the utility and explain what software is being used by the utility to generate the Leak Adjustment Worksheet. If the utility is using Microsoft Excel to generate the Leak Adjustment Worksheet, then provide a copy of the most recent Leak Adjustment Worksheet used by the utility in electronic format with all rows unprotected and all formulas intact.

**Response:**

West Carroll doesn't use a Leak Adjustment Worksheet. Leak adjustment calculations are performed manually. The customer pays the normal tariff rates on the twelve-month average usage plus 20,000 gallons. The customer pays West Carroll's wholesale rates on the usage over this volume.

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

41. State whether the utility has conducted a comprehensive water audit, and if so, provide a copy of the most recent water audit.

**Response:**

West Carroll performed a water audit using the American Water Works Association (“AWWA”) Water Audit Software for calendar year 2017. The Rural Community Assistance Partnership (“RCAP”) performed a Level 1 Validation of the audit. A copy of the audit and validation are attached to this response.

# AWWA Free Water Audit Software v5.0

American Water Works Association Copyright © 2014. All Rights Reserved.

This spreadsheet-based water audit tool is designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. It provides a "top-down" summary water audit format, and is not meant to take the place of a full-scale, comprehensive water audit format.

Auditors are strongly encouraged to refer to the most current edition of AWWA M36 Manual for Water Audits for detailed guidance on the water auditing process and targetting loss reduction levels

The spreadsheet contains several separate worksheets. Sheets can be accessed using the tabs towards the bottom of the screen, or by clicking the buttons below.

## Please begin by providing the following information

Name of Contact Person:

Email Address:

Telephone (incl Ext.):

Name of City / Utility:

City/Town/Municipality:

State / Province:

Country:

Year:

Start Date:  Enter MM/YYYY numeric format

End Date:  Enter MM/YYYY numeric format

Audit Preparation Date:

Volume Reporting Units:

PWSID / Other ID:

## The following guidance will help you complete the Audit

All audit data are entered on the [Reporting Worksheet](#)

- Value can be entered by user
- Value calculated based on input data
- These cells contain recommended default values

Use of Option (Radio) Buttons: Pcnt:   Value:

Select the default percentage by choosing the option button on the left

To enter a value, choose this button and enter a value in the cell to the right

The following worksheets are available by clicking the buttons below or selecting the tabs along the bottom of the page

<p><b><u>Instructions</u></b></p> <p>The current sheet. Enter contact information and basic audit details (year, units etc)</p>	<p><b><u>Reporting Worksheet</u></b></p> <p>Enter the required data on this worksheet to calculate the water balance and data grading</p>	<p><b><u>Comments</u></b></p> <p>Enter comments to explain how values were calculated or to document data sources</p>	<p><b><u>Performance Indicators</u></b></p> <p>Review the performance indicators to evaluate the results of the audit</p>	<p><b><u>Water Balance</u></b></p> <p>The values entered in the Reporting Worksheet are used to populate the Water Balance</p>	<p><b><u>Dashboard</u></b></p> <p>A graphical summary of the water balance and Non-Revenue Water components</p>
<p><b><u>Grading Matrix</u></b></p> <p>Presents the possible grading options for each input component of the audit</p>	<p><b><u>Service Connection Diagram</u></b></p> <p>Diagrams depicting possible customer service connection line configurations</p>	<p><b><u>Definitions</u></b></p> <p>Use this sheet to understand the terms used in the audit process</p>	<p><b><u>Loss Control Planning</u></b></p> <p>Use this sheet to interpret the results of the audit validity score and performance indicators</p>	<p><b><u>Example Audits</u></b></p> <p>Reporting Worksheet and Performance Indicators examples are shown for two validated audits</p>	<p><b><u>Acknowledgements</u></b></p> <p>Acknowledgements for the AWWA Free Water Audit Software v5.0</p>

If you have questions or comments regarding the software please contact us via email at: [wlc@awwa.org](mailto:wlc@awwa.org)

Witness: Bill Osborne  
 Page 2 of 41  
 Item 41

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

WAS v5.0  
American Water Works Association  
Copyright © 2014, All Rights Reserved.

Click to access definition  
 Click to add a comment

Water Audit Report for: **West Carroll Water District**  
Reporting Year: **2017** / 1/2017 - 12/2017

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 (n/a or 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**

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

**WATER SUPPLIED**

Volume from own sources:   MG/Yr  
Water imported:   MG/Yr  
Water exported:   MG/Yr

**Master Meter and Supply Error Adjustments**

Enter grading in column 'E' and 'J' -----> Pcnt: Value:  
   MG/Yr  
   MG/Yr

Enter negative % or value for under-registration  
Enter positive % or value for over-registration

**WATER SUPPLIED: 71.280** MG/Yr

**AUTHORIZED CONSUMPTION**

Billed metered:   MG/Yr  
Billed unmetered:   MG/Yr  
Unbilled metered:   MG/Yr  
Unbilled unmetered:   MG/Yr

Click here: for help using option buttons below

Pcnt: Value:   MG/Yr

Enter a positive value, otherwise a default percentage of 1.25% (of billed metered) is applied and a grading of 5 is applied but not displayed

**AUTHORIZED CONSUMPTION: 49.694** MG/Yr

Use buttons to select percentage of water supplied OR value

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

**21.586** MG/Yr

**Apparent Losses**

Unauthorized consumption:   MG/Yr

Enter a positive value, otherwise a default percentage of 0.25% is applied and a grading of 5 is applied but not displayed

Customer metering inaccuracies:   MG/Yr  
Systematic data handling errors:   MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

**Apparent Losses: 0.300** MG/Yr

Pcnt: Value:   MG/Yr

MG/Yr

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

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

**WATER LOSSES: 21.586** MG/Yr

**NON-REVENUE WATER**

**NON-REVENUE WATER: 22.477** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

**SYSTEM DATA**

Length of mains:   miles  
Number of active AND inactive service connections:    
Service connection density:  conn./mile main

Are customer meters typically located at the curbside or property line?  (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line:   ft

Average operating pressure:   psi

**COST DATA**

Total annual cost of operating water system:   \$/Year  
Customer retail unit cost (applied to Apparent Losses):   \$/1000 gallons (US)  
Variable production cost (applied to Real Losses):   \$/Million gallons  Use Customer Retail Unit Cost to value real losses

**WATER AUDIT DATA VALIDITY SCORE:**

**\*\*\* YOUR SCORE IS: 83 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: Water imported**
- 2: Unauthorized consumption**
- 3: Systematic data handling errors**



# AWWA Free Water Audit Software: System Attributes and Performance Indicators

Water Audit Report for: West Carroll Water District  
 Reporting Year: 2017 1/2017 - 12/2017

**\*\*\* YOUR WATER AUDIT DATA VALIDITY SCORE IS: 83 out of 100 \*\*\***

**System Attributes:**

	Apparent Losses:	0.300	MG/Yr
+	Real Losses:	21.286	MG/Yr
=	<b>Water Losses:</b>	<b>21.586</b>	MG/Yr

? Unavoidable Annual Real Losses (UARL): 23.88 MG/Yr

Annual cost of Apparent Losses: \$3,741

Annual cost of Real Losses: \$45,552 Valued at **Variable Production Cost**  
 Return to Reporting Worksheet to change this assumption

**Performance Indicators:**

Financial: { Non-revenue water as percent by volume of Water Supplied: 31.5%  
 Non-revenue water as percent by cost of operating system: 9.5% Real Losses valued at Variable Production Cost

Operational Efficiency: { Apparent Losses per service connection per day: 0.70 gallons/connection/day  
 Real Losses per service connection per day: N/A gallons/connection/day  
 Real Losses per length of main per day\*: 613.54 gallons/mile/day  
 Real Losses per service connection per day per psi pressure: N/A gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 21.29 million gallons/year

? Infrastructure Leakage Index (ILI) [CARL/UARL]: 0.89

\* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline





# AWWA Free Water Audit Software: User Comments

WAS v5.0

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Use this worksheet to add comments or notes to explain how an input value was calculated, or to document the sources of the information used.

<b>General Comment:</b>	
<b>Audit Item</b>	<b>Comment</b>
<a href="#">Volume from own sources:</a>	
<a href="#">Vol. from own sources: Master meter error adjustment:</a>	
<a href="#">Water imported:</a>	
<a href="#">Water imported: master meter error adjustment:</a>	
<a href="#">Water exported:</a>	
<a href="#">Water exported: master meter error adjustment:</a>	
<a href="#">Billed metered:</a>	
<a href="#">Billed unmetered:</a>	
<a href="#">Unbilled metered:</a>	

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Audit Item	Comment
<a href="#">Unbilled unmetered:</a>	
<a href="#">Unauthorized consumption:</a>	
<a href="#">Customer metering inaccuracies:</a>	
<a href="#">Systematic data handling errors:</a>	
<a href="#">Length of mains:</a>	
<a href="#">Number of active AND inactive service connections:</a>	
<a href="#">Average length of customer service line:</a>	
<a href="#">Average operating pressure:</a>	
<a href="#">Total annual cost of operating water system:</a>	
<a href="#">Customer retail unit cost (applied to Apparent Losses):</a>	
<a href="#">Variable production cost (applied to Real Losses):</a>	

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# AWWA Free Water Audit Software: Water Balance

WAS v5.0

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Water Audit Report for:	West Carroll Water District	
Reporting Year:	2017	1/2017 - 12/2017
Data Validity Score:	83	

	Water Exported <i>0.000</i>	Billed Water Exported			
<b>Own Sources</b> (Adjusted for known errors)  <i>0.000</i>	<b>Water Supplied</b>  <i>71.280</i>	<b>Authorized Consumption</b>  <i>49.694</i>	<b>Billed Authorized Consumption</b>  <i>48.803</i>	<b>Billed Metered Consumption (water exported is removed)</b>  <i>48.803</i>	<b>Revenue Water</b>  <i>48.803</i>
				<b>Billed Unmetered Consumption</b>  <i>0.000</i>	
		<b>Water Losses</b>  <i>21.586</i>	<b>Unbilled Authorized Consumption</b>  <i>0.891</i>	<b>Unbilled Metered Consumption</b>  <i>0.000</i>	<b>Non-Revenue Water (NRW)</b>  <i>22.477</i>
			<b>Apparent Losses</b>  <i>0.300</i>	<b>Unbilled Unmetered Consumption</b>  <i>0.891</i>	
	<b>Unauthorized Consumption</b>  <i>0.178</i>				
<b>Water Imported</b>  <i>71.280</i>		<b>Real Losses</b>  <i>21.286</i>	<b>Customer Metering Inaccuracies</b>  <i>0.000</i>		
			<b>Systematic Data Handling Errors</b>  <i>0.122</i>		
			<b>Leakage on Transmission and/or Distribution Mains</b> <i>Not broken down</i>		
			<b>Leakage and Overflows at Utility's Storage Tanks</b> <i>Not broken down</i>		
			<b>Leakage on Service Connections</b> <i>Not broken down</i>		

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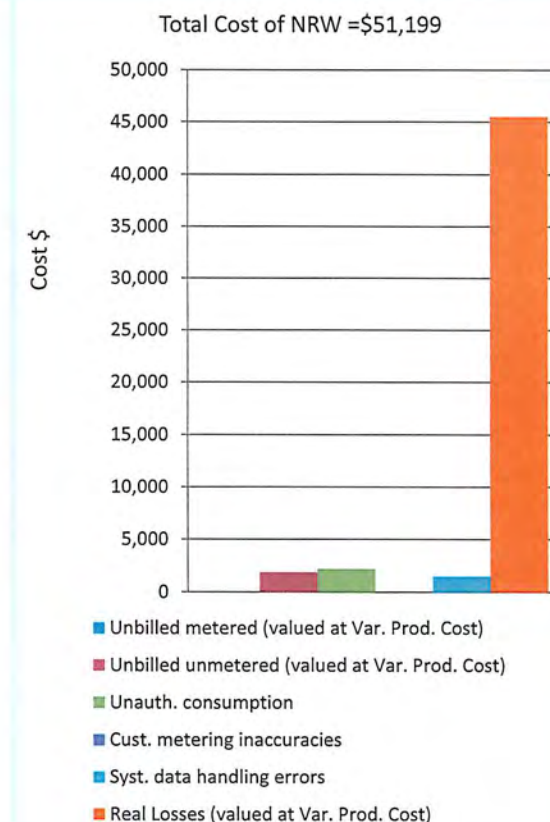
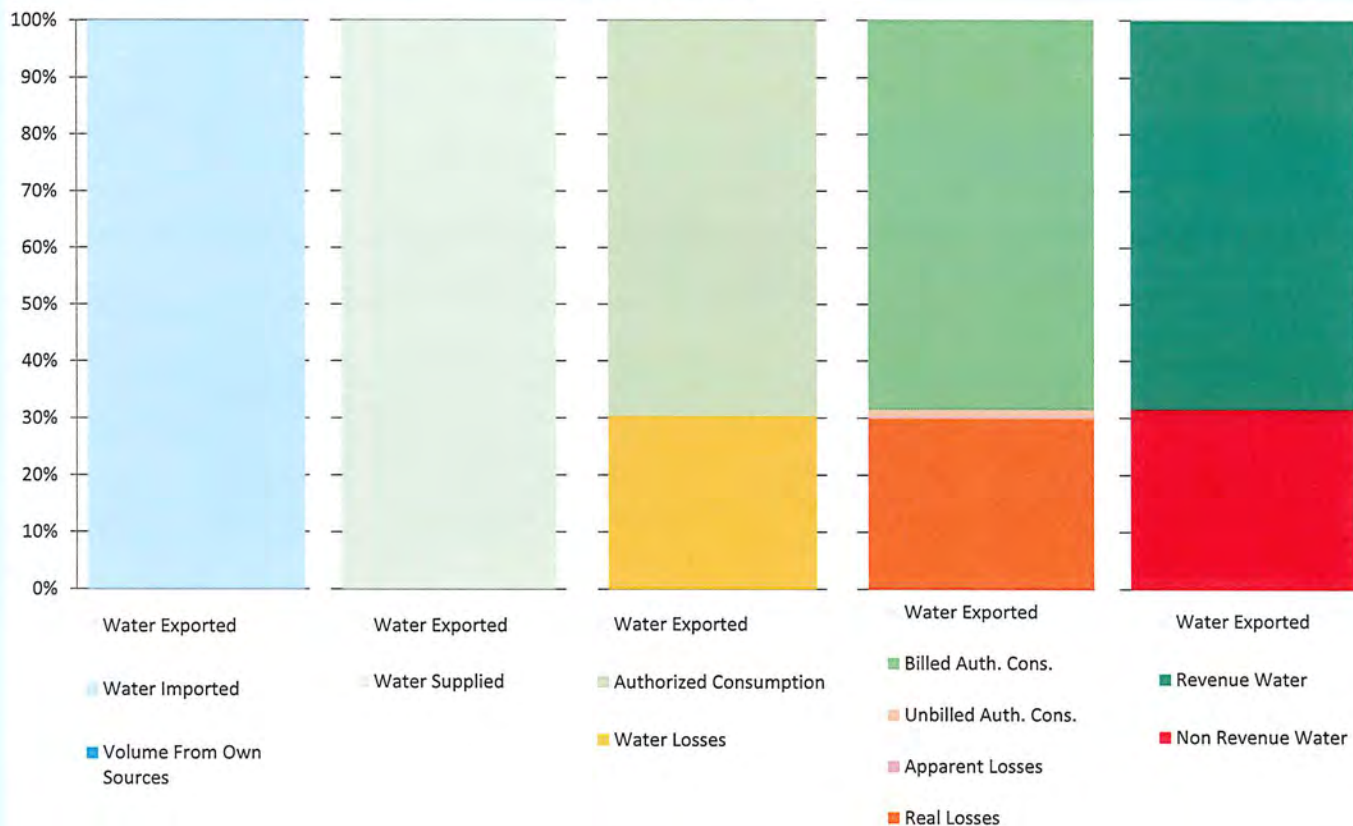
# AWWA Free Water Audit Software: Dashboard

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The graphic below is a visual representation of the Water Balance with bar heights proportional to the volume of the audit components

Water Audit Report for:	West Carroll Water District	
Reporting Year:	2017	1/2017 - 12/2017
Data Validity Score:	83	

- Show me the VOLUME of Non-Revenue Water
- Show me the COST of Non-Revenue Water



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## AWWA Free Water Audit Software: Grading Matrix

The grading assigned to each audit component and the corresponding recommended improvements and actions are highlighted in yellow. Audit accuracy is likely to be improved by prioritizing those items shown in red

Grading >>>	n/a	1	2	3	4	5	6	7	8	9	10
<b>WATER SUPPLIED</b>											
Volume from own sources:	Select this grading only if the water utility purchases/imports all of its water resources (i.e. has no sources of its own)	Less than 25% of water production sources are metered, remaining sources are estimated. No regular meter accuracy testing or electronic calibration conducted.	25% - 50% of treated water production sources are metered; other sources estimated. No regular meter accuracy testing or electronic calibration conducted.	Conditions between 2 and 4	50% - 75% of treated water production sources are metered; other sources estimated. Occasional meter accuracy testing or electronic calibration conducted.	Conditions between 4 and 6	At least 75% of treated water production sources are metered, or at least 90% of the source flow is derived from metered sources. Meter accuracy testing and/or electronic calibration of related instrumentation is conducted annually. Less than 25% of tested meters are found outside of +/- 6% accuracy.	Conditions between 6 and 8	100% of treated water production sources are metered, meter accuracy testing and electronic calibration of related instrumentation is conducted annually, less than 10% of meters are found outside of +/- 6% accuracy.	Conditions between 8 and 10	100% of treated water production sources are metered, meter accuracy testing and electronic calibration of related instrumentation is conducted semi-annually, with less than 10% found outside of +/- 3% accuracy. Procedures are reviewed by a third party knowledgeable in the M3G methodology.
Improvements to attain higher data grading for "Volume from own Sources" component:		<u>to qualify for 2:</u> Organize and launch efforts to collect data for determining volume from own sources	<u>to qualify for 4:</u> Locate all water production sources on maps and in the field, launch meter accuracy testing for existing meters, begin to install meters on unmetered water production sources and replace any obsolete/defective meters.		<u>to qualify for 6:</u> Formalize annual meter accuracy testing for all source meters; specify the frequency of testing. Complete installation of meters on unmetered water production sources and complete replacement of all obsolete/defective meters.		<u>to qualify for 8:</u> Conduct annual meter accuracy testing and calibration of related instrumentation on all meter installations on a regular basis. Complete project to install new, or replace defective existing, meters so that entire production meter population is metered. Repair or replace meters outside of +/- 6% accuracy.		<u>to qualify for 10:</u> Maintain annual meter accuracy testing and calibration of related instrumentation for all meter installations. Repair or replace meters outside of +/- 3% accuracy. Investigate new meter technology; pilot one or more replacements with innovative meters in attempt to further improve meter accuracy.		<u>to maintain 10:</u> Standardize meter accuracy test frequency to semi-annual, or more frequent, for all meters. Repair or replace meters outside of +/- 3% accuracy. Continually investigate/plot improving metering technology.
Volume from own sources meter meter and supply error adjustment:	Select n/a only if the water utility fails to have meters on its sources of supply	Inventory information on meters and paper records of measured volumes exist but are incomplete and/or in a very crude condition; data error cannot be determined	No automatic datalogging of production volumes; daily readings are scribed on paper records without any accountability controls. Flows are not balanced across the water distribution system; tank/storage elevation changes are not employed in calculating the "Volume from own sources" component and archived flow data is adjusted only when grossly evident data error occurs.	Conditions between 2 and 4	Production meter data is logged automatically in electronic format and reviewed at least on a monthly basis with necessary corrections implemented. "Volume from own sources" tabulations include estimate of daily changes in tanks/storage facilities. Meter data is adjusted when gross data errors occur, or occasional meter testing deems this necessary.	Conditions between 4 and 6	Hourly production meter data logged automatically & reviewed on at least a weekly basis. Data is adjusted to correct gross error when meter/instrumentation equipment malfunction is detected; and/or error is confirmed by meter accuracy testing. Tank/storage facility elevation changes are automatically used in calculating a balanced "Volume from own sources" component, and data gaps in the archived data are corrected on at least a weekly basis.	Conditions between 6 and 8	Continuous production meter data is logged automatically & reviewed each business day. Data is adjusted to correct gross error from detected meter/instrumentation equipment malfunction and/or results of meter accuracy testing. Tank/storage facility elevation changes are automatically used in "Volume from own sources" tabulations and data gaps in the archived data are corrected on a daily basis.	Conditions between 8 and 10	Computerized system (SCADA or similar) automatically balances flows from all sources and storages; results are reviewed each business day. Tight accountability controls ensure that all data gaps that occur in the archived flow data are quickly detected and corrected. Regular calibrations between SCADA and source meters ensures minimal data transfer error.
Improvements to attain higher data grading for "Master meter and supply error adjustment" component:		<u>to qualify for 2:</u> Develop a plan to restructure recordkeeping system to capture all flow data; set a procedure to review flow data on a daily basis to detect input errors. Obtain more reliable information about existing meters by conducting field inspections of meters and related instrumentation, and obtaining manufacturer literature.	<u>to qualify for 4:</u> Install automatic datalogging equipment on production meters. Complete installation of level instrumentation at all tanks/storage facilities and include tank level data in automatic calculation routine in a computerized system. Construct a computerized listing or spreadsheet to archive input volumes, tank/storage volume changes and import/export flows in order to determine the composite "Water Supplied" volume for the distribution system. Set a procedure to review this data on a monthly basis to detect gross anomalies and data gaps.		<u>to qualify for 6:</u> Refine computerized data collection and archive to include hourly production meter data that is reviewed at least on a weekly basis to detect specific data anomalies and gaps. Use daily net storage change to balance flows in calculating "Water Supplied" volume. Necessary corrections to data errors are implemented on a weekly basis.		<u>to qualify for 8:</u> Ensure that all flow data is collected and archived on at least an hourly basis. All data is reviewed and detected errors corrected each business day. Tank/storage levels variations are employed in calculating balanced "Water Supplied" component. Adjust production meter data for gross error and inaccuracy confirmed by testing.		<u>to qualify for 10:</u> Link all production and tank/storage facility elevation change data to a Supervisory Control & Data Acquisition (SCADA) System, or similar computerized monitoring/control system, and establish automatic flow balancing algorithm and regularly calibrate between SCADA and source meters. Data is reviewed and corrected each business day.		<u>to maintain 10:</u> Monitor meter innovations for development of more accurate and less expensive flowmeters. Continue to replace or repair meters as they perform outside of desired accuracy limits. Stay abreast of new and more accurate water level instruments to better record tank/storage levels and archive the variations in storage volume. Keep current with SCADA and data management systems to ensure that archived data is well-managed and error free.
Water Imported:	Select n/a if the water utility's supply is exclusively from its own water resources (no bulk purchased/ imported water)	Less than 25% of imported water sources are metered, remaining sources are estimated. No regular meter accuracy testing.	25% - 50% of imported water sources are metered; other sources estimated. No regular meter accuracy testing.	Conditions between 2 and 4	50% - 75% of imported water sources are metered, other sources estimated. Occasional meter accuracy testing conducted.	Conditions between 4 and 6	At least 75% of imported water sources are metered, meter accuracy testing and/or electronic calibration of related instrumentation is conducted annually for all meter installations. Less than 25% of tested meters are found outside of +/- 6% accuracy.	Conditions between 6 and 8	100% of imported water sources are metered, meter accuracy testing and electronic calibration of related instrumentation is conducted annually, less than 10% of meters are found outside of +/- 6% accuracy.	Conditions between 8 and 10	100% of imported water sources are metered, meter accuracy testing and electronic calibration of related instrumentation is conducted semi-annually for all meter installations, with less than 10% of accuracy tests found outside of +/- 3% accuracy.

Grading >>>	n/a	1	2	3	4	5	6	7	8	9	10
<p>Improvements to attain higher data grading for "Water Imported Volume" component:</p> <p><i>(Note: usually the water supplier selling the water - "the Exporter" - is the Utility being audited is responsible to maintain the metering installation measuring the imported volume. The Utility should coordinate carefully with the Exporter to ensure that adequate meter upkeep takes place and an accurate measure of the Water Imported volume is quantified.)</i></p>		<p><u>to qualify for 2:</u> Review bulk water purchase agreements with partner suppliers; confirm requirements for use and maintenance of accurate metering. Identify needs for new or replacement meters with goal to meter all imported water sources.</p>	<p><u>To qualify for 4:</u> Locate all imported water sources on maps and in the field, launch meter accuracy testing for existing meters, begin to install meters on unmetered imported water interconnections and replace obsolete/defective meters.</p>		<p><u>to qualify for 6:</u> Formalize annual meter accuracy testing for all imported water meters, planning for both regular meter accuracy testing and calibration of the related instrumentation. Continue installation of meters on unmetered imported water interconnections and replacement of obsolete/defective meters.</p>		<p><u>to qualify for 8:</u> Complete project to install new, or replace defective, meters on all imported water interconnections. Maintain annual meter accuracy testing for all imported water meters and conduct calibration of related instrumentation at least annually. Repair or replace meters outside of +/- 6% accuracy.</p>		<p><u>to qualify for 10:</u> Conduct meter accuracy testing for all meters on a semi-annual basis, along with calibration of all related instrumentation. Repair or replace meters outside of +/- 3% accuracy. Investigate new meter technology; pilot one or more replacements with innovative meters in attempt to improve meter accuracy.</p>		<p><u>to maintain 10:</u> Standardize meter accuracy test frequency to semi-annual, or more frequent, for all meters. Continue to conduct calibration of related instrumentation on a semi-annual basis. Repair or replace meters outside of +/- 3% accuracy. Continually investigate/pilot improving metering technology.</p>
Water imported master meter and supply error adjustment:	Select n/a if the Imported water supply is unmetered, with imported water quantities estimated on the billing invoices sent by the Exporter to the purchasing Utility.	Inventory information on imported meters and paper records of measured volumes exist but are incomplete and/or in a very crude condition; data error cannot be determined. Written agreement(s) with water Exporter(s) are missing or written in vague language concerning meter management and testing.	No automatic datalogging of imported supply volumes; daily readings are scribbled on paper records without any accountability controls to confirm data accuracy and the absence of errors and data gaps in recorded volumes. Written agreement requires meter accuracy testing but is vague on the details of how and who conducts the testing.	Conditions between 2 and 4	Imported supply metered flow data is logged automatically in electronic format and reviewed at least on a monthly basis by the Exporter with necessary corrections implemented. Meter data is adjusted by the Exporter when gross data errors are detected. A coherent data trail exists for this process to protect both the selling and the purchasing Utility. Written agreement exists and clearly states requirements and roles for meter accuracy testing and data management.	Conditions between 4 and 6	Hourly imported supply metered data is logged automatically & reviewed on at least a weekly basis by the Exporter. Data is adjusted to correct gross error when meter/instrumentation equipment malfunction is detected; and to correct for error confirmed by meter accuracy testing. Any data gaps in the archived data are detected and corrected during the weekly review. A coherent data trail exists for this process to protect both the selling and the purchasing Utility.	Conditions between 6 and 8	Continuous imported supply metered flow data is logged automatically & reviewed each business day by the Importer. Data is adjusted to correct gross error from detected meter/instrumentation equipment malfunction and/or results of meter accuracy testing. Any data errors/gaps are detected and corrected on a daily basis. A data trail exists for the process to protect both the selling and the purchasing Utility.	Conditions between 8 and 10	Computerized system (SCADA or similar) automatically records data which is reviewed each business day by the Exporter. Tight accountability controls ensure that all error/data gaps that occur in the archived flow data are quickly detected and corrected. A reliable data trail exists and contract provisions for meter testing and data management are reviewed by the selling and purchasing Utility at least once every five years.
Improvements to attain higher data grading for "Water Imported master meter and supply error adjustment" component:		<u>to qualify for 2:</u> Develop a plan to restructure recordkeeping system to capture all flow data; set a procedure to review flow data on a daily basis to detect input errors. Obtain more reliable information about existing meters by conducting field inspections of meters and related instrumentation, and obtaining manufacturer literature. Review the written agreement between the selling and purchasing Utility.	<u>to qualify for 4:</u> Install automatic datalogging equipment on imported supply meters. Set a procedure to review this data on a monthly basis to detect gross anomalies and data gaps. Launch discussions with the Exporters to jointly review terms of the written agreements regarding meter accuracy testing and data management; revise the terms as necessary.		<u>to qualify for 6:</u> Refine computerized data collection and archive to include hourly imported supply metered flow data that is reviewed at least on a weekly basis to detect specific data anomalies and gaps. Make necessary corrections to errors/data errors on a weekly basis.		<p><u>to qualify for 8:</u> Ensure that all imported supply metered flow data is collected and archived on at least an hourly basis. All data is reviewed and errors/data gaps are corrected each business day.</p>		<u>to qualify for 10:</u> Conduct accountability checks to confirm that all imported supply metered data is reviewed and corrected each business day by the Exporter. Results of all meter accuracy tests and data corrections should be available for sharing between the Exporter and the purchasing Utility. Establish a schedule for a regular review and updating of the contractual language in the written agreement between the selling and the purchasing Utility; at least every five years.		<u>to maintain 10:</u> Monitor meter innovations for development of more accurate and less expensive flowmeters; work with the Exporter to help identify meter replacement needs. Keep communication lines with Exporters open and maintain productive relations. Keep the written agreement current with clear and explicit language that meets the ongoing needs of all parties.
Water Exported:	Select n/a if the water utility sells no bulk water to neighboring water utilities (no exported water sales)	Less than 25% of exported water sources are metered, remaining sources are estimated. No regular meter accuracy testing.	25% - 50% of exported water sources are metered; other sources estimated. No regular meter accuracy testing.	Conditions between 2 and 4	50% - 75% of exported water sources are metered, other sources estimated. Occasional meter accuracy testing conducted.	Conditions between 4 and 6	At least 75% of exported water sources are metered, meter accuracy testing and/or electronic calibration conducted annually. Less than 25% of tested meters are found outside of +/- 6% accuracy.	Conditions between 6 and 8	100% of exported water sources are metered, meter accuracy testing and electronic calibration of related instrumentation is conducted annually, less than 10% of meters are found outside of +/- 6% accuracy.	Conditions between 8 and 10	100% of exported water sources are metered, meter accuracy testing and electronic calibration of related instrumentation is conducted semi-annually for all meter installations, with less than 10% of accuracy tests found outside of +/- 3% accuracy.

Grading >>>	n/a	1	2	3	4	5	6	7	8	9	10
Improvements to attain higher data grading for "Water Exported Volume" component  (Note: usually, if the water utility being audited sells (Exports) water to a neighboring purchasing Utility, it is the responsibility of the Utility exporting the water to maintain the metering installation measuring the Exported volume. The utility exporting the water should ensure that adequate meter upkeep takes place and an accurate measure of the Water Exported volume is quantified.)		to qualify for 2: Review bulk water sales agreements with purchasing utilities; confirm requirements for use & upkeep of accurate metering. Identify needs to install new, or replace defective meters as needed.	To qualify for 4: Locate all exported water sources on maps and in field, launch meter accuracy testing for existing meters, begin to install meters on unmetered exported water interconnections and replace obsolete/defective meters		to qualify for 6: Formalize annual meter accuracy testing for all exported water meters. Continue installation of meters on unmetered exported water interconnections and replacement of obsolete/defective meters.		to qualify for 8: Complete project to install new, or replace defective, meters on all exported water interconnections. Maintain annual meter accuracy testing for all exported water meters. Repair or replace meters outside of +/- 5% accuracy.		to qualify for 10: Maintain annual meter accuracy testing for all meters. Repair or replace meters outside of +/- 3% accuracy. Investigate new meter technology; pilot one or more replacements with innovative meters in attempt to improve meter accuracy.		to maintain 10: Standardize meter accuracy test frequency to semi-annual, or more frequent, for all meters. Repair or replace meters outside of +/- 3% accuracy. Continually investigate/pilot improving metering technology.
Water exported master meter and supply error adjustment	Select n/a only if the water utility fails to have meters on its exported supply interconnections.	Inventory information on exported meters and paper records of measured volumes exist but are incomplete and/or in a very crude condition; data error cannot be determined. Written agreement(s) with the utility purchasing the water are missing or written in vague language concerning meter management and testing.	No automatic datalogging of exported supply volumes; daily readings are scribed on paper records without any accountability controls to confirm data accuracy and the absence of errors and data gaps in recorded volumes. Written agreement requires meter accuracy testing but is vague on the details of how and who conducts the testing.	Conditions between 2 and 4	Exported metered flow data is logged automatically in electronic format and reviewed at least on a monthly basis, with necessary corrections implemented. Meter data is adjusted by the utility selling (exporting) the water when gross data errors are detected. A coherent data trail exists for this process to protect both the utility exporting the water and the purchasing Utility. Written agreement exists and clearly states requirements and roles for meter accuracy testing and data management.	Conditions between 4 and 5	Hourly exported supply metered data is logged automatically & reviewed on at least a weekly basis by the utility selling the water. Data is adjusted to correct gross error when meter/instrumentation equipment malfunction is detected, and to correct for error found by meter accuracy testing. Any data gaps in the archived data are detected and corrected during the weekly review. A coherent data trail exists for this process to protect both the selling (exporting) utility and the purchasing Utility.	Conditions between 6 and 8	Continuous exported supply metered flow data is logged automatically & reviewed each business day by the utility selling (exporting) the water. Data is adjusted to correct gross error from detected meter/instrumentation equipment malfunction and any error confirmed by meter accuracy testing. Any data errors/gaps are detected and corrected on a daily basis. A data trail exists for the process to protect both the selling (exporting) Utility and the purchasing Utility.	Conditions between 8 and 10	Computerized system (SCADA or similar) automatically records data which is reviewed each business day by the utility selling (exporting) the water. Tight accountability controls ensure that all error/data gaps that occur in the archived flow data are quickly detected and corrected. A reliable data trail exists and contract provisions for meter testing and data management are reviewed by the selling Utility and purchasing Utility at least once every five years.
Improvements to attain higher data grading for "Water exported master meter and supply error adjustment" component		to qualify for 2: Develop a plan to restructure recordkeeping system to capture all flow data; set a procedure to review flow data on a daily basis to detect input errors. Obtain more reliable information about existing meters by conducting field inspections of meters and related instrumentation, and obtaining manufacturer literature. Review the written agreement between the utility selling (exporting) the water and the purchasing Utility.	to qualify for 4: Install automatic datalogging equipment on exported supply meters. Set a procedure to review this data on a monthly basis to detect gross anomalies and data gaps. Launch discussions with the purchasing utilities to jointly review terms of the written agreements regarding meter accuracy testing and data management; revise the terms as necessary.		to qualify for 6: Refine computerized data collection and archive to include hourly exported supply metered flow data that is reviewed at least on a weekly basis to detect specific data anomalies and gaps. Make necessary corrections to errors/data errors on a weekly basis.		to qualify for 8: Ensure that all exported metered flow data is collected and archived on at least an hourly basis. All data is reviewed and errors/data gaps are corrected each business day.		to qualify for 10: Conduct accountability checks to confirm that all exported metered flow data is reviewed and corrected each business day by the utility selling the water. Results of all meter accuracy tests and data corrections should be available for sharing between the utility and the purchasing Utility. Establish a schedule for a regular review and updating of the contractual language in the written agreements with the purchasing utilities; at least every five years.		to maintain 10: Monitor meter innovations for development of more accurate and less expensive flowmeters; work with the purchasing utilities to help identify meter replacement needs. Keep communication lines with the purchasing utilities open and maintain productive relations. Keep the written agreement current with clear and explicit language that meets the ongoing needs of all parties.
<b>AUTHORIZED CONSUMPTION</b>											
Billed metered:	n/a (not applicable). Select n/a only if the entire customer population is not metered and is billed for water service on a flat or fixed rate basis. In such a case the volume entered must be zero.	Less than 50% of customers with volume-based billings from meter readings; flat or fixed rate billing exists for the majority of the customer population	At least 50% of customers with volume-based billing from meter reads; flat rate billing for others. Manual meter reading is conducted, with less than 50% meter read success rate, remaining accounts' consumption is estimated. Limited meter records, no regular meter testing or replacement. Billing data maintained on paper records, with no auditing.	Conditions between 2 and 4	At least 75% of customers with volume-based, billing from meter reads; flat or fixed rate billing for remaining accounts. Manual meter reading is conducted with at least 50% meter read success rate; consumption for accounts with failed reads is estimated. Purchase records verify age of customer meters; only very limited meter accuracy testing is conducted. Customer meters are replaced only upon complete failure. Computerized billing records exist, but only sporadic internal auditing conducted.	Conditions between 4 and 6	At least 50% of customers with volume-based billing from meter reads; consumption for remaining accounts is estimated. Manual customer meter reading gives at least 80% customer meter reading success rate; consumption for accounts with failed reads is estimated. Good customer meter records exist, but only limited meter accuracy testing is conducted. Regular replacement is conducted for the oldest meters. Computerized billing records exist with annual auditing of summary statistics conducted by utility personnel.	Conditions between 6 and 8	At least 97% of customers exist with volume-based billing from meter reads. At least 50% customer meter reading success rate; or at least 90% read success rate with planning and budgeting for trials of Automatic Meter Reading (AMR) or Advanced Metering Infrastructure (AMI) in one or more pilot areas. Good customer meter records. Regular meter accuracy testing guides replacement of statistically significant number of meters each year. Routine auditing of computerized billing records for global, and detailed statistics occurs annually by utility personnel, and is verified by third party at least once every five years.	Conditions between 8 and 10	At least 99% of customers exist with volume-based billing from meter reads. At least 95% customer meter reading success rate; or minimum 80% meter reading success rate, with Automatic Meter Reading (AMR) or Advanced Metering Infrastructure (AMI) trials underway. Statistically significant customer meter testing and replacement program in place on a continuous basis. Computerized billing with routine, detailed auditing, including field investigation of representative sample of accounts undertaken annually by utility personnel. Audit is conducted by third party auditors at least once every three years.

Grading >>>	n/a	1	2	3	4	5	6	7	8	9	10
Improvements to attain higher data grading for "Billed Metered Consumption" component:	If n/a is selected because the customer meter population is unmetered, consider establishing a new policy to meter the customer population and employ water rates based upon metered volumes.	<u>to qualify for 2:</u> Conduct investigations or trials of customer meters to select appropriate meter models. Budget funding for meter installations. Investigate volume based water rate structures.	<u>to qualify for 4:</u> Purchase and install meters on unmetered accounts. Implement policies to improve meter reading success. Catalog meter information during meter read visits to identify age/model of existing meters. Test a minimal number of meters for accuracy. Install computerized billing system.		<u>to qualify for 6:</u> Purchase and install meters on unmetered accounts. Eliminate flat fee billing and establish appropriate water rate structure based upon measured consumption. Continue to achieve verifiable success in removing manual meter reading barriers. Expand meter accuracy testing. Launch regular meter replacement program. Launch a program of annual auditing of global billing statistics by utility personnel.		<u>to qualify for 8:</u> Purchase and install meters on unmetered accounts. If customer meter reading success rate is less than 97%, assess cost-effectiveness of Automatic Meter Reading (AMR) or Advanced Metering Infrastructure (AMI) system for portion or entire system; or otherwise achieve ongoing improvements in manual meter reading success rate to 97% or higher. Refine meter accuracy testing program. Set meter replacement goals based upon accuracy test results. Implement annual auditing of detailed billing records by utility personnel and implement third party auditing at least once every five years.		<u>to qualify for 10:</u> Purchase and install meters on unmetered accounts. Launch Automatic Meter Reading (AMR) or Advanced Metering Infrastructure (AMI) system trials if manual meter reading success rate of at least 99% is not achieved within a five-year program. Continue meter accuracy testing program. Conduct planning and budgeting for large scale meter replacement based upon meter life cycle analysis using cumulative flow target. Continue annual detailed billing data auditing by utility personnel and conduct third party auditing at least once every three years.		<u>to maintain 10:</u> Continue annual internal billing data auditing, and third party auditing at least every three years. Continue customer meter accuracy testing to ensure that accurate customer meter readings are obtained and entered as the basis for volume based billing. Stay abreast of improvements in Automatic Meter Reading (AMR) and Advanced Metering Infrastructure (AMI) and information management. Plan and budget for justified upgrades in metering, meter reading and billing data management to maintain very high accuracy in customer metering and billing.
Billed unmetered:	Select n/a if it is the policy of the water utility to meter all customer connections and it has been confirmed by detailed auditing that all customers do indeed have a water meter, i.e. no intentionally unmetered accounts exist	Water utility policy does <u>not</u> require customer metering; flat or fixed fee billing is employed. No data is collected on customer consumption. The only estimates of customer population consumption available are derived from data estimation methods using average fixture count multiplied by number of connections, or similar approach.	Water utility policy does <u>not</u> require customer metering; flat or fixed fee billing is employed. Some metered accounts exist in parts of the system (plot areas or District Metered Areas) with consumption read periodically or recorded on portable dataloggers over one, three, or seven day periods. Data from these sample meters are used to infer consumption for the total customer population. Site specific estimation methods are used for unusual buildings/water uses.	Conditions between 2 and 4	Water utility policy <u>does</u> require metering and volume based billing in general. However, a liberal amount of exemptions and a lack of clearly written and communicated procedures result in up to 20% of billed accounts believed to be unmetered by exemption, or the water utility is in transition to becoming fully metered, and a large number of customers remain unmetered. A rough estimate of the annual consumption for all unmetered accounts is included in the annual water audit, with no inspection of individual unmetered accounts.	Conditions between 4 and 6	Water utility policy <u>does</u> require metering and volume based billing but established exemptions exist for a portion of accounts such as municipal buildings. As many as 15% of billed accounts are unmetered due to this exemption or meter installation difficulties. Only a group estimate of annual consumption for all unmetered accounts is included in the annual water audit, with no inspection of individual unmetered accounts.	Conditions between 6 and 8	Water utility policy <u>does</u> require metering and volume based billing for all customer accounts. However, less than 5% of billed accounts remain unmetered because meter installation is hindered by unusual circumstances. The goal is to minimize the number of unmetered accounts. Reliable estimates of consumption are obtained for these unmetered accounts via site specific estimation methods.	Conditions between 8 and 10	Water utility policy <u>does</u> require metering and volume based billing for all customer accounts. Less than 2% of billed accounts are unmetered and exist because meter installation is hindered by unusual circumstances. The goal exists to minimize the number of unmetered accounts to the extent that is economical. Reliable estimates of consumption are obtained at these accounts via site specific estimation methods.
Improvements to attain higher data grading for "Billed Unmetered Consumption" component:		<u>to qualify for 2:</u> Conduct research and evaluate cost/benefit of a new water utility policy to require metering of the customer population; thereby greatly reducing or eliminating unmetered accounts. Conduct pilot metering project by installing water meters in small sample of customer accounts and periodically reading the meters or datalogging the water consumption over one, three, or seven day periods.	<u>to qualify for 4:</u> Implement a new water utility policy requiring customer metering. Launch or expand pilot metering study to include several different meter types, which will provide data for economic assessment of full scale metering options. Assess sites with access difficulties to devise means to obtain water consumption volumes. Begin customer meter installation.		<u>to qualify for 6:</u> Refine policy and procedures to improve customer metering participation for all but solidly exempt accounts. Assign staff resources to review billing records to identify errant unmetered properties. Specify metering needs and funding requirements to install sufficient meters to significant reduce the number of unmetered accounts.		<u>to qualify for 8:</u> Push to install customer meters on a full scale basis. Refine metering policy and procedures to ensure that all accounts, including municipal properties, are designated for meters. Plan special efforts to address "hard-to-access" accounts. Implement procedures to obtain a reliable consumption estimate for the remaining few unmetered accounts awaiting meter installation.		<u>to qualify for 10:</u> Continue customer meter installation throughout the service area, with a goal to minimize unmetered accounts. Sustain the effort to investigate accounts with access difficulties, and devise means to install water meters or otherwise measure water consumption.		<u>to maintain 10:</u> Continue to refine estimation methods for unmetered consumption and explore means to establish metering, for as many billed remaining unmetered accounts as is economically feasible.
Unbilled metered:	select n/a if all billing-exempt consumption is unmetered.	Billing practices exempt certain accounts, such as municipal buildings, but written policies do not exist, and a reliable count of unbilled metered accounts is unavailable. Meter upkeep and meter reading on these accounts is rare and not considered a priority. Due to poor recordkeeping and lack of auditing, water consumption for all such accounts is purely guesstimated.	Billing practices exempt certain accounts, such as municipal buildings, but only scattered, dated written directives exist to justify this practice. A reliable count of unbilled metered accounts is unavailable. Sporadic meter replacement and meter reading occurs on an as-needed basis. The total annual water consumption for all unbilled, metered accounts is estimated based upon approximating the number of accounts and assigning consumption from actively billed accounts of same meter size.	Conditions between 2 and 4	Dated written procedures permit billing exemption for specific accounts, such as municipal properties, but are unclear regarding certain other types of accounts. Meter reading is given low priority and is sporadic. Consumption is quantified from meter readings where available. The total number of unbilled, unmetered accounts must be estimated along with consumption volumes.	Conditions between 4 and 6	Written policies regarding billing exemptions exist but adherence in practice is questionable. Metering and meter reading for municipal buildings is reliable but sporadic for other unbilled metered accounts. Periodic auditing of such accounts is conducted. Water consumption is quantified directly from meter readings where available, but the majority of the consumption is estimated.	Conditions between 6 and 8	Written policy identifies the types of accounts granted a billing exemption. Customer meter management and meter reading are considered secondary priorities, but meter reading is conducted at least annually to obtain consumption volumes for the annual water audit. High level auditing of billing records ensures that a reliable census of such accounts exists.	Conditions between 8 and 10	Clearly written policy identifies the types of accounts given a billing exemption, with emphasis on keeping such accounts to a minimum. Customer meter management and meter reading for these accounts is given proper priority and is reliably conducted. Regular auditing confirms this. Total water consumption for these accounts is taken from reliable readings from accurate meters.



Grading >>>	n/a	1	2	3	4	5	6	7	8	9	10
Improvements to attain higher data grading for "Unbilled Metered Consumption" component:		<u>to qualify for 2:</u> Reassess the water utility's policy allowing certain accounts to be granted a billing exemption. Draft an outline of a new written policy for billing exemptions, with clear justification as to why any accounts should be exempt from billing, and with the intention to keep the number of such accounts to a minimum.	<u>to qualify for 4:</u> Review historic written directives and policy documents allowing certain accounts to be billing-exempt. Draft an outline of a written policy for billing exemptions, identify criteria that grants an exemption, with a goal of keeping this number of accounts to a minimum. Consider increasing the priority of reading meters on unbilled accounts at least annually.		<u>to qualify for 6:</u> Draft a new written policy regarding billing exemptions based upon consensus criteria allowing this occurrence. Assign resources to audit meter records and billing records to obtain census of unbilled metered accounts. Gradually include a greater number of these metered accounts to the routes for regular meter reading.		<u>to qualify for 8:</u> Communicate billing exemption policy throughout the organization and implement procedures that ensure proper account management. Conduct inspections of accounts confirmed in unbilled metered status and verify that accurate meters exist and are scheduled for routine meter readings. Gradually increase the number of unbilled metered accounts that are included in regular meter reading routes.		<u>to qualify for 10:</u> Ensure that meter management (meter accuracy testing, meter replacement) and meter reading activities for unbilled accounts are accorded the same priority as billed accounts. Establish ongoing annual auditing process to ensure that water consumption is reliably collected and provided to the annual water audit process.		<u>to maintain 10:</u> Reassess the utility's philosophy in allowing any water uses to go "unbilled". It is possible to meter and bill all accounts, even if the fee charged for water consumption is discounted or waived. Metering and billing all accounts ensures that water consumption is tracked and water waste from plumbing leaks is detected and minimized.
Unbilled unmetered:		Extent of unbilled, unmetered consumption is unknown due to unclear policies and poor recordkeeping. Total consumption is quantified based upon a purely subjective estimate.	Clear extent of unbilled, unmetered consumption is unknown, but a number of events are randomly documented each year, confirming existence of such consumption, but without sufficient documentation to quantify an accurate estimate of the annual volume consumed.	Conditions between 2 and 4.	Extent of unbilled, unmetered consumption is partially known, and procedures exist to document certain events such as miscellaneous fire hydrant uses. Formulae is used to quantify the consumption from such events (time running multiplied by typical flowrate, multiplied by number of events).	Default value of 1.25% of system input volume is employed	Coherent policies exist for some forms of unbilled, unmetered consumption but others await closer evaluation. Reasonable recordkeeping for the managed uses exists and allows for annual volumes to be quantified by inference, but unsupervised uses are guesstimated.	Conditions between 6 and 8	Clear policies and good recordkeeping exist for some uses (ex: water used in periodic testing of unmetered fire connections), but other uses (ex: miscellaneous uses of fire hydrants) have limited oversight. Total consumption is a mix of well quantified use such as from formulae (time running multiplied by typical flow, multiplied by number of events) or temporary meters, and relatively subjective estimates of less regulated use.	Conditions between 8 and 10	Clear policies exist to identify permitted use of water in unbilled, unmetered fashion, with the intention of minimizing this type of consumption. Good records document each occurrence and consumption is quantified via formulae (time running multiplied by typical flow, multiplied by number of events) or use of temporary meters.
Improvements to attain higher data grading for "Unbilled Unmetered Consumption" component:		<u>to qualify for 5:</u> Utilize the accepted default value of 1.25% of the volume of water supplied as an expedient means to gain a reasonable quantification of this use. <u>to qualify for 2:</u> Establish a policy regarding what water uses should be allowed to remain as unbilled and unmetered. Consider tracking a small sample of one such use (ex: fire hydrant flushings).	<u>to qualify for 5:</u> Utilize accepted default value of 1.25% of the volume of water supplied as an expedient means to gain a reasonable quantification of this use. <u>to qualify for 4:</u> Evaluate the documentation of events that have been observed. Meet with user groups (ex: for fire hydrants - fire departments, contractors to ascertain their need and/or volume requirements for water from fire hydrants).		<u>to qualify for 5:</u> Utilize accepted default value of 1.25% of the volume of water supplied as an expedient means to gain a reasonable quantification of all such use. This is particularly appropriate for water utilities who are in the early stages of the water auditing process, and should focus on other components since the volume of unbilled, unmetered consumption is usually a relatively small quality component, and other larger-quality components should take priority.	<u>to qualify for 6 or greater:</u> Finalize policy and begin to conduct field checks to better establish and quantify such usage. Proceed if top-down audit exists and/or a great volume of such use is suspected.	<u>to qualify for 8:</u> Assess water utility policy and procedures for various unmetered usages. For example, ensure that a policy exists and permits are issued for use of fire hydrants by persons outside of the utility. Create written procedures for use and documentation of fire hydrants by water utility personnel. Use same approach for other types of unbilled, unmetered water usage.		<u>to qualify for 10:</u> Refine written procedures to ensure that all uses of unbilled, unmetered water are overseen by a structured permitting process managed by water utility personnel. Reassess policy to determine if some of these uses have value in being converted to billed and/or metered status.		<u>to maintain 10:</u> Continue to refine policy and procedures with intention of reducing the number of allowable uses of water in unbilled and unmetered fashion. Any uses that can feasibly become billed and metered should be converted eventually.
<b>APPARENT LOSSES</b>											
Unauthorized consumption:		Extent of unauthorized consumption is unknown due to unclear policies and poor recordkeeping. Total unauthorized consumption is guesstimated.	Unauthorized consumption is a known occurrence, but its extent is a mystery. There are no requirements to document observed events, but periodic field reports capture some of these occurrences. Total unauthorized consumption is approximated from this limited data.	conditions between 2 and 4	Procedures exist to document some unauthorized consumption such as observed unauthorized fire hydrant openings. Use formulae to quantify this consumption (time running multiplied typical flowrate, multiplied by number of events).	Default value of 0.25% of volume of water supplied is employed	Coherent policies exist for some forms of unauthorized consumption (more than simply fire hydrant misuse) but others await closer evaluation. Reasonable surveillance and recordkeeping exist for occurrences that fall under the policy. Volumes quantified by inference from these records.	Conditions between 6 and 8	Clear policies and good auditable recordkeeping exist for certain events (ex: tampering with water meters, illegal bypasses of customer meters) but other occurrences have limited oversight. Total consumption is a combination of volumes from formulae (time x typical flow) and subjective estimates of unconfirmed consumption.	Conditions between 8 and 10	Clear policies exist to identify all known unauthorized uses of water. Staff and procedures exist to provide enforcement of policies and detect violations. Each occurrence is recorded and quantified via formulae (estimated time running multiplied by typical flow) or similar methods. All records and calculations should exist in a form that can be added by a third party.

Grading >>>	n/a	1	2	3	4	5	6	7	8	9	10
Improvements to attain higher data grading for "Unauthorized Consumption" component:		<p><u>to qualify for 5:</u> Use accepted default of 0.25% of volume of water supplied.</p> <p><u>to qualify for 2:</u> Review utility policy regarding what water uses are considered unauthorized, and consider tracking a small sample of one such occurrence (ex: unauthorized fire hydrant openings)</p>	<p><u>to qualify for 5:</u> Use accepted default of 0.25% of system input volume</p> <p><u>to qualify for 4:</u> Review utility policy regarding what water uses are considered unauthorized, and consider tracking a small sample of one such occurrence (ex: unauthorized fire hydrant openings)</p>		<p><u>to qualify for 5:</u> Utilize accepted default value of 0.25% of volume of water supplied as an expedient means to gain a reasonable quantification of all such use. This is particularly appropriate for water utilities who are in the early stages of the water auditing process.</p>	<p><u>to qualify for 6 or greater:</u> Finalize policy updates to clearly identify the types of water consumption that are authorized from those usages that fall outside of this policy and are, therefore, unauthorized. Begin to conduct regular field checks. Proceed if the top-down audit already exists and/or a great volume of such use is suspected.</p>	<p><u>to qualify for 8:</u> Assess water utility policies to ensure that all known occurrences of unauthorized consumption are outlawed, and that appropriate penalties are prescribed. Create written procedures for detection and documentation of various occurrences of unauthorized consumption as they are uncovered.</p>		<p><u>to qualify for 10:</u> Refine written procedures and assign staff to seek out likely occurrences of unauthorized consumption. Explore new locking devices, monitors and other technologies designed to detect and thwart unauthorized consumption.</p>		<p><u>to maintain 10:</u> Continue to refine policy and procedures to eliminate any loopholes that allow or tacitly encourage unauthorized consumption. Continue to be vigilant in detection, documentation and enforcement efforts.</p>
Customer metering inaccuracies:	select n/a only if the entire customer population is unmetered. In such a case the volume entered must be zero.	Customer meters exist, but with unorganized paper records on meters; no meter accuracy testing or meter replacement program for any size of retail meter. Metering workflow is driven chaotically with no proactive management. Loss volume due to aggregate meter inaccuracy is guesstimated.	Poor recordkeeping and meter oversight is recognized by water utility management who has allotted staff and funding resources to organize improved recordkeeping and start meter accuracy testing. Existing paper records gathered and organized to provide cursory disposition of meter population. Customer meters are tested for accuracy only upon customer request.	Conditions between 2 and 4	Reliable recordkeeping exists; meter information is improving as meters are replaced. Meter accuracy testing is conducted annually for a small number of meters (more than just customer requests, but less than 1% of inventory). A limited number of the oldest meters are replaced each year. Inaccuracy volume is largely an estimate, but refined based upon limited testing data.	Conditions between 4 and 6	A reliable electronic recordkeeping system for meters exists. The meter population includes a mix of new high performing meters and dated meters with suspect accuracy. Routine, but limited, meter accuracy testing and meter replacement occur. Inaccuracy volume is quantified using a mix of reliable and less certain data.	Conditions between 6 and 8	Ongoing meter replacement and accuracy testing result in highly accurate customer meter population. Statistically significant number of meters are tested in audit year. This testing is conducted on samples of meters of varying age and accumulated volume of throughput to determine optimum replacement time for various types of meters.	Ongoing meter replacement and accuracy testing result in highly accurate customer meter population. Statistically significant number of meters are tested in audit year. This testing is conducted on samples of meters of varying age and accumulated volume of throughput to determine optimum replacement time for these meters.	Good records of all active customer meters exist and include as a minimum: meter number, account number/location, type, size and manufacturer. Ongoing meter replacement occurs according to a targeted and justified basis. Regular meter accuracy testing gives a reliable measure of composite inaccuracy volume for the customer meter population. New metering technology is embraced to keep overall accuracy improving. Procedures are reviewed by a third party knowledgeable in the M36 methodology.
Improvements to attain higher data grading for "Customer meter inaccuracy volume" component:	if n/a is selected because the customer meter population is unmetered, consider establishing a new policy to meter the customer population and employ water rates based upon metered volumes.	<u>to qualify for 2:</u> Gather available meter purchase records. Conduct testing on a small number of meters believed to be the most inaccurate. Review staffing needs of the metering group and budget for necessary resources to better organize meter management.	<u>to qualify for 4:</u> Implement a reliable record keeping system for customer meter histories, preferably using electronic methods typically linked to, or part of, the Customer Billing System or Customer Information System. Expand meter accuracy testing to a larger group of meters.		<u>to qualify for 6:</u> Standardize the procedures for meter recordkeeping within an electronic information system. Accelerate meter accuracy testing and meter replacements guided by testing results.		<u>to qualify for 8:</u> Expand annual meter accuracy testing to evaluate a statistically significant number of meter makes/models. Expand meter replacement program to replace statistically significant number of poor performing meters each year.		<u>to qualify for 9:</u> Continue efforts to manage meter population with reliable recordkeeping. Test a statistically significant number of meters each year and analyze test results in an ongoing manner to serve as a basis for a target meter replacement strategy based upon accumulated volume throughput.	<u>to qualify for 10:</u> Continue efforts to manage meter population with reliable recordkeeping, meter testing and replacement. Evaluate new meter types and install one or more types in 5-10 customer accounts each year in order to pilot improving metering technology.	<u>to maintain 10:</u> increase the number of meters tested and replaced as justified by meter accuracy test data. Continually monitor development of new metering technology and Advanced Metering Infrastructure (AMI) to grasp opportunities for greater accuracy in metering of water flow and management of customer consumption data.
Systematic Data Handling Errors:	Note: all water utilities incur some amount of this error. Even in water utilities with unmetered customer populations and fixed rate billing, errors occur in annual billing tabulations. Enter a positive value for the volume and select a grading.	Policies and procedures for activation of new customer water billing accounts are vague and lack accountability. Billing data is maintained on paper records which are not well organized. No auditing is conducted to confirm billing data handling efficiency. An unknown number of customers escape routine billing due to lack of billing process oversight.	Policy and procedures for activation of new customer accounts and oversight of billing records exist but need refinement. Billing data is maintained on paper records or insufficiently capable electronic databases. Only periodic, unstructured auditing work is conducted to confirm billing data handling efficiency. The volume of unbilled water due to billing lapses is a guess.	Conditions between 2 and 4	Policy and procedures for new account activation and oversight of billing operations exist but needs refinement. Computerized billing system exists, but is dated or lacks needed functionality. Periodic, limited internal audits conducted and confirm with approximate accuracy the consumption volumes lost to billing lapses.	Conditions between 4 and 6	Policy and procedures for new account activation and oversight of billing operations is adequate and reviewed periodically. Computerized billing system is in use with basic reporting available. Any effect of billing adjustments on measured consumption volumes is well understood. Internal checks of billing data error conducted annually. Reasonably accurate quantification of consumption volume lost to billing lapses is obtained.	Conditions between 6 and 8	New account activation and billing operations policy and procedures are reviewed at least biannually. Computerized billing system includes an array of reports to confirm billing data and system functionality. Checks are conducted routinely to flag and explain zero consumption accounts. Annual internal checks conducted with third party audit conducted at least once every five years. Accountability checks flag billing lapses. Consumption lost to billing lapses is well quantified and reducing year-by-year.	Conditions between 8 and 10	Sound written policy and procedures exist for new account activation and oversight of customer billing operations. Robust computerized billing system gives high functionality and reporting capabilities which are utilized, analyzed and the results reported each billing cycle. Assessment of policy and data handling errors are conducted internally and audited by third party at least once every three years, ensuring consumption lost to billing lapses is minimized and detected as it occurs.

Grading >>>	n/a	1	2	3	4	5	6	7	8	9	10
Improvements to attain higher data grading for "Systematic Data Handling Error Volume" component:		<i>to qualify for 2:</i> Draft written policy and procedures for activating new water billing accounts and oversight of billing operations. Investigate and budget for computerized customer billing system. Conduct initial audit of billing records by flow-charting the basic business processes of the customer account/billing function.	<i>to qualify for 4:</i> Finalize written policy and procedures for activation of new billing accounts and overall billing operations management. Implement a computerized customer billing system. Conduct initial audit of billing records as part of this process.		<i>to qualify for 6:</i> Refine new account activation and billing operations procedures and ensure consistency with the utility policy regarding billing, and minimize opportunity for missed billings. Upgrade or replace customer billing system for needed functionality – ensure that billing adjustments don't corrupt the value of consumption volumes. Procedureize internal annual audit process.		<i>to qualify for 8:</i> Formalize regular review of new account activation process and general billing practices. Enhance reporting capability of computerized billing system. Formalize regular auditing process to reveal scope of data handling error. Plan for periodic third party audit to occur at least once every five years.		<i>to qualify for 10:</i> Close policy/procedure loopholes that allow some customer accounts to go unbilled, or data handling errors to exist. Ensure that billing system reports are utilized, analyzed and reported every billing cycle. Ensure that internal and third party audits are conducted at least once every three years.		<i>to maintain 10:</i> Stay abreast of customer information management developments and innovations. Monitor developments of Advanced Metering Infrastructure (AMI) and integrate technology to ensure that customer endpoint information is well-monitored and errors/flashes are at an economic minimum.
<b>SYSTEM DATA</b>											
Length of mains:		Poorly assembled and maintained paper as-built records of existing water main installations makes accurate determination of system pipe length impossible. Length of mains is guesstimated.	Paper records in poor or uncertain condition (no annual tracking of installations & abandonments). Poor procedures to ensure that new water mains installed by developers are accurately documented.	Conditions between 2 and 4	Sound written policy and procedures exist for documenting new water main installations, but gaps in management result in a uncertain degree of error in tabulation of mains length.	Conditions between 4 and 6	Sound written policy and procedures exist for permitting and commissioning new water mains. Highly accurate paper records with regular field validation; or electronic records and asset management system in good condition. Includes system backup.	Conditions between 6 and 8	Sound written policy and procedures exist for permitting and commissioning new water mains. Electronic recordkeeping such as a Geographical Information System (GIS) and asset management system are used to store and manage data.	Conditions between 8 and 10	Sound written policy exists for managing water mains extensions and replacements. Geographic Information System (GIS) data and asset management database agree and random field validation proves truth of databases. Records of annual field validation should be available for review.
Improvements to attain higher data grading for "Length of Water Mains" component:		<i>to qualify for 2:</i> Assign personnel to inventory current as-built records and compare with customer billing system records and highway plans in order to verify poorly documented pipelines. Assemble policy documents regarding permitting and documentation of water main installations by the utility and building developers; identify gaps in procedures that result in poor documentation of new water main installations.	<i>to qualify for 4:</i> Complete inventory of paper records of water main installations for several years prior to audit year. Review policy and procedures for commissioning and documenting new water main installation.		<i>to qualify for 6:</i> Finalize updates/improvements to written policy and procedures for permitting/commissioning new main installations. Confirm inventory of records for five years prior to audit year, correct any errors or omissions.		<i>to qualify for 8:</i> Launch random field checks of limited number of locations. Convert to electronic database such as a Geographic Information System (GIS) with backup as justified. Develop written policy and procedures.		<i>to qualify for 10:</i> Link Geographic Information System (GIS) and asset management databases, conduct field verification of data. Record field verification information at least annually.		<i>to maintain 10:</i> Continue with standardization and random field validation to improve the completeness and accuracy of the system.
Number of active AND inactive service connections:		Vague permitting (of new service connections) policy and poor paper recordkeeping of customer connections/billings result in suspect determination of the number of service connections, which may be 10-15% in error from actual count.	General permitting policy exists but paper records, procedural gaps, and weak oversight result in questionable total for number of connections, which may vary 5-10% of actual count.	Conditions between 2 and 4	Written account activation policy and procedures exist, but with some gaps in performance and oversight. Computerized information management system is being brought online to replace dated paper recordkeeping system. Reasonably accurate tracking of service connection installations & abandonments; but count can be up to 5% in error from actual total.	Conditions between 4 and 6	Written new account activation and overall billing policies and procedures are adequate and reviewed periodically. Computerized information management system is in use with annual installations & abandonments totaled. Very limited field verifications and audits. Error in count of number of service connections is believed to be no more than 3%.	Conditions between 6 and 8	Policies and procedures for new account activation and overall billing operations are written, well-structured and reviewed at least biannually. Well managed computerized information management system exists and routine, periodic field checks and internal system audits are conducted. Counts of connections are no more than 2% in error.	Conditions between 8 and 10	Sound written policy and well managed and audited procedures ensure reliable management of service connection population. Computerized information management system, Customer Billing System, and Geographic Information System (GIS) information agree; field validation proves truth of databases. Count of connections recorded as being in error is less than 1% of the entire population.
Improvements to attain higher data grading for "Number of Active and Inactive Service Connections" component:	Note: The number of Service Connections does not include fire hydrant leads/lines connecting the hydrant to the water main	<i>to qualify for 2:</i> Draft new policy and procedures for new account activation and overall billing operations. Research and collect paper records of installations & abandonments for several years prior to audit year.	<i>to qualify for 4:</i> Refine policy and procedures for new account activation and overall billing operations. Research computerized recordkeeping system (Customer Information System or Customer Billing System) to improve documentation format for service connections.		<i>to qualify for 6:</i> Refine procedures to ensure consistency with new account activation and overall billing policy to establish new service connections or decommission existing connections. Improve process to include all totals for at least five years prior to audit year.		<i>to qualify for 8:</i> Formalize regular review of new account activation and overall billing operations policies and procedures. Launch random field checks of limited number of locations. Develop reports and auditing mechanisms for computerized information management system.		<i>to qualify for 10:</i> Close any procedural loopholes that allow installations to go undocumented. Link computerized information management system with Geographic Information System (GIS) and formalize field inspection and information system auditing processes. Documentation of new or decommissioned service connections encounters several levels of checks and balances.		<i>to maintain 10:</i> Continue with standardization and random field validation to improve knowledge of system.
	Note: If customer water	Gradings 1-9 apply if customer properties are unmetered, if customer meters exist and are located inside the customer building premises, or if the water utility owns and is responsible for the entire service connection piping from the water main to the customer building. In any of these cases the average distance between the curb stop or boundary separating utility/customer responsibility for service connection piping, and the typical first point of use (ex: faucet) or the customer meter must be quantified. Gradings of 1-9 are used to grade the validity of the means to quantify this value. (See the "Service Connection Diagram" worksheet)									Either of two conditions can be met for a grading of 10

Grading >>>	n/a	1	2	3	4	5	6	7	8	9	10
Average length of customer service line:	meters are located outside of the customer building next to the curb stop or boundary separating utility/customer responsibility, then the auditor should answer "Yes" to the question on the Reporting Worksheet asking about this. If the answer is Yes, the grading description listed under the Grading of 10(a) will be followed, with a value of zero automatically entered at a Grading of 10. See the Service Connection Diagram worksheet for a visual presentation of this distance.	Vague policy exists to define the delineation of water utility ownership and customer ownership of the service connection piping. Curb stops are perceived as the breakpoint but these have not been well-maintained or documented. Most are buried or obscured. Their location varies widely from site-to-site, and estimating this distance is arbitrary due to the unknown location of many curb stops.	Policy requires that the curb stop serves as the delineation point between water utility ownership and customer ownership of the service connection piping. The piping from the water main to the curb stop is the property of the water utility, and the piping from the curb stop to the customer building is owned by the customer. Curb stop locations are not well documented and the average distance is based upon a limited number of locations measured in the field.	Conditions between 2 and 4	Good policy requires that the curb stop serves as the delineation point between water utility ownership and customer ownership of the service connection piping. Curb stops are generally installed as needed and are reasonably documented. Their location varies widely from site-to-site, and an estimate of this distance is hindered by the availability of paper records of limited accuracy.	Conditions between 4 and 6	Clear written policy exists to define utility/customer responsibility for service connection piping. Accurate, well-maintained paper or basic electronic recordkeeping system exists. Periodic field checks confirm piping lengths for a sample of customer properties.	Conditions between 6 and 8	Clearly worded policy standardizes the location of curb stops and meters, which are inspected upon installation. Accurate and well maintained electronic records exist with periodic field checks to confirm locations of service lines, curb stops and customer meter pits. An accurate number of customer properties from the customer billing system allows for reliable averaging of this length.	Conditions between 8 and 10	a) Customer water meters exist outside of customer buildings next to the curb stop or boundary separating utility/customer responsibility for service connection piping. If so, answer "Yes" to the question on the Reporting Worksheet asking about this condition. A value of zero and a Grading of 10 are automatically entered in the Reporting Worksheet. b) Meters exist inside customer buildings, or properties are unmetered. In either case, answer "No" to the Reporting Worksheet question on meter location, and enter a distance determined by the auditor. For a Grading of 10 this value must be a very reliable number from a Geographic Information System (GIS) and confirmed by a statistically valid number of field checks.
Improvements to attain higher data grading for "Average Length of Customer Service Line" component		<u>to qualify for 2:</u> Research and collect paper records of service line installations. Inspect several sites in the field using pipe locators to locate curb stops. Obtain the length of this small sample of connections in this manner.	<u>to qualify for 4:</u> Formalize and communicate policy delineating utility/customer responsibilities for service connection piping. Assess accuracy of paper records by field inspection of a small sample of service connections using pipe locators as needed. Research the potential migration to a computerized information management system to store service connection data.		<u>to qualify for 6:</u> Establish coherent procedures to ensure that policy for curb stop, meter installation and documentation is followed. Gain consensus within the water utility for the establishment of a computerized information management system.		<u>to qualify for 8:</u> Implement an electronic means of recordkeeping, typically via a customer information system, customer billing system, or Geographic Information System (GIS). Standardize the process to conduct field checks of a limited number of locations.		<u>to qualify for 10:</u> Link customer information management system and Geographic Information System (GIS), standardize process for field verification of data.		<u>to maintain 10:</u> Continue with standardization and random field validation to improve knowledge of service connection configurations and customer meter locations.
Average operating pressure:		Available records are poorly assembled and maintained paper records of supply pump characteristics and water distribution system operating conditions. Average pressure is guesstimated based upon this information and ground elevations from crude topographical maps. Widely varying distribution system pressures due to undulating terrain, high system head loss and weak/erratic pressure controls further compromise the validity of the average pressure calculation.	Limited telemetry monitoring of scattered pumping station and water storage tank sites provides some static pressure data, which is recorded in handwritten logbooks. Pressure data is gathered at individual sites only when low pressure complaints arise. Average pressure is determined by averaging; relatively crude data, and is affected by significant variation in ground elevations, system head loss and gaps in pressure controls in the distribution system.	Conditions between 2 and 4	Effective pressure controls separate different pressure zones; moderate pressure variation across the system, occasional open boundary valves are discovered that breach pressure zones. Basic telemetry monitoring of the distribution system logs pressure data electronically. Pressure data gathered by gauges or dataloggers at fire hydrants or buildings when low pressure complaints arise, and during fire flow tests and system flushing. Reliable topographical data exists. Average pressure is calculated using this mix of data.	Conditions between 4 and 6	Reliable pressure controls separate distinct pressure zones; only very occasional open boundary valves are encountered that breach pressure zones. Well-covered telemetry monitoring of the distribution system (not just pumping at source treatment plants or wells) logs extensive pressure data electronically. Pressure gathered by gauges/dataloggers at fire hydrants and buildings when low pressure complaints arise, and during fire flow tests and system flushing. Average pressure is determined by using this mix of reliable data.	Conditions between 6 and 8	Well-managed, discrete pressure zones exist with generally predictable pressure fluctuations. A current full-scale SCADA System or similar realtime monitoring system exists to monitor the water distribution system and collect data, including real time pressure readings at representative sites across the system. The average system pressure is determined from reliable monitoring system data.	Conditions between 8 and 10	Well-managed pressure districts/zones, SCADA System and hydraulic model exist to give very precise pressure data across the water distribution system. Average system pressure is reliably calculated from extensive, reliable, and cross-checked data. Calculations are reported on an annual basis as a minimum.
Improvements to attain higher data grading for "Average Operating Pressure" component:		<u>to qualify for 2:</u> Employ pressure gauging and/or datalogging equipment to obtain pressure measurements from fire hydrants. Locate accurate topographical maps of service area in order to confirm ground elevations. Research pump data sheets to find pump pressure/flow characteristics	<u>to qualify for 4:</u> Formalize a procedure to use pressure gauging/datalogging equipment to gather pressure data during various system events such as low pressure complaints, or operational testing. Gather pump pressure and flow data at different flow regimes. Identify faulty pressure controls (pressure reducing valves, altitude valves, partially open boundary valves) and plan to properly configure pressure zones. Make all pressure data from these efforts available to generate system-wide average pressure.		<u>to qualify for 6:</u> Expand the use of pressure gauging/datalogging equipment to gather scattered pressure data at a representative set of sites, based upon pressure zones or areas. Utilize pump pressure and flow data to determine supply head entering each pressure zone or district. Correct any faulty pressure controls (pressure reducing valves, altitude valves, partially open boundary valves) to ensure properly configured pressure zones. Use expanded pressure dataset from these activities to generate system-wide average pressure.		<u>to qualify for 8:</u> Install a Supervisory Control and Data Acquisition (SCADA) System, or similar realtime monitoring system, to monitor system parameters and control operations. Set regular calibration schedule for instrumentation to insure data accuracy. Obtain accurate topographical data and utilize pressure data gathered from field surveys to provide extensive, reliable data for pressure averaging.		<u>to qualify for 10:</u> Annually, obtain a system-wide average pressure value from the hydraulic model of the distribution system that has been calibrated via field measurements in the water distribution system and confirmed in comparisons with SCADA System data		<u>to maintain 10:</u> Continue to refine the hydraulic model of the distribution system and consider linking it with SCADA System for realtime pressure data calibration, and averaging.

Grading >>>	n/a	1	2	3	4	5	6	7	8	9	10
<b>COST DATA</b>											
Total annual cost of operating water system:		Incomplete paper records and lack of financial accounting documentation on many operating functions makes calculation of water system operating costs a pure guesstimate	Reasonably maintained, but incomplete, paper or electronic accounting provides data to estimate the major portion of water system operating costs.	Conditions between 2 and 4	Electronic, industry-standard cost accounting system in place. However, gaps in data are known to exist, periodic internal reviews are conducted but not a structured financial audit.	Conditions between 4 and 6	Reliable electronic, industry-standard cost accounting system in place, with all pertinent water system operating costs tracked. Data audited periodically by utility personnel, but not a Certified Public Accountant (CPA).	Conditions between 6 and 8	Reliable electronic, industry-standard cost accounting system in place, with all pertinent water system operating costs tracked. Data audited at least annually by utility personnel, and at least once every three years by third-party CPA.	Conditions between 8 and 10	Reliable electronic, industry-standard cost accounting system in place, with all pertinent water system operating costs tracked. Data audited annually by utility personnel and annually also by third-party CPA.
Improvements to attain higher data grading for "Total Annual Cost of Operating the Water System" component:		<u>to qualify for 2:</u> Gather available records, institute new financial accounting procedures to regularly collect and audit basic cost data of most important operations functions.	<u>to qualify for 4:</u> Implement an electronic cost accounting system, structured according to accounting standards for water utilities		<u>to qualify for 6:</u> Establish process for periodic internal audit of water system operating costs; identify cost data gaps and institute procedures for tracking these outstanding costs.		<u>to qualify for 8:</u> Standardize the process to conduct routine financial audit on an annual basis. Arrange for CPA audit of financial records at least once every three years.		<u>to qualify for 10:</u> Standardize the process to conduct a third-party financial audit by a CPA on an annual basis.		<u>to maintain 10:</u> Maintain program, stay abreast of expenses subject to erratic cost changes and long-term cost trend, and budget/track costs proactively
Customer retail unit cost (applied to Apparent Losses):	Customer population unmetered, and/or only a fixed fee is charged for consumption.	Antiquated, cumbersome water rate structure is used, with periodic historic amendments that were poorly documented and implemented; resulting in classes of customers being billed inconsistent charges. The actual composite billing rate likely differs significantly from the published water rate structure, but a lack of auditing leaves the degree of error indeterminate.	Dated, cumbersome water rate structure, not always employed consistently in actual billing operations. The actual composite billing rate is known to differ from the published water rate structure, and a reasonably accurate estimate of the degree of error is determined, allowing a composite billing rate to be quantified.	Conditions between 2 and 4	Straight-forward water rate structure in use, but not updated in several years. Billing operations reliably employ the rate structure. The composite billing rate is derived from a single customer class such as residential customer accounts, neglecting the effect of different rates from varying customer classes.	Conditions between 4 and 6	Clearly written, up-to-date water rate structure is in force and is applied reliably in billing operations. Composite customer rate is determined using a weighted average residential rate using volumes of water in each rate block.	Conditions between 6 and 8	Effective water rate structure is in force and is applied reliably in billing operations. Composite customer rate is determined using a weighted average composite consumption rate, which includes residential, commercial, industrial, institutional (CII), and any other distinct customer classes within the water rate structure.	Conditions between 8 and 10	Current, effective water rate structure is in force and applied reliably in billing operations. The rate structure and calculations of composite rate - which includes residential, commercial, industrial, institutional (CII), and other distinct customer classes - are reviewed by a third party knowledgeable in the M36 methodology at least once every five years.
Improvements to attain higher data grading for "Customer Retail Unit Cost" component:		<u>to qualify for 2:</u> Formalize the process to implement water rates, including a secure documentation procedure. Create a current, formal water rate document and gain approval from all stakeholders.	<u>to qualify for 4:</u> Review the water rate structure and update/formalize as needed. Assess billing operations to ensure that actual billing operations incorporate the established water rate structure.		<u>to qualify for 6:</u> Evaluate volume of water used in each usage block by residential users. Multiply volumes by full rate structure.	<u>Launch effort to fully meter the customer population and charge rates based upon water volumes</u>	<u>to qualify for 8:</u> Evaluate volume of water used in each usage block by all classifications of users. Multiply volumes by full rate structure.		<u>to qualify for 10:</u> Conduct a periodic third-party audit of water used in each usage block by all classifications of users. Multiply volumes by full rate structure.		<u>to maintain 10:</u> Keep water rate structure current in addressing the water utility's revenue needs. Update the calculation of the customer unit rate as new rate components, customer classes, or other components are modified.
Variable production cost (applied to Real Losses):	Note: If the water utility purchases/imports its entire water supply, then enter the unit purchase cost of the bulk water supply in the Reporting Worksheet with a grading of 10	Incomplete paper records and lack of documentation on primary operating functions (electric power and treatment costs most importantly) makes calculation of variable production costs a pure guesstimate	Reasonably maintained, but incomplete, paper or electronic accounting provides data to roughly estimate the basic operations costs (pumping power costs and treatment costs) and calculate a unit variable production cost.	Conditions between 2 and 4	Electronic, industry-standard cost accounting system in place. Electric power and treatment costs are reliably tracked and allow accurate weighted calculation of unit variable production costs based on these two inputs and water imported purchase costs (if applicable). All costs are audited internally on a periodic basis.	Conditions between 4 and 6	Reliable electronic, industry-standard cost accounting system in place, with all pertinent water system operating costs tracked. Pertinent additional costs beyond power, treatment and water imported purchase costs (if applicable) such as liability, residuals management, wear and tear on equipment, impending expansion of supply, are included in the unit variable production cost, as applicable. The data is audited at least annually by utility personnel.	Conditions between 6 and 8	Reliable electronic, industry-standard cost accounting system in place, with all pertinent primary and secondary variable production and water imported purchase (if applicable) costs tracked. The data is audited at least annually by utility personnel, and at least once every three years by a third-party knowledgeable in the M36 methodology.	Conditions between 8 and 10	Either of two conditions can be met to obtain a grading of 10: 1) Third party CPA audit of all pertinent primary and secondary variable production and water imported purchase (if applicable) costs on an annual basis; or; 2) Water supply is entirely purchased as bulk imported water, and unit purchase cost serves as the variable production cost.
Improvements to attain higher data grading for "Variable Production Cost" component:		<u>to qualify for 2:</u> Gather available records, institute new procedures to regularly collect and audit basic cost data and most important operations functions.	<u>to qualify for 4:</u> Implement an electronic cost accounting system, structured according to accounting standards for water utilities		<u>to qualify for 6:</u> Formalize process for regular internal audits of production costs. Assess whether additional costs (liability, residuals management, equipment wear, impending infrastructure expansion) should be included to calculate a more representative variable production cost.		<u>to qualify for 8:</u> Formalize the accounting process to include direct cost components (power, treatment) as well as indirect cost components (liability, residuals management, etc.). Arrange to conduct audits by a knowledgeable third-party at least once every three years.		<u>to qualify for 10:</u> Standardize the process to conduct a third-party financial audit by a CPA on an annual basis.		<u>to maintain 10:</u> Maintain program, stay abreast of expenses subject to erratic cost changes and budget/track costs proactively

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# AWWA Free Water Audit Software: Customer Service Line Diagrams

WAS v5.0

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## Average Length of Customer Service Line

The three figures shown on this worksheet display the assignment of the Average Length of Customer Service Line,  $L_p$ , for the three most common piping configurations.

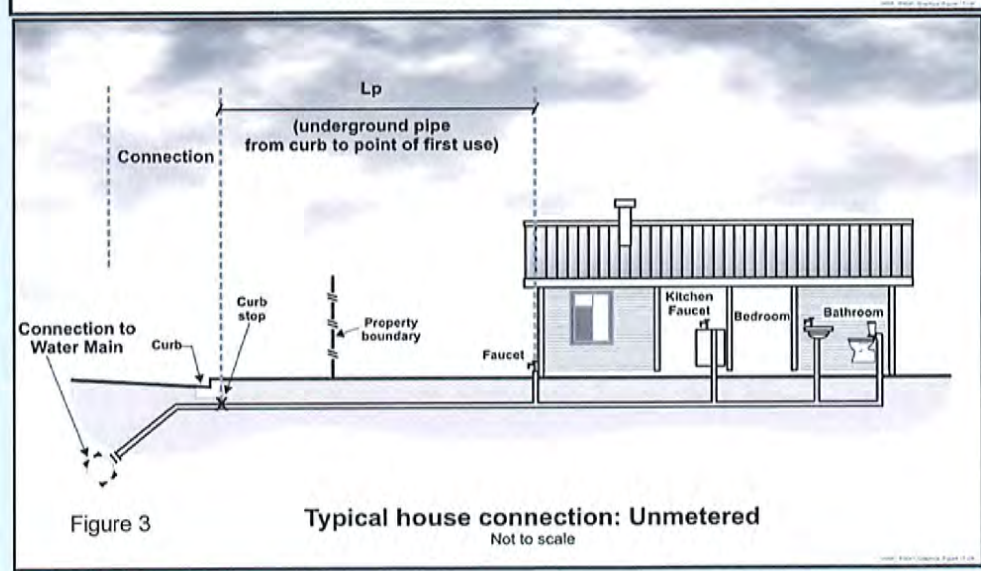
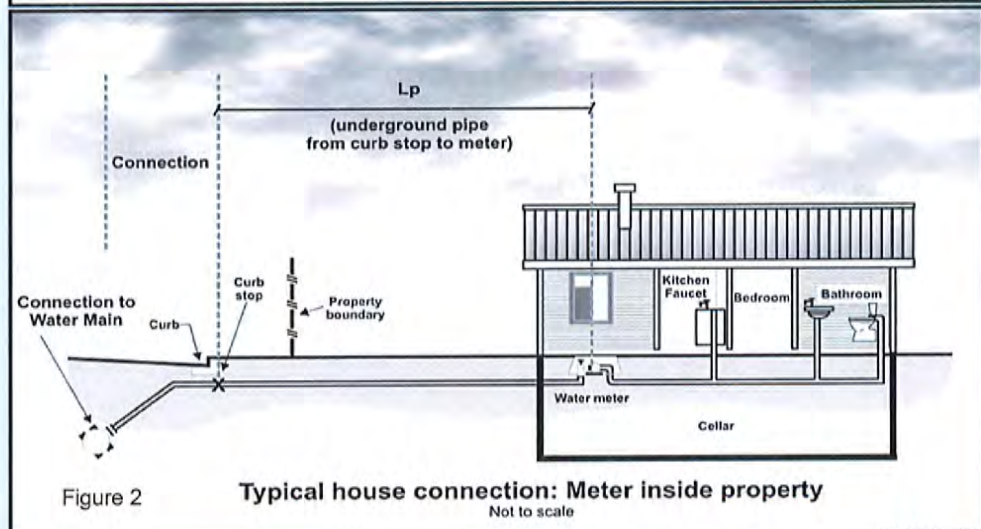
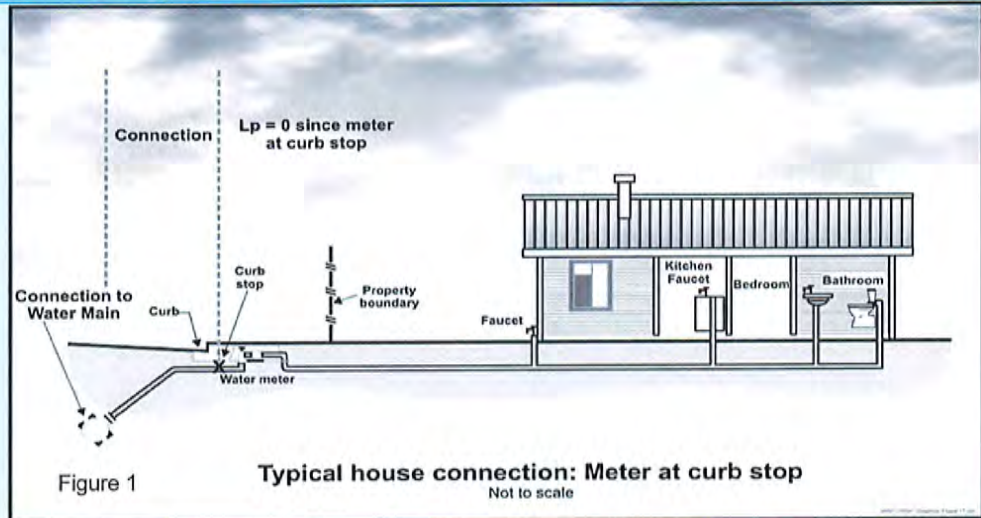
**Figure 1** shows the configuration of the water meter outside of the customer building next to the curb stop valve. In this configuration  $L_p = 0$  since the distance between the curb stop and the customer metering point is essentially zero.

**Figure 2** shows the configuration of the customer water meter located inside the customer building, where  $L_p$  is the distance from the curb stop to the water meter.

**Figure 3** shows the configuration of an unmetred customer building, where  $L_p$  is the distance from the curb stop to the first point of customer water consumption, or, more simply, the building line.

In any water system the  $L_p$  will vary notably in a community of different structures, therefore the average  $L_p$  value is used and this should be approximated or calculated if a sample of service line measurements has been gathered.

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AWWA Free Water Audit Software:  
Definitions

WAS v5.0

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Item Name	Description
<p><b>Apparent Losses</b></p> <p>Find</p>	<p>= unauthorized consumption + customer metering inaccuracies + systematic data handling errors</p> <p>Apparent Losses include all types of inaccuracies associated with customer metering (worn meters as well as improperly sized meters or wrong type of meter for the water usage profile) as well as systematic data handling errors (meter reading, billing, archiving and reporting), plus unauthorized consumption (theft or illegal use).</p> <p>NOTE: Over-estimation of Apparent Losses results in under-estimation of Real Losses. Under-estimation of Apparent Losses results in over-estimation of Real Losses.</p>
<p><b>AUTHORIZED CONSUMPTION</b></p> <p>Find</p>	<p>= billed water exported + billed metered + billed unmetered + unbilled metered + unbilled unmetered consumption</p> <p>The volume of metered and/or unmetered water taken by registered customers, the water utility's own uses, and uses of others who are implicitly or explicitly authorized to do so by the water utility; for residential, commercial, industrial and public-minded purposes.</p> <p>Typical retail customers' consumption is tabulated usually from established customer accounts as billed metered consumption, or - for unmetered customers - billed unmetered consumption. These types of consumption, along with billed water exported, provide revenue potential for the water utility. <b>Be certain to tabulate the water exported volume as a separate component and do not "double-count" it by including in the billed metered consumption component as well as the water exported component.</b></p> <p>Unbilled authorized consumption occurs typically in non-account uses, including water for fire fighting and training, flushing of water mains and sewers, street cleaning, watering of municipal gardens, public fountains, or similar public-minded uses. Occasionally these uses may be metered and billed (or charged a flat fee), but usually they are unmetered and unbilled. In the latter case, the water auditor may use a default value to estimate this quantity, or implement procedures for the reliable quantification of these uses. This starts with documenting usage events as they occur and estimating the amount of water used in each event. (See Unbilled unmetered consumption)</p>
<p>View Service Connection Diagram</p> <p><b>Average length of customer service line</b></p> <p>Find</p>	<p>This is the average length of customer service line, Lp, that is owned and maintained by the customer; from the point of ownership transfer to the customer water meter, or building line (if unmetered). The quantity is one of the data inputs for the calculation of Unavoidable Annual Real Losses (UARL), which serves as the denominator of the performance indicator: Infrastructure Leakage Index (ILI). The value of Lp is multiplied by the number of customer service connections to obtain a total length of customer owned piping in the system. The purpose of this parameter is to account for the unmetered service line infrastructure that is the responsibility of the customer for arranging repairs of leaks that occur on their lines. In many cases leak repairs arranged by customers take longer to be executed than leak repairs arranged by the water utility on utility-maintained piping. Leaks run longer - and lose more water - on customer-owned service piping, than utility owned piping.</p> <p>If the customer water meter exists near the ownership transfer point (usually the curb stop located between the water main and the customer premises) this distance is zero because the meter and transfer point are the same. This is the often encountered configuration of customer water meters located in an underground meter box or "pit" outside of the customer's building. The Free Water Audit Software asks a "Yes/No" question about the meter at this location. If the auditor selects "Yes" then this distance is set to zero and the data grading score for this component is set to 10.</p> <p>If water meters are typically located inside the customer premise/building, or properties are unmetered, it is up to the water auditor to estimate a system-wide average Lp length based upon the various customer land parcel sizes and building locations in the service area. Lp will be a shorter length in areas of high density housing, and a longer length in areas of low density housing and varied commercial and industrial buildings. General parcel demographics should be employed to obtain a composite average Lp length for the entire system.</p> <p>Refer to the "Service Connection Diagram" worksheet for a depiction of the service line/metering configurations that typically exist in water utilities. This worksheet gives guidance on the determination of the Average Length, Lp, for each configuration.</p>
<p><b>Average operating pressure</b></p> <p>Find</p>	<p>This is the average pressure in the distribution system that is the subject of the water audit. Many water utilities have a calibrated hydraulic model of their water distribution system. For these utilities, the hydraulic model can be utilized to obtain a very accurate quantity of average pressure. In the absence of a hydraulic model, the average pressure may be approximated by obtaining readings of static water pressure from a representative sample of fire hydrants or other system access points evenly located across the system. A weighted average of the pressure can be assembled; but be sure to take into account the elevation of the fire hydrants, which typically exist several feet higher than the level of buried water pipelines. If the water utility is compiling the water audit for the first time, the average pressure can be approximated, but with a low data grading. In subsequent years of auditing, effort should be made to improve the accuracy of the average pressure quantity. This will then qualify the value for a higher data grading.</p>
<p><b>Billed Authorized Consumption</b></p>	<p>All consumption that is billed and authorized by the utility. This may include both metered and unmetered consumption. See "Authorized Consumption" for more information.</p>
<p><b>Billed metered consumption</b></p> <p>Find</p>	<p>All metered consumption which is billed to retail customers, including all groups of customers such as domestic, commercial, industrial or institutional. <b>It does NOT include water supplied to neighboring utilities (water exported) which is metered and billed. Be sure to subtract any consumption for exported water sales that may be included in these billing roles. Water supplied as exports to neighboring water utilities should be included only in the Water Exported component.</b> The metered consumption data can be taken directly from billing records for the water audit period. The accuracy of yearly metered consumption data can be refined by including an adjustment to account for customer meter reading lag time since not all customer meters are read on the same day of the meter reading period. However additional analysis is necessary to determine the lag time adjustment value, which may or may not be significant.</p>
<p><b>Billed unmetered consumption</b></p> <p>Find</p>	<p>All billed consumption which is calculated based on estimates or norms from water usage sites that have been determined by utility policy to be left unmetered. This is typically a very small component in systems that maintain a policy to meter their customer population. However, this quantity can be the key consumption component in utilities that have not adopted a universal metering policy. <b>This component should NOT include any water that is supplied to neighboring utilities (water exported) which is unmetered but billed. Water supplied as exports to neighboring water utilities should be included only in the Water Exported component.</b></p>

Item Name	Description
<p><b>Customer metering inaccuracies</b></p> <p><a href="#">Find</a></p>	<p>Apparent water losses caused by the collective under-registration of customer water meters. Many customer water meters gradually wear as large cumulative volumes of water are passed through them over time. This causes the meters to under-register the flow of water. This occurrence is common with smaller residential meters of sizes 5/8-inch and 3/4 inch after they have registered very large cumulative volumes of water, which generally occurs only after periods of years. For meters sized 1-inch and larger - typical of multi-unit residential, commercial and industrial accounts - meter under-registration can occur from wear or from the improper application of the meter; i.e. installing the wrong type of meter or the wrong size of meter, for the flow pattern (profile) of the consumer. For instance, many larger meters have reduced accuracy at low flows. If an oversized meter is installed, most of the time the routine flow will occur in the low flow range of the meter, and a significant portion of it may not be registered. It is important to properly select and install all meters, but particularly large customer meters, size 1-inch and larger.</p> <p>The auditor has two options for entering data for this component of the audit. The auditor can enter a percentage under-registration (typically an estimated value), this will apply the selected percentage to the two categories of metered consumption to determine the volume of water not recorded due to customer meter inaccuracy. Note that this percentage is a composite average inaccuracy for <u>all</u> customer meters in the entire meter population. The percentage will be multiplied by the sum of the volumes in the Billed Metered and Unbilled Metered components. Alternatively, if the auditor has substantial data from meter testing activities, he or she can calculate their own loss volumes, and this volume may be entered directly.</p> <p>Note that a value of zero will be accepted but an alert will appear asking if the customer population is unmetered. Since all metered systems have some degree of inaccuracy, a positive value should be entered. A value of zero in this component is valid only if the water utility does not meter its customer population.</p>
<p><b>Customer retail unit cost</b></p> <p><a href="#">Find</a></p>	<p>The Customer Retail Unit Cost represents the charge that customers pay for water service. This unit cost is applied routinely to the components of Apparent Loss, since these losses represent water reaching customers but not (fully) paid for. Since most water utilities have a rate structure that includes a variety of different costs based upon class of customer, a weighted average of individual costs and number of customer accounts in each class can be calculated to determine a single composite cost that should be entered into this cell. Finally, the weighted average cost should also include additional charges for sewer, storm water or biosolids processing, <u>but only if</u> these charges are based upon the volume of potable water consumed.</p> <p>For water utilities in regions with limited water resources and a questionable ability to meet the drinking water demands in the future, the Customer Retail Unit Cost might also be applied to value the Real Losses; instead of applying the Variable Production Cost to Real Losses. In this way, it is assumed that every unit volume of leakage reduced by leakage management activities will be sold to a customer.</p> <p>Note: the Free Water Audit Software allows the user to select the units that are charged to customers (either \$/1,000 gallons, \$/hundred cubic feet, or \$/1,000 litres) and automatically converts these units to the units that appear in the "WATER SUPPLIED" box. The monetary units are United States dollars, \$.</p>
<p><b>Infrastructure Leakage Index (ILI)</b></p> <p><a href="#">Find</a></p>	<p>The ratio of the Current Annual Real Losses (Real Losses) to the Unavoidable Annual Real Losses (UARL). The ILI is a highly effective performance indicator for comparing (benchmarking) the performance of utilities in operational management of real losses.</p>
<p><b>Length of mains</b></p> <p><a href="#">Find</a></p>	<p>Length of all pipelines (except service connections) in the system starting from the point of system input metering (for example at the outlet of the treatment plant). It is also recommended to include in this measure the total length of fire hydrant lead pipe. Hydrant lead pipe is the pipe branching from the water main to the fire hydrant. Fire hydrant leads are typically of a sufficiently large size that is more representative of a pipeline than a service connection. The average length of hydrant leads across the entire system can be assumed if not known, and multiplied by the number of fire hydrants in the system, which can also be assumed if not known. This value can then be added to the total pipeline length. Total length of mains can therefore be calculated as:</p> <p>Length of Mains, miles = (total pipeline length, miles) + [ {(average fire hydrant lead length, ft) x (number of fire hydrants)} / 5,280 ft/mile ] or Length of Mains, kilometres = (total pipeline length, kilometres) + [ {(average fire hydrant lead length, metres) x (number of fire hydrants)} / 1,000 metres/kilometre ]</p>
<p><b>NON-REVENUE WATER</b></p> <p><a href="#">Find</a></p>	<p>= Apparent Losses + Real Losses + Unbilled Metered Consumption + Unbilled Unmetered Consumption. This is water which does not provide revenue potential to the utility.</p>
<p><b>Number of active AND inactive service connections</b></p> <p><a href="#">Find</a></p>	<p>Number of customer service connections, extending from the water main to supply water to a customer. Please note that this includes the actual number of distinct piping connections, including fire connections, whether active or inactive. This may differ substantially from the number of customers (or number of accounts). <b>Note: this number does not include the pipeline leads to fire hydrants - the total length of piping supplying fire hydrants should be included in the "Length of mains" parameter.</b></p>
<p><b>Real Losses</b></p> <p><a href="#">Find</a></p>	<p>Physical water losses from the pressurized system (water mains and customer service connections) and the utility's storage tanks, up to the point of customer consumption. In metered systems this is the customer meter, in unmetered situations this is the first point of consumption (stop tap/tap) within the property. The annual volume lost through all types of leaks, breaks and overflows depends on frequencies, flow rates, and average duration of individual leaks, breaks and overflows.</p>
<p><b>Revenue Water</b></p>	<p>Those components of System Input Volume that are billed and have the potential to produce revenue.</p>
<p><b>Service Connection Density</b></p> <p><a href="#">Find</a></p>	<p>=number of customer service connections / length of mains</p>



Item Name	Description
<p><b>Systematic data handling errors</b></p> <p><a href="#">Find</a></p>	<p>Apparent losses caused by accounting omissions, errant computer programming, gaps in policy, procedure, and permitting/activation of new accounts; and any type of data lapse that results in under-stated customer water consumption in summary billing reports.</p> <p><b>Systematic Data Handling Errors result in a direct loss of revenue potential. Water utilities can find "lost" revenue by keying on this component.</b></p> <p>Utilities typically measure water consumption registered by water meters at customer premises. The meter should be read routinely (ex: monthly) and the data transferred to the Customer Billing System, which generates and sends a bill to the customer. <u>Data Transfer Errors</u> result in the consumption value being less than the actual consumption, creating an apparent loss. Such error might occur from illegible and mis-recorded hand-written readings compiled by meter readers, inputting an incorrect meter register unit conversion factor in the automatic meter reading equipment, or a variety of similar errors.</p> <p>Apparent losses also occur from <u>Data Analysis Errors</u> in the archival and data reporting processes of the Customer Billing System. Inaccurate estimates used for accounts that fail to produce a meter reading are a common source of error. Billing adjustments may award customers a rightful monetary credit, but do so by creating a negative value of consumption, thus under-stating the actual consumption. Account activation lapses may allow new buildings to use water for months without meter readings and billing. Poor permitting and construction inspection practices can result in a new building lacking a billing account, a water meter and meter reading; i.e., the customer is unknown to the utility's billing system.</p> <p>Close auditing of the permitting, metering, meter reading, billing and reporting processes of the water consumption data trail can uncover data management gaps that create volumes of systematic data handling error. Utilities should routinely analyze customer billing records to detect data anomalies and quantify these losses. For example, a billing account that registers zero consumption for two or more billing cycles should be checked to explain why usage has seemingly halted. Given the revenue loss impacts of these losses, water utilities are well-justified in providing continuous oversight and timely correction of data transfer errors &amp; data handling errors.</p> <p>If the water auditor has not yet gathered detailed data or assessment of systematic data handling error, it is recommended that the auditor apply the default value of 0.25% of the the Billed Authorized Consumption volume. However, if the auditor <u>has</u> investigated the billing system and its controls, and <u>has</u> well validated data that indicates the volume from systematic data handling error is substantially higher or lower than that generated by the default value, then the auditor should enter a quantity that was derived from the utility investigations and select an appropriate grading. <u>Note:</u> negative values are not allowed for this audit component. If the auditor enters zero for this component then a grading of 1 will be automatically assigned.</p>
<p><b>Total annual cost of operating the water system</b></p> <p><a href="#">Find</a></p>	<p>These costs include those for operations, maintenance and any annually incurred costs for long-term upkeep of the drinking water supply and distribution system. It should include the costs of day-to-day upkeep and long-term financing 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. Depending upon water utility accounting procedures or regulatory agency requirements, it may be appropriate to include depreciation in the total of this cost. This cost should not include any costs to operate wastewater, biosolids or other systems outside of drinking water.</p>
<p><b>Unauthorized consumption</b></p> <p><a href="#">Find</a></p>	<p>Includes water illegally withdrawn from fire hydrants, illegal connections, bypasses to customer consumption meters, or tampering with metering or meter reading equipment; as well as any other ways to receive water while thwarting the water utility's ability to collect revenue for the water. Unauthorized consumption results in uncaptured revenue and creates an error that understates customer consumption. In most water utilities this volume is low and, if the water auditor has not yet gathered detailed data for these loss occurrences, it is recommended that the auditor apply a default value of 0.25% of the volume of water supplied. However, if the auditor has investigated unauthorized occurrences, and has well validated data that indicates the volume from unauthorized consumption is substantially higher or lower than that generated by the default value, then the auditor should enter a quantity that was derived from the utility investigations. Note that a value of zero will not be accepted since all water utilities have some volume of unauthorized consumption occurring in their system.</p> <p>Note: If the auditor selects the default value for unauthorized consumption, a data grading of 5 is automatically assigned, but not displayed on the Reporting Worksheet.</p>
<p><b>Unavoidable Annual Real Losses (UARL)</b></p> <p><a href="#">Find</a></p>	<p>UARL (gallons/day)=(5.41Lm + 0.15Nc + 7.5Lc) xP, or UARL (litres/day)=(18.0Lm + 0.8Nc + 25.0Lc) xP</p> <p>where: Lm = length of mains (miles or kilometres) Nc = number of customer service connections Lp = the average distance of customer service connection piping (feet or metres) (see the Worksheet "Service Connection Diagram" for guidance on deterring the value of Lp) Lc = total length of customer service connection piping (miles or km) Lc = Nc X Lp (miles or kilometres) P = Pressure (psi or metres)</p> <p>The UARL is a theoretical reference value representing the technical low limit of leakage that could be achieved if all of today's best technology could be successfully applied. It is a key variable in the calculation of the Infrastructure Leakage Index (ILI). Striving to reduce system leakage to a level close to the UARL is usually not needed unless the water supply is unusually expensive, scarce or both.</p> <p>NOTE: The UARL calculation has not yet been proven as fully valid for very small, or low pressure water distribution systems. If, <u>in gallons per day:</u> (Lm x 32) + Nc &lt; 3000 or P &lt; 35psi <u>in litres per day:</u> (Lm x 20) + Nc &lt; 3000 or P &lt; 25m then the calculated UARL value may not be valid. The software does not display a value of UARL or ILI if either of these conditions is true.</p>

Item Name	Description								
<b>Unbilled Authorized Consumption</b>	All consumption that is unbilled, but still authorized by the utility. This includes Unbilled Metered Consumption + Unbilled Unmetered Consumption. See "Authorized Consumption" for more information. For Unbilled Unmetered Consumption, the Free Water Audit Software provides the auditor the option to select a default value if they have not audited unmetered activities in detail. The default calculates a volume that is 1.25% of the Water Supplied volume. If the auditor has carefully audited the various unbilled, unmetered, authorized uses of water, and has established reliable estimates of this collective volume, then he or she may enter the volume directly for this component, and not use the default value.								
<b>Unbilled metered consumption</b> <input type="button" value="Find"/>	Metered consumption which is authorized by the water utility, but, for any reason, is <u>deemed by utility policy</u> to be unbilled. This might for example include metered water consumed by the utility itself in treatment or distribution operations, or metered water provided to civic institutions free of charge. It <u>does not include water supplied to neighboring utilities (water exported) which may be metered but not billed.</u>								
<b>Unbilled unmetered consumption</b> <input type="button" value="Find"/>	<p>Any kind of Authorized Consumption which is neither billed or metered. This component typically includes water used in activities such as fire fighting, flushing of water mains and sewers, street cleaning, fire flow tests conducted by the water utility, etc. In most water utilities it is a small component which is very often substantially overestimated. <b>It does NOT include water supplied to neighboring utilities (water exported) which is unmetered and unbilled – an unlikely case.</b> This component has many sub-components of water use which are often tedious to identify and quantify. Because of this, and the fact that it is usually a small portion of the water supplied, it is recommended that the auditor apply the default value, which is 1.25% of the Water Supplied volume. Select the default percentage to enter this value.</p> <p>If the water utility <u>has</u> carefully audited the unbilled, unmetered activities occurring in the system, and has well validated data that gives a value substantially higher or lower than the default volume, then the auditor should enter their own volume. However the default approach is recommended for most water utilities.</p> <p>Note that a value of zero is not permitted, since all water utilities have some volume of water in this component occurring in their system.</p>								
<b>Units and Conversions</b>	<p>The user may develop an audit based on one of three unit selections:</p> <ol style="list-style-type: none"> <li>1) Million Gallons (US)</li> <li>2) Megalitres (Thousand Cubic Metres)</li> <li>3) Acre-feet</li> </ol> <p>Once this selection has been made in the instructions sheet, all calculations are made on the basis of the chosen units. Should the user wish to make additional conversions, a unit converter is provided below (use drop down menus to select units from the yellow unit boxes):</p> <div style="text-align: center;"> <table border="0"> <tr> <td>Enter Units:</td> <td>Convert From...</td> <td>=</td> <td>Converts to.....</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">1</td> <td style="border: 1px solid black; padding: 2px;">Million Gallons (US)</td> <td></td> <td style="border: 1px solid black; padding: 2px;">3.06888329    Acre-feet</td> </tr> </table> <p>(conversion factor = 3.06888328973723)</p> </div>	Enter Units:	Convert From...	=	Converts to.....	1	Million Gallons (US)		3.06888329    Acre-feet
Enter Units:	Convert From...	=	Converts to.....						
1	Million Gallons (US)		3.06888329    Acre-feet						
<b>Use of Option Buttons</b>	<p>To use the default percent value choose this button <span style="margin-left: 100px;">To enter a value choose this button and enter the value in the cell to the right</span></p> <div style="text-align: center;"> <table border="0"> <tr> <td>Pcnt:</td> <td>Value:</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">1.25% <input checked="" type="radio"/></td> <td style="border: 1px solid black; padding: 2px;"><input type="radio"/> <input style="width: 50px;" type="text"/></td> </tr> </table> </div> <p><b>NOTE:</b> For Unbilled Unmetered Consumption, Unauthorized Consumption and Systematic Data Handling Errors, a recommended default value can be applied by selecting the Percent option. The default values are based on fixed percentages of Water Supplied or Billed Authorized Consumption and are recommended for use in this audit unless the auditor has well validated data for their system. Default values are shown by purple cells, as shown in the example above.</p> <p>If a default value is selected, the user does not need to grade the item; a grading value of 5 is automatically applied (however, this grade will not be displayed).</p>	Pcnt:	Value:	1.25% <input checked="" type="radio"/>	<input type="radio"/> <input style="width: 50px;" type="text"/>				
Pcnt:	Value:								
1.25% <input checked="" type="radio"/>	<input type="radio"/> <input style="width: 50px;" type="text"/>								
<b>Variable production cost (applied to Real Losses)</b> <input type="button" value="Find"/>	<p>The cost to produce and supply the next unit of water (e.g., \$/million gallons). This cost is determined by calculating the summed unit costs for ground and surface water treatment and all power used for pumping from the source to the customer. It may also include other miscellaneous unit costs that apply to the production of drinking water. It should also include the unit cost of bulk water purchased as an import if applicable.</p> <p>It is common to apply this unit cost to the volume of Real Losses. However, if water resources are strained and the ability to meet future drinking water demands is in question, then the water auditor can be justified in applying the Customer Retail Rate to the Real Loss volume, rather than applying the Variable Production Cost.</p> <p>The Free Water Audit Software applies the Variable Production costs to Real Losses by default. However, the auditor has the option on the Reporting Worksheet to select the Customer Retail Cost as the basis for the Real Loss cost evaluation if the auditor determines that this is warranted.</p>								
<b>Volume from own sources</b> <input type="button" value="Find"/>	<p>The volume of water withdrawn (abstracted) from water resources (rivers, lakes, streams, wells, etc) controlled by the water utility, and then treated for potable water distribution. Most water audits are compiled for utility retail water distribution systems, so this volume should reflect the amount of <u>treated</u> drinking water that entered the distribution system. Often the volume of water measured at the effluent of the treatment works is slightly less than the volume measured at the raw water source, since some of the water is used in the treatment process. Thus, it is useful if flows are metered at the effluent of the treatment works. If metering exists only at the raw water source, an adjustment for water used in the treatment process should be included to account for water consumed in treatment operations such as filter backwashing, basin flushing and cleaning, etc. If the audit is conducted for a wholesale water agency that sells untreated water, then this quantity reflects the measure of the raw water, typically metered at the source.</p>								

Item Name	Description
<b>Volume from own sources: Master meter and supply error adjustment</b> <input type="button" value="Find"/>	An estimate or measure of the degree of inaccuracy that exists in the master (production) meters measuring the annual Volume from own Sources, and any error in the data trail that exists to collect, store and report the summary production data. This adjustment is a weighted average number that represents the collective error for all master meters for all days of the audit year and any errors identified in the data trail. Meter error can occur in different ways. A meter or meters may be inaccurate by under-registering flow (did not capture all the flow), or by over-registering flow (overstated the actual flow). Data error can occur due to data gaps caused by temporary outages of the meter or related instrumentation. All water utilities encounter some degree of inaccuracy in master meters and data errors in archival systems are common; thus a value of zero should <u>not</u> be entered. Enter a negative percentage or value for metered data under-registration; or, enter a positive percentage or value for metered data over-registration.
<b>Water exported</b> <input type="button" value="Find"/>	<p>The Water Exported volume is the bulk water conveyed and sold by the water utility to neighboring water systems that exists outside of their service area. Typically this water is metered at the custody transfer point of interconnection between the two water utilities. Usually the meter(s) are owned by the water utility that is selling the water; i.e. the exporter. If the water utility who is compiling the annual water audit sells bulk water in this manner, they are an exporter of water.</p> <p>Note: The Water Exported volume is sold to wholesale customers who are typically charged a wholesale rate that is different than retail rates charged to the retail customers existing within the service area. Many state regulatory agencies require that the Water Exported volume be reported to them as a quantity separate and distinct from the retail customer billed consumption. For these reasons - and others - the Water Exported volume is always quantified separately from Billed Authorized Consumption in the standard water audit. <b>Be certain not to "double-count" this quantity by including it in both the Water Exported box and the Billed Metered Consumption box of the water audit Reporting Worksheet. This volume should be included only in the Water Exported box.</b></p>
<b>Water exported: Master meter and supply error adjustment</b> <input type="button" value="Find"/>	An estimate or measure of the volume in which the Water Exported volume is incorrect. This adjustment is a weighted average that represents the collective error for all of the metered and archived exported flow for all days of the audit year. Meter error can occur in different ways. A meter may be inaccurate by under-registering flow (did not capture all the flow), or by over-registering flow (overstated the actual flow). Error in the metered, archived data can also occur due to data gaps caused by temporary outages of the meter or related instrumentation. All water utilities encounter some degree of error in their metered data, particularly if meters are aged and infrequently tested. Occasional errors also occur in the archived data. Thus, a value of zero should <u>not</u> be entered. Enter a negative percentage or value for metered data under-registration; or, enter a positive percentage or value for metered data over-registration. If regular meter accuracy testing is conducted on the meter(s) - which is usually conducted by the water utility selling the water - then the results of this testing can be used to help quantify the meter error adjustment. Corrections to data gaps or other errors found in the archived data should also be included as a portion of this meter error adjustment.
<b>Water imported</b> <input type="button" value="Find"/>	The Water Imported volume is the bulk water purchased to become part of the Water Supplied volume. Typically this is water purchased from a neighboring water utility or regional water authority, and is metered at the custody transfer point of interconnection between the two water utilities. Usually the meter(s) are owned by the water supplier selling the water to the utility conducting the water audit. The water supplier selling the bulk water usually charges the receiving utility based upon a wholesale water rate.
<b>Water imported: Master meter and supply error adjustment</b> <input type="button" value="Find"/>	An estimate or measure of the volume in which the Water Imported volume is incorrect. This adjustment is a weighted average that represents the collective error for all of the metered and archived imported flow for all days of the audit year. Meter error can occur in different ways. A meter may be inaccurate by under-registering flow (did not capture all the flow), or by over-registering flow (overstated the actual flow). Error in the metered, archived data can also occur due to data gaps caused by temporary outages of the meter or related instrumentation. All water utilities encounter some level of meter inaccuracy, particularly if meters are aged and infrequently tested. Occasional errors also occur in the archived metered data. Thus, a value of zero should <u>not</u> be entered. Enter a negative percentage or value for metered data under-registration; or, enter a positive percentage or value for metered data over-registration. If regular meter accuracy testing is conducted on the meter(s) - which is usually conducted by the water utility selling the water - then the results of this testing can be used to help quantify the meter error adjustment.
<b>WATER LOSSES</b> <input type="button" value="Find"/>	= apparent losses + real losses Water Losses are the difference between Water Supplied and Authorized Consumption. Water losses can be considered as a total volume for the whole system, or for partial systems such as transmission systems, pressure zones or district metered areas (DMA); if one of these configurations are the basis of the water audit.



## AWWA Free Water Audit Software: Determining Water Loss Standing

WAS v5.0

American Water Works Association  
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Water Audit Report for: **West Carroll Water District**

Reporting Year: **2017**    **1/2017 - 12/2017**

Data Validity Score: **83**

### Water Loss Control Planning Guide

Water Audit Data Validity Level / Score					
Functional Focus Area	Level I (0-25)	Level II (26-50)	Level III (51-70)	Level IV (71-90)	Level V (91-100)
Audit Data Collection	Launch auditing and loss control team; address production metering deficiencies	Analyze business process for customer metering and billing functions and water supply operations. Identify data gaps.	Establish/revise policies and procedures for data collection	Refine data collection practices and establish as routine business process	Annual water audit is a reliable gauge of year-to-year water efficiency standing
Short-term loss control	Research information on leak detection programs. Begin flowcharting analysis of customer billing system	Conduct loss assessment investigations on a sample portion of the system: customer meter testing, leak survey, unauthorized consumption, etc.	Establish ongoing mechanisms for customer meter accuracy testing, active leakage control and infrastructure monitoring	Refine, enhance or expand ongoing programs based upon economic justification	Stay abreast of improvements in metering, meter reading, billing, leakage management and infrastructure rehabilitation
Long-term loss control		Begin to assess long-term needs requiring large expenditure: customer meter replacement, water main replacement program, new customer billing system or Automatic Meter Reading (AMR) system.	Begin to assemble economic business case for long-term needs based upon improved data becoming available through the water audit process.	Conduct detailed planning, budgeting and launch of comprehensive improvements for metering, billing or infrastructure management	Continue incremental improvements in short-term and long-term loss control interventions
Target-setting			Establish long-term apparent and real loss reduction goals (+10 year horizon)	Establish mid-range (5 year horizon) apparent and real loss reduction goals	Evaluate and refine loss control goals on a yearly basis
Benchmarking			Preliminary Comparisons - can begin to rely upon the Infrastructure Leakage Index (ILI) for performance comparisons for real losses (see below table)	Performance Benchmarking - ILI is meaningful in comparing real loss standing	Identify Best Practices/ Best in class - the ILI is very reliable as a real loss performance indicator for best in class service

For validity scores of 50 or below, the shaded blocks should not be focus areas until better data validity is achieved.

Witness: Bill Osborne  
 Page 24 of 41  
 Item 41

Once data have been entered into the Reporting Worksheet, the performance indicators are automatically calculated. How does a water utility operator know how well his or her system is performing? The AWWA Water Loss Control Committee provided the following table to assist water utilities in gauging an approximate Infrastructure Leakage Index (ILI) that is appropriate for their water system and local conditions. The lower the amount of leakage and real losses that exist in the system, then the lower the ILI value will be.

**Note:** this table offers an approximate guideline for leakage reduction target-setting. The best means of setting such targets include performing an economic assessment of various loss control methods. However, this table is useful if such an assessment is not possible.

**General Guidelines for Setting a Target ILI  
(without doing a full economic analysis of leakage control options)**

Target ILI Range	Financial Considerations	Operational Considerations	Water Resources Considerations
1.0 - 3.0	Water resources are costly to develop or purchase; ability to increase revenues via water rates is greatly limited because of regulation or low ratepayer affordability.	Operating with system leakage above this level would require expansion of existing infrastructure and/or additional water resources to meet the demand.	Available resources are greatly limited and are very difficult and/or environmentally unsound to develop.
>3.0 -5.0	Water resources can be developed or purchased at reasonable expense; periodic water rate increases can be feasibly imposed and are tolerated by the customer population.	Existing water supply infrastructure capability is sufficient to meet long-term demand as long as reasonable leakage management controls are in place.	Water resources are believed to be sufficient to meet long-term needs, but demand management interventions (leakage management, water conservation) are included in the long-term planning.
>5.0 - 8.0	Cost to purchase or obtain/treat water is low, as are rates charged to customers.	Superior reliability, capacity and integrity of the water supply infrastructure make it relatively immune to supply shortages.	Water resources are plentiful, reliable, and easily extracted.
Greater than 8.0	Although operational and financial considerations may allow a long-term ILI greater than 8.0, such a level of leakage is not an effective utilization of water as a resource. Setting a target level greater than 8.0 - other than as an incremental goal to a smaller long-term target - is discouraged.		
Less than 1.0	If the calculated Infrastructure Leakage Index (ILI) value for your system is 1.0 or less, two possibilities exist. a) you are maintaining your leakage at low levels in a class with the top worldwide performers in leakage control. b) A portion of your data may be flawed, causing your losses to be greatly understated. This is likely if you calculate a low ILI value but do not employ extensive leakage control practices in your operations. In such cases it is beneficial to validate the data by performing field measurements to confirm the accuracy of production and customer meters, or to identify any other potential sources of error in the data.		

AWWA Free Water Audit Software:  
Examples of Completed and Validated Audits

WAS v5.0

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Example 1a: Million Gallons:

Example 1b: Million Gallons:  
Performance Indicators

Example 2a: Megalitres:  
Reporting Worksheet

Example 2b: Megalitres:  
Reporting Worksheet

Example Audit 1a:

AWWA Free Water Audit Software:  
Reporting Worksheet

WAS v5.0

American Water Works Association  
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Click to access definition  
Click to add a comment

Water Audit Report for: **City of Asheville (01-11-010)**  
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 (n/a or 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**

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

Master Meter Error Adjustments

WATER SUPPLIED

Volume from own sources: 7 7,352.880 MG/Yr  
Water imported: n/a 0.000 MG/Yr  
Water exported: n/a 0.000 MG/Yr

Enter grading in column 'E' and 'J' Pcnt: 3 Value: 285.450 MG/Yr  
0 MG/Yr  
0 MG/Yr

Enter negative % or value for under-registration  
Enter positive % or value for over-registration

WATER SUPPLIED: 7,067.430 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered: 8 4,782.250 MG/Yr  
Billed unmetered: n/a 0.000 MG/Yr  
Unbilled metered: 7 27.757 MG/Yr  
Unbilled unmetered: 8 157.790 MG/Yr

Unbilled Unmetered volume entered is greater than the recommended default value

AUTHORIZED CONSUMPTION: 4,967.797 MG/Yr

Click here: for help using option buttons below

Pcnt: Value: 157.790 MG/Yr

Use buttons to select percentage of water supplied OR value

Pcnt: 0.25% Value: MG/Yr

2.26% MG/Yr

0.25% MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

2,099.633 MG/Yr

Apparent Losses

Unauthorized consumption: 17.669 MG/Yr

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

Customer metering inaccuracies: 7 111.220 MG/Yr

Systematic data handling errors: 5 11.956 MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 140.844 MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 1,958.789 MG/Yr

WATER LOSSES: 2,099.633 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 2,285.180 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains: 4 1,236.5 miles  
Number of active AND inactive service connections: 7 55,256  
Service connection density: 45 conn./mile main

Are customer meters typically located at the curbstops or property line? Yes (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: 4 145.3 psi

COST DATA

Total annual cost of operating water system: 10 \$33,630,676 \$/Year  
Customer retail unit cost (applied to Apparent Losses): 10 \$3.22 \$/100 cubic feet (ccf)  
Variable production cost (applied to Real Losses): 6 \$335.94 \$/Million gallons Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

\*\*\* YOUR SCORE IS: 72 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: Variable production cost (applied to Real Losses)
- 3: Unauthorized consumption

Example Audit 1b:

**AWWA Free Water Audit Software:  
System Attributes and Performance Indicators**

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American Water Works Association  
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Water Audit Report for: City of Asheville (01-11-010)

Reporting Year: 2013 7/2012 - 6/2013

\*\*\* YOUR WATER AUDIT DATA VALIDITY SCORE IS: 72 out of 100 \*\*\*


**System Attributes:**

	Apparent Losses:	<span style="border: 1px solid black; padding: 2px;">140.844</span>	MG/Yr
	+	Real Losses:	<span style="border: 1px solid black; padding: 2px;">1,958.789</span> MG/Yr
	=	<b>Water Losses:</b>	<span style="border: 1px solid black; padding: 2px;">2,099.633</span> MG/Yr
<input checked="" type="checkbox"/> Unavoidable Annual Real Losses (UARL): <span style="border: 1px solid black; padding: 2px;">794.34</span> MG/Yr			
	Annual cost of Apparent Losses:	<span style="border: 1px solid black; padding: 2px;">\$606,265</span>	
	Annual cost of Real Losses:	<span style="border: 1px solid black; padding: 2px;">\$658,036</span>	Valued at <b>Variable Production Cost</b>
			Return to Reporting Worksheet to change this assumption

**Performance Indicators:**

<b>Financial:</b>	{	Non-revenue water as percent by volume of Water Supplied:	<span style="border: 1px solid black; padding: 2px;">32.3%</span>	
		Non-revenue water as percent by cost of operating system:	<span style="border: 1px solid black; padding: 2px;">3.9%</span>	Real Losses valued at Variable Production Cost
<b>Operational Efficiency:</b>	{	Apparent Losses per service connection per day:	<span style="border: 1px solid black; padding: 2px;">6.98</span>	gallons/connection/day
		Real Losses per service connection per day:	<span style="border: 1px solid black; padding: 2px;">97.12</span>	gallons/connection/day
		Real Losses per length of main per day*:	<span style="border: 1px solid black; padding: 2px;">N/A</span>	
		Real Losses per service connection per day per psi pressure:	<span style="border: 1px solid black; padding: 2px;">0.67</span>	gallons/connection/day/psi
		From Above, Real Losses = Current Annual Real Losses (CARL):	<span style="border: 1px solid black; padding: 2px;">1,958.79</span>	million gallons/year
	<input checked="" type="checkbox"/>	Infrastructure Leakage Index (ILI) [CARL/UARL]:	<span style="border: 1px solid black; padding: 2px;">2.47</span>	

\* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



## Example Audit 2a:

### AWWA Free Water Audit Software: Reporting Worksheet

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**Water Audit Report for:** The City of Calgary

**Reporting Year:** 2013 1/2013 - 12/2013

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 (n/a or 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: MEGALITRES (THOUSAND CUBIC METRES) PER YEAR

---

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

**WATER SUPPLIED**

	←----- Enter grading in column 'E' and 'J' ----->			
Volume from own sources:	7	174,324.000	ML/Yr	
Water imported:	n/a	0.000	ML/Yr	
Water exported:	7	8,190.131	ML/Yr	
<b>WATER SUPPLIED:</b>		<b>164,488.979</b>	ML/Yr	

**AUTHORIZED CONSUMPTION**

Billed metered:	6	125,111.268	ML/Yr	
Billed unmetered:	8	3,503.386	ML/Yr	
Unbilled metered:	7	166.157	ML/Yr	
Unbilled unmetered:	6	1,444.000	ML/Yr	
<b>AUTHORIZED CONSUMPTION:</b>		<b>130,224.811</b>	ML/Yr	

**WATER LOSSES (Water Supplied - Authorized Consumption)** 34,264.168 ML/Yr

**Apparent Losses**

Unauthorized consumption:	5	411.222	ML/Yr	
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed				
Customer metering inaccuracies:	6	1,265.429	ML/Yr	
Systematic data handling errors:	5	312.778	ML/Yr	
Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed				
<b>Apparent Losses:</b>		<b>1,989.429</b>	ML/Yr	

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

Real Losses = Water Losses - Apparent Losses:	?	32,274.739	ML/Yr	
<b>WATER LOSSES:</b>		<b>34,264.168</b>	ML/Yr	

**NON-REVENUE WATER**

<b>NON-REVENUE WATER:</b>	?	<b>35,874.325</b>	ML/Yr	
---------------------------	---	-------------------	-------	--

= Water Losses + Unbilled Metered + Unbilled Unmetered

**SYSTEM DATA**

Length of mains:	8	4,945.0	kilometers
Number of active AND inactive service connections:	8	312,075	
Service connection density:	?	63	conn./km main

Are customer meters typically located at the curbside or property line? No (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line:	8	12.0	metres
Average operating pressure:	8	50.8	metres (head)

**COST DATA**

Total annual cost of operating water system:	9	\$169,973,759	\$/Year
Customer retail unit cost (applied to Apparent Losses):	9	\$2.35	\$/1000 litres
Variable production cost (applied to Real Losses):	9	\$73.54	\$/Megalitre

Use Customer Retail Unit Cost to value real losses

---

**WATER AUDIT DATA VALIDITY SCORE:**

\*\*\* YOUR SCORE IS: 72 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: Billed metered

3: Customer metering inaccuracies

AWWA Free Water Audit Software v5.0

Example Audits 27



Example Audit 2b:

**AWWA Free Water Audit Software:**  
**System Attributes and Performance Indicators**

WAS v5.0  
 Copyright © 2014, All Rights Reserved

Water Audit Report for: The City of Calgary

Reporting Year: 2013 1/2013 - 12/2013

\*\*\* YOUR WATER AUDIT DATA VALIDITY SCORE IS: 72 out of 100 \*\*\*

**System Attributes:**

	Apparent Losses:	1,989.429	ML/Yr	
	+	Real Losses:	32,274.739	ML/Yr
	=	Water Losses:	34,264.168	ML/Yr
<div style="display: flex; align-items: center;"> <span style="color: blue; font-weight: bold; margin-right: 5px;">*</span> <span>Unavoidable Annual Real Losses (UARL):</span> <span style="border: 1px solid black; padding: 2px; margin-left: 10px;">8,015.57</span> <span style="margin-left: 10px;">ML/Yr</span> </div>				
		Annual cost of Apparent Losses:	\$4,675,159	
		Annual cost of Real Losses:	\$75,845,637	Valued at Customer Retail Unit Cost Return to Reporting Worksheet to change this assumption

**Performance Indicators:**

Financial:	{	Non-revenue water as percent by volume of Water Supplied:	21.8%	
		Non-revenue water as percent by cost of operating system:	49.6%	Real Losses valued at Customer Retail Unit Cost
Operational Efficiency:	{	Apparent Losses per service connection per day:	17.47	litres/connection/day
		Real Losses per service connection per day:	283.34	litres/connection/day
		Real Losses per length of main per day*:	N/A	
		Real Losses per service connection per day per meter (head) pressure:	5.58	litres/connection/day/m
		From Above, Real Losses = Current Annual Real Losses (CARL):	32,274.74	ML/year
		<span style="color: blue; font-weight: bold;">*</span> Infrastructure Leakage Index (ILI) [CARL/UARL]:	4.03	

\* This performance indicator applies for systems with a low service connection density of less than 20 service connections/kilometre of pipeline



AWWA Water Audit Software Version 5.0 Developed by the Water Loss Control Committee of the American Water Works Association August, 2014

This software is intended to serve as a basic tool to compile a preliminary, or "top-down", water audit. It is recommended that users also refer to the current edition of the AWWA M36 Publication, Water Audits and Loss Control Programs, for detailed guidance on compiling a comprehensive, or "bottom-up", water audit using the same water audit methodology.

DEVELOPED BY: Andrew Chastain-Howley, PG\*, MCSM. Black & Veatch  
Will J. Jernigan, P.E. Cavanaugh & Associates, P.A.  
George Kunkel, P.E. Philadelphia Water Department  
Alain Lalonde, P.Eng. Master Meter Canada Inc.  
Ralph Y. McCord, P.E. Louisville Water Company  
David A. Sayers Delaware River Basin Commission  
Brian M. Skeens, P.E. CH2M HILL  
Reinhard Sturm Water Systems Optimization, Inc.  
John H. Van Arsdel M.E. Simpson Company, Inc.

REFERENCES: - Alegre, H., Hirner, W., Baptista, J. and Parena, R. Performance Indicators for Water Supply Services. IWA Publishing 'Manual of Best Practice' Series, 2000. ISBN 1 900222 272  
- Kunkel, G. et al, 2003. Water Loss Control Committee Report: Applying Worldwide Best Management Practices in Water Loss Control. Journal AWWA, 95:8:65  
- AWWA Water Audits and Loss Control Programs, M36 Publication, 3<sup>rd</sup> Edition, 2009  
- Service Connection Diagrams courtesy of Ronnie McKenzie, WRP Pty Ltd.

**VERSION HISTORY:**

Version:	Release Date:	Number of Worksheets:	Key Features and Developments
v1	2005/2006	5	The AWWA Water Audit Software was piloted in 2005 (v1.0 beta). The early versions (1.x) of the software restricted data entry to units of Million Gallons per year. For each entry into the audit, users identified whether the input was measured or estimated.
v2	2006	5	The most significant enhancement in v2 of the software was to allow the user to choose the volumetric units to be used in the audit, Million Gallons or Thousand Cubic Metres (megalitres) per year. Two financial performance indicators were added to provide feedback to the user on the cost of Real and Apparent losses.
v3	2007	7	In v3, the option to report volumetric units in acre-feet was added. Another new feature in v3 was the inclusion of default values for two water audit components (unbilled unmetered and unauthorized consumption). v3 also included two examples of completed audits in units of million gallons and Megalitres. Several checks were added into v3 to provide instant feedback to the user on common data entry problems, in order to help the user complete an accurate water audit.
v4 - v4.2	2010	10	v4 (and versions 4.x) of the software included a new approach to data grading. The simple "estimated" or "measured" approach was replaced with a more granular scale (typically 1-10) that reflected descriptions of utility practices and served to describe the confidence and accuracy of the input data. Each input value had a corresponding scale fully described in the Grading Matrix tab. The Grading Matrix also showed the actions required to move to a higher grading score. Grading descriptions were available on the Reporting Worksheet via a pop-up box next to each water audit input. A water audit data validity score is generated (max = 100) and priority areas for attention (to improve audit accuracy) are identified, once a user completes the required data grading. A service connection diagram was also added to help users understand the impact of customer service line configurations on water losses and how this information should be entered into the water audit software. An acknowledgements section was also added. Minor bug fixes resulted in the release of versions 4.1 and 4.2. A French language version was also made available for v4.2.
v5	2014	12	In v5, changes were made to the way Water Supplied information is entered into software, with each major component having a corresponding Master Meter Error Adjustment entry (and data grading requirement). This required changes to the data validity score calculation; v5 of the software uses a weighting system that is, in part, proportional to the volume of input components. The Grading Matrix was updated to reflect the new audit inputs and also to include clarifications and additions to the scale descriptions. The appearance of the software was updated in v5 to make the software more user-friendly and several new features were added to provide more feedback to the user. Notably, a dashboard tab has been added to provide more visual feedback on the water audit results and associated costs of Non-Revenue Water. A comments sheet was added to allow the user to track notes, comments and to cite sources used.



September 7, 2018

Mr. Bill R. Osborne, P.E.  
Carrollton Utilities  
900 Clay St  
Carrollton, KY 41008

Mr. Osborne,

This letter is RCAP's certification statement that we have performed a Level 1 Water Audit Validation for the West Carroll Water District (WCWD) Water Audit prepared with the American Water Works Association's (AWWA) Water Audit Software, validating that the water audit has been prepared in accordance with methodology adopted by the AWWA.

On August 27, 2018, RCAP Kentucky staff traveled to the Carrollton Utilities office to meet with Carrollton Utilities staff regarding the WCWD Water Audit prepared by Bill R. Osborne, P.E. RCAP performed a Level 1 Water Audit Validation for the water audit. This included reviewing the audit and requesting supporting documents, examining initial performance indicators, validating audit inputs, re-examining performance indicators, and documenting results. RCAP reviewed the audit for any unfeasible results, the auditor's interpretation of the methodology, and data validity grades for the utility's operational practices.

Comments from RCAP regarding any changes that were made during the validation process are noted within the enclosed report, along with comments on verified documentation and data validity grades.

Sincerely,

A handwritten signature in blue ink that reads "Kimberly H. Padgett". The signature is written in a cursive, flowing style.

Kimberly H. Padgett  
State Director

Enclosure

# Level 1 Water Audit Validation Report

Presented by the Kentucky Rural Community Assistance Partnership



Rural Community Assistance Partnership

101 Burch Court

Frankfort, KY 40601



## Level 1 Water Audit Validation Report



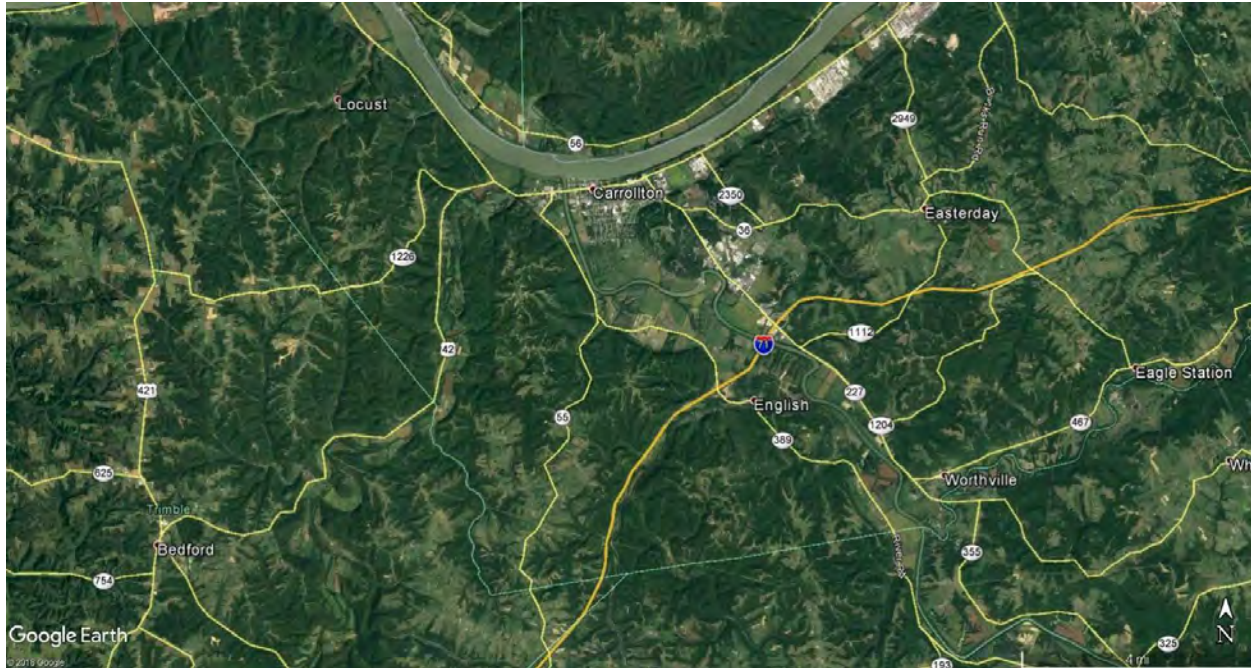
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## Level 1 Water Audit Validation Report



## West Carroll Water District Service Area



Located in Northern Kentucky, the West Carroll Water District services the western portion of Carroll County, shown in the image above.

## Level 1 Water Audit Validation Report



### Water Audit Information

---

**Name of Utility:** West Carroll Water District

**City:** Carrollton      **State:** KY

**Contact Person:** Bill R. Osborne, P.E.

**Email Address:** [bosborne@cuky.us](mailto:bosborne@cuky.us)

**Telephone:** 502.732.1215

**Audit Period:** 01/2017 – 12/2017

**Audit Preparation Date:** 03/14/2018

### Water Audit Validation Findings

---

**Name of Validator:** Kentucky RCAP      **Validation Level:** 1

**Contact Person:** Kimberly H. Padgett

**Validation Date:** 08/27/2018

**Meeting Attendees:** Bill Osborne (CU), Chris Rose (CU), Amy Dermon (CU), Kim Padgett, State Director (RCAP), Melissa Melton, Drinking Water Distribution Class III Operator (RCAP), Justin Reynolds, E.I.T. (RCAP)

#### Key Audit Metrics

**Water Audit Data Validity Score:** 83 out of 100

**Infrastructure Leakage Index (ILI):** 0.89

**Real Loss:** 21.286 MG/Yr

**Apparent Loss:** 0.300 MG/Yr

**Non-revenue water as percent of cost of operating system:** 8.9%

**Sufficient Supporting Documents Provided:** Yes



## Level 1 Water Audit Validation Report



## Documentation Provided

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- WCWD PSC Tariff
- Water Purchase Contracts
- Customer Meter Testing Logs
- Master Meter Testing Logs
- SCADA System Data
- Geographic Information System (GIS)
- Financial Audits (2016, 2017)
- PSC Annual Reports (2016, 2017)
- Customer Service Lines Log

## Level 1 Water Audit Validation Report



## Water Audit Validation Meeting Summary

---

### Water Supplied

#### **Volume from own sources**

West Carroll Water District (WCWD) purchases all their water from other systems and therefore does not have any volume from own sources.

*Grade: n/a*

#### **Water imported**

WCWD has water purchase contracts with three other systems: Carrollton Utilities, Henry County Water District #2 and Trimble County Water District. Master meters are tested annually with better than 6% accuracy. RCAP verified documentation of meter testing accuracy.

*Grade: 9*

#### **Water exported**

WCWD does not export water to any other systems.

*Grade: n/a*

#### **Master Meter & Supply Error Adjustments**

SCADA system logs hourly imported supply data. Data is reviewed by WCWD more often than weekly but not daily.

*Grade: 6*

---

### Authorized Consumption

#### **Billed metered**

WCWD tests 10-15% of their customer meters annually. Testing for residential meters is currently outsourced to Dyer Meter Services. Testing for Neptune meters is done by the original manufacturer.

*Grade: 9*

#### **Billed unmetered**

WCWD has no billed unmetered consumption.

*Grade: n/a*

#### **Unbilled metered**

WCWD has no unbilled metered consumption.

*Grade: n/a*

---

## Level 1 Water Audit Validation Report



### Water Losses

#### **Customer metering inaccuracies**

WCWD annually tests meters that are 10 years or older. RCAP verified documentation of annual meter testing.

*Grade: 9*

---

### System Data

#### **Length of mains**

The service connection density is 12 connections/mile. WCWD has a Geographic Information System (GIS) for all known water lines. As the service population has remained stagnant, installation of new mains is not common.

*Grade: 5*

#### **Number of active AND inactive service connections**

WCWD has adequate written new account activation and overall billing policies and procedures. These are reviewed biannually. Service connections are in WCWD's GIS and the total count of service connections is believed to be no more than 2% in error.

*Grade: 7*

#### **Average length of customer service line**

RCAP verified documentation of the average length of customer service lines. Periodic field checks for confirming piping lengths for customer properties are not conducted. Initial value of 11.8 ft was changed to 21.8 ft after error in the calculation for average length of customer service line was found.

*Grade: 5*

#### **Average operating pressure**

RCAP verified SCADA system data for operating pressure throughout the system. Average system pressure was determined from reliable monitoring system data.

*Grade: 8*

---

### Cost Data

#### **Total annual cost of operating water system**

RCAP verified documentation of data audited annually by utility personnel and by a third-party CPA.

*Grade: 10*

## Level 1 Water Audit Validation Report



### **Customer retail unit cost**

WCWD has no industrial customers and has one rate for all customers. Initial value of \$8.00/1000 gallons was changed to \$12.46/1000 gallons after error was found.

*Grade: 7*

### **Variable production cost**

Water supply for WCWD is entirely purchased as bulk imported water. RCAP verified documentation of variable production cost.

*Grade: 10*

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## Level 1 Water Audit Validation Report



## References

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Andrews, Lucy, et al. "Level 1 Water Audit Validation: Guidance Manual." *Water Research Foundation*, 2016, [www.waterrf.org/PublicReportLibrary/4639A.pdf](http://www.waterrf.org/PublicReportLibrary/4639A.pdf).

*Water Loss Control - American Water Works Association*, [www.awwa.org/resources-tools/water-knowledge/water-loss-control.aspx](http://www.awwa.org/resources-tools/water-knowledge/water-loss-control.aspx).

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

42. Provide a copy of the utility's procedure for monitoring and documenting withdrawals from the utility's distribution system by fire departments. If no document exists, explain the process in detail.
- a. For each fire department that made a withdrawal from the utility's system from January 1, 2018, to the date of the issuance of this Order, provide a copy of the fire department's estimate of its withdrawal.
  - b. For any instance in which a fire department failed to provide an estimate of withdrawal from January 1, 2018, to the date of the issuance of this Order, state the actions the utility implemented to correct the failure.
  - c. Provide the date on which the utility last imposed a penalty on a fire department for the fire department's failure to submit a quarterly report on its water usage.
  - d. Provide a sample copy of each type of report form that the utility provides to fire departments.
  - e. Provide the fourth quarter of the 2018 fire protection water usage, by month, and describe the formula relied upon, identifying all variables, and all assumptions and workpapers utilized to produce this information.

**Response:**

West Carroll receives reports from fire departments periodically either as a routine report of no usage or as a result of a fire. West Carroll monitors a county wide notification system whereby personnel receive a notification when there are fire trucks dispatched. West Carroll also monitors system pressures which show a pressure drop when a hydrant is used.

- a. Copies of the fire department reports for instances of fire hydrant usage from January 1, 2018 until the date of the are attached.

- b. West Carroll has requested a report for a fire that occurred in the first quarter 2019.
- c. No penalties have been imposed by West Carroll.
- d. Actual copies of the report forms are attached to this response.
- e. The fourth quarter of 2018, fire protection water usage was zero gallons. West Carroll only has twelve fire hydrants. The number of homes that can be immediately served by these hydrants during a fire is very limited. Most water that is used for firefighting is transported to the fire by tanker truck. Fire departments track the number of tanker trucks filled to calculate the volume of water used for fighting the fire.







**BEDFORD FIRE DEPARTMENT**

RETURN TO: ----->  
**BY THE 10TH OF THE FOLLOWING MONTH**

fax, mail or drop off at office

CARROLLTON UTILITIES/ WEST CARROLL WATER  
P.O. BOX 269  
225 6TH STREET  
CARROLLTON, KY 41008

PHONE: 502-732-7055  
FAX: 502-732-7058

*Bedford fire*

HYDRANT USAGE REPORT FOR THE MONTH OF:

*Jan 2019*

DATE	LOCATION OF HYDRANT/FLUSHPLUG	GALLONS USED FOR TRAINING/FIRE/OTHER	OPERATOR'S SIGNATURE
<i>1-8-19</i>	<i>Bells Ridge &amp; Kings Ridge</i>	<i>25000 / Fire</i>	<i>W. [Signature]</i>

*502 732-7058*

KRS 278-170(3): Upon obtaining commission approval of a tariff setting forth terms and conditions of service the commission deems necessary, a utility as defined in KRS 278.010(3)(d) may grant free or reduced rates service for the purpose of fighting fires or training firefighters to any city, county, urban-county, charter county, fire protection district, or volunteer fire protection district. Any tariff under this section shall require the water user to maintain estimates of the amount of water used for fire protection and training, and to report this water usage to the utility on a regular basis.

p.04 19,07:05p



**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

43. Explain how the utility accounts for flushing when determining water loss for its system.

**Response:**

Flushing volume is estimated based on hydrant size, velocity and elapsed time. Water used for flushing is considered "other water used" and not part of the water loss.

**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

44. Provide the type of flushing equipment that the utility uses.

**Response:**

West Carroll utilizes the following equipment for flushing of mains and service lines. A Neptune Trident 3-inch turbine meter and/or a Pollard Water 2.5 inch diffuser with pitot assemble is used for measuring and recording flushed flows of fire hydrants and flush hydrants. For dichlorination purposes a ZDe-chlorinator Nema 100 de-chlorination diffuser with Nema 400 attachment filled with sodium thiosulfate tables is used for complete removal of chlorine residual. Flushing of individual service lines is completed with utility devised apparatus consisting of various fittings to adapt to the home's meter setter followed by a short section of CTS tubing filled with sodium thiosulfate and another 3/4 x 5/8 Neptune T10 meter for measuring and recording of flushed flows. Please see attached for additional information.

## SAFETY DATA SHEET USA BLUEBOOK DECHLORINATION TABLETS

EMERGENCY TELEPHONE: (800) 424-9300  
DATE PREPARED: JANUARY 2015

### I. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME	USA BlueBook Dechlorination Tablets
CHEMICAL NAME	Sodium Sulfite Tablets
CHEMICAL ABSTRACT SERVICE NO.	CAS #7757-83-7
CHEMICAL FAMILY	Sodium Sulfite
FORMULA	Na <sub>2</sub> SO <sub>3</sub>
SUPPLIER	USABlueBook 3781 Bur Wood Drive Waukegan, IL 60085
EMERGENCY TELEPHONE NUMBER	(800) 424-9300
TECHNICAL PHONE NUMBER	(800) 548-1234

### II. HAZARDOUS IDENTIFICATION

EMERGENCY OVERVIEW	May cause irritation to eyes, skin and respiratory system on contact. Ingestion may irritate gastrointestinal tract. Large doses may cause violent colic and diarrhea. Wash hands thoroughly after handling. REDUCING AGENT: Stable under normal conditions. Contact with strong oxidizers can cause vigorous exothermic reactions. Contact with acids release sulfur dioxide gas. Non-flammable, but will decompose to dioxide gas in a fire. Use self-contained breathing apparatus when sulfur dioxide gas is present. Do not add this product to any dispensing device containing remains of any other product. Do not allow this product to come in contact with chlorination tablets, granules or pellets.
POTENTIAL ACUTE HEALTH EFFECTS	
INHALATION	Inhalation of dust may irritate respiratory tract.
INGESTION	Ingestion may irritate gastrointestinal tract. May cause server allergic reaction in some asthmatics and sulfite sensitive individuals. Large doses may cause violent colic and diarrhea, circulatory disturbances, central nervous system depression and even death.
SKIN	Dust may cause skin irritation from prolonged contact. Solutions will irritate skin.
EYES	Dust may irritate or burn eyes. Solutions will irritate or burn eyes.
OVER EXPOSURE SIGNS/SYMPTOMS	
INHALATION	Adverse symptoms may include the following: respiratory tract irritation
INGESTION	Adverse symptoms may include the following: gastrointestinal tract irritation toxic in large dose
SKIN	Adverse symptoms may include the following: pain or irritation
EYES	Adverse symptoms may include the following: pain
MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE	Pre-existing disorders involving any target organs mentioned in this SDS as being at risk may be aggravated by overexposure to this product.



### III. CONSUMPTION/INFORMATION ON INGREDIENTS

SODIUM SULFITE	35%
INERT INGREDIENTS	65%

THERE ARE NO ADDITIONAL INGREDIENTS PRESENT, WITHIN THE CURRENT KNOWLEDGE OF THE SUPPLIER AND IN THE CONCENTRATIONS APPLICABLE THAT ARE CLASSIFIED AS HAZARDOUS TO HEALTH OR THE ENVIRONMENT AND HENCE REQUIRE REPORTING IN THIS SECTION.

### IV. FIRST AID PROCEDURES

If ingestion, irritation, any type of overexposure or symptoms of overexposure occur during or persists after use of this product, contact a POISON CONTROL CENTER, EMERGENCY ROOM OR PHYSICIAN immediately; have Safety Data Sheet information available. Never give anything by mouth to an unconscious or convulsing person.

EYE CONTACT	Flush immediately with water for at least 20 minutes. Hold eyelids apart to ensure complete irrigation of eye tissue. Seek medical attention.
SKIN CONTACT	Remove contaminated clothing. Wash affected area with soap and water. Seek medical attention if irritation occurs or persists.
INHALATION	Remove victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Seek medical attention if irritation persists.
INGESTION	If conscious, immediately give 2 to 4 glasses of water or milk and induce vomiting under medical supervision. Seek immediate medical attention.
NOTE TO PHYSICIAN	No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

### V. FIRE-FIGHTING MEASURES

FLAMMABILITY OF THE PRODUCT	Product does not burn.
EXTINGUISHING MEDIA	
SUITABLE	Use any fire fighting agent appropriate for surrounding material; use water spray to cool fire-exposed surfaces.
NOT SUITABLE	Not applicable
SPECIAL EXPOSURE HAZARDS	Isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
HAZARDOUS COMBUSTION PRODUCTS	Sodium sulfite is formed at 600°C, residue is flammable. May yield sulphur dioxide gas upon decomposition at 900°C. Inert ingredients could support combustion by burning, yielding carbon dioxide and water.
SPECIAL FIREFIGHTING PROCEDURES	NIOSH/MSHA - Approved, positive pressure, self-contained breathing apparatus with full face piece.

### VI. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS	Wear appropriate personal protective equipment if required. Provide ventilation to clear sulphur dioxide fumes which may form.
ENVIRONMENTAL PRECAUTIONS	Do not flush to surface water.
LARGE SPILL	Spills exceeding 100 pounds should be reported to the local authorities.
SMALL SPILL	Place spilled material in clean, dry containers for disposal. Do not flush to surface water.
REFERENCE TO OTHER SECTIONS	See Section I for emergency contact information. See Section VIII for information on appropriate personal protective equipment. See Section XIII for additional waste treatment information.

### VII. HANDLING AND STORAGE

HANDLING	Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure.
STORAGE	Keep product dry and in a tightly closed container when not in use. Store in container where temperatures do not exceed 125°F. Partially used, wet or unwanted product may be disposed of in a sanitary landfill. Do not contaminate water, food, or feed by storage or disposal of this product.


**SAFETY DATA SHEET  
USA BLUEBOOK DECHLORINATION TABLETS**

PAGE 2 OF 2

DATE PREPARED: JANUARY 2015

**VIII. EXPOSURE CONTROLS AND PERSONAL PROTECTION**
**CONSULT LOCAL AUTHORITIES FOR ACCEPTABLE EXPOSURE LIMITS**

 RECOMMENDED MONITORING PROCEDURES  
 ENGINEERING MEASURES  
 HYGIENE MEASURES

Per OSHA no permissible exposure limits have been established.

Not applicable

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking, using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

## PERSONAL PROTECTION

EYES

Chemical splash goggles and face shield.

HANDS

Gloves should be worn.

GLOVES

Natural or synthetic rubber.

RESPIRATORY

Respiratory protection is not required under normal use, however when necessary, use NIOSH/MSHA approved respirator following manufacturer's recommendations. NIOSH approved dust mask is essential where dusting may occur.

SKIN

Boots, aprons or chemical suits as required to prevent skin contact.

ENVIRONMENTAL EXPOSURE CONTROLS

Not applicable

**IX. PHYSICAL AND CHEMICAL PROPERTIES**

PHYSICAL STATE	Solid	DENSITY (lbs/gal)	125 lbs./cu.ft. <sup>3</sup>
FLASH POINT	Not applicable	VAPOR PRESSURE	Not applicable
DECOMPOSITION TEMPERATURE	900°C	VAPOR DENSITY	Not applicable
MATERIAL SUPPORTS COMBUSTION	Not applicable	VOLATILITY	Not applicable
COLOR	Green Tablet	EVAPORATION RATE	Not applicable
ODOR	Mild Odor	VISCOSITY	Not applicable
pH	Alkaline	SOLUBILITY	Soluble in the following materials: water
BOILING/CONDENSATION POINT	Decomposes at 900°C	WATER SOLUBILITY AT ROOM TEMPERATURE	28% at 80°C
MELTING/FREEZING POINT	Not applicable	PARTITION COEFFICIENT NOCTANOL/WATER	Not available
SPECIFIC GRAVITY	2.63 (H <sub>2</sub> O = 1)	% SOLID (W/W)	100

**X. STABILITY AND REACTIVITY**

STABILITY	Stable under normal conditions.
CONDITIONS TO AVOID	Avoid moisture and high humidity. High temperatures yield sulfur dioxide gas and sodium sulfite residue.
MATERIALS TO AVOID	Strong oxidizers cause vigorous exothermic reactions. Acids release sulfur dioxide gas.
HAZARDOUS DECOMPOSITION PRODUCTS	Sulfur dioxide gas (SO <sub>2</sub> ) is toxic, corrosive and an oxidizer. Sodium sulfite residue (Na <sub>2</sub> S) is flammable and a strong irritant to skin and tissue.
POSSIBILITY OF HAZARDOUS REACTIONS	Do not mix with acids or oxidizing agents. Fire or explosion could result.

**XI. TOXICOLOGICAL INFORMATION**

PERMISSIBLE	No permissible exposure limits have been established by OSHA.
ACUTE	
INHALATION	Inhalation of product dust or solution may cause respiratory tract irritation.
EYE/SKIN	Dust or solution may burn eyes on contact. Product dust or solution may result in skin irritation upon prolonged contact.
INGESTION	Ingestion may irritate gastrointestinal tract. Toxic if taken in large doses.
CHRONIC	There are no known or reported effects from chronic exposure.

**XII. ECOLOGICAL INFORMATION**

ECOLOGICAL TOXICITY VALUES	
GOLDFISH	Nominal, static - 96 h LC50 100 mg/l
FISHES	Nominal, static - 24, 48 and 96 h TLM
MOSQUITO FISH	2,600 ppm
ENVIRONMENTAL EFFECTS	Not applicable
BIODEGRADABILITY	Not applicable

**XIII. DISPOSAL CONSIDERATIONS**

WASTE DISPOSAL	Not rated a hazardous substance by USEPA. Collected material can be dissolved in water, exercising caution. Dissolved material can be discharged into an appropriate industrial waste collection system but consult local, state and federal regulating agencies before disposing of any material.
----------------	--

**XIV. TRANSPORTATION INFORMATION**

IDENTIFICATION NUMBER	Not applicable	I.M.O. DESCRIPTION	Reducer
PACKING GROUP	Not applicable	U.S. DOT SHIPPING NAME	Non-Hazardous Tablets, Item NM503401
REPORTABLE QUANTITY	25 lb. and 45 lb.	U.S. DOT HAZARD CLASS	Non-Hazardous
HMIS/NFPA RATING	Not applicable		

**XV. REGULATORY INFORMATION**

UNITED STATES INVENTORY (TSCA 8b)	Yes	SARA (311, 312) HAZARD CLASS	Yes, acute and chronic health hazard
EINECS	231-821-4	SARA (313) CHEMICALS	Not listed
CANADA INVENTORY (NSN)	DSL	SARA EXTREMELY HAZARDOUS SUBSTANCE	Not listed
CERCLA HAZARDOUS SUBSTANCE	No	SARA TITLE III	Not listed
CHINA INVENTORY (IECSC)	Inventory of existing chemical substance or otherwise exempt	CANADA REGULATIONS (WHIMIS)	Class D2B - Material causing other toxic effects

**XVI. OTHER INFORMATION**

OTHER SPECIAL	Not applicable
DATE OF ISSUE	January 21, 2015

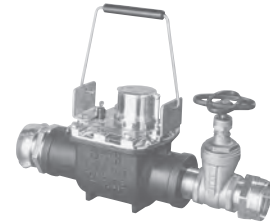
THIS SAFETY DATA SHEET IS OFFERED SOLELY FOR YOUR INFORMATION, CONSIDERATION AND INVESTIGATION. THE INFORMATION CONTAINED IN THIS DATA SHEET IS BASED ON PRESENT SCIENTIFIC AND TECHNICAL KNOWLEDGE. THE PURPOSE OF THIS INFORMATION IS TO DRAW ATTENTION TO THE HEALTH AND SAFETY ASPECTS CONCERNING THE PRODUCT AND TO RECOMMEND PRECAUTIONARY MEASURES FOR THE STORAGE AND HANDLING OF THE PRODUCT. NORWALK WASTEWATER EQUIPMENT COMPANY PROVIDES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, AND ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE DATA CONTAINED HEREIN. NO LIABILITY CAN BE ACCEPTED FOR ANY FAILURE TO OBSERVE THE PRECAUTIONARY MEASURES DESCRIBED IN THIS DATA SHEET OR FOR ANY MISUSE OF THIS PRODUCT.



A PRODUCT SHEET OF NEPTUNE TECHNOLOGY GROUP

# Fire Hydrant Meter

SIZE: 3"



The Neptune® Fire Hydrant water meter is designed for mobile use in metering flows from fire hydrants. The meter measures a wide flow range to maximize revenue. It meets or exceeds the latest performance requirements of AWWA. Maximum flow rates may be exceeded by 25% for intermittent flows.

The Fire Hydrant water meter consists of a lightweight, aluminum maincase fitted with a 2" gate valve, a turbine measuring element, and a roll-sealed register.

## Construction

The aluminum maincase is Xylan® coated for corrosion resistance and is lightweight, compact, and easy to handle. This meter features a unique "balanced handle" which makes carrying and installing it easier than any other fire hydrant meter on the market. A 2" gate valve enables the user to regulate the water flow without opening and closing the fire hydrant.

The unitized measuring element (UME) allows for quick and easy interchangeability.

Exclusive dual graphite bearings provide equalized rotor loading for accuracy over a broad flow range. The thrust-compensated rotor configuration relieves pressure on the thrust bearings, which minimizes wear and provides sustained accuracy over an extended operating life. A tamper-resistant stainless steel calibration vane allows recalibration of the UME to lengthen service life and to ensure accurate registration.

The roll-sealed register eliminates leaking and fogging. A magnetic drive couples the register with the measuring element.

## Warranty

Neptune provides a limited warranty with respect to its Fire Hydrant meters for performance, materials, and workmanship.

When desired, owner maintenance is easily accomplished by replacement of major components or a factory-calibrated UME.

## KEY BENEFITS

### Roll-Sealed Register

- Permanently-sealed, magnetic-driven register assembly eliminates leaking and fogging
- Locking register lid secures during transportation, protecting register lens
- Glass lens ensures readability and scratch resistance
- Tamperproof design prevents vandalism and allows in-service replacement of register

### Cast Aluminum Maincase

- NSF/ANSI 372
- Xylan coating ensures maximum corrosion resistance
- Lightweight material ensures easy handling
- Single, balanced carrying handle provides for easy, one-person installation
- 2" gate valve allows safe pressurization of measuring element and regulation of water flow

### Turbine Measuring Element

- Wide flow ranges at 98.5%-101.5% accuracy ensure maximized revenues
- Direct coupling of rotor to gear train ensures accurate registration
- UME makes maintenance easier and faster
- Stainless steel calibration vane ensures accurate registration and makes calibration easier

## Specifications

### Application

- Cold water measurement of flow in one direction

### Maximum operating pressure

- 150 psi

### Normal operation range

- 5-450 gpm (at accuracy of 100 +/- 1.5%)

### Register type

- Direct reading, center sweep, roll-sealed magnetic drive with low-flow indicator
- Bronze box with locking cover

### Strainer

- Plastic

### Registration

- Per sweep hand revolution: 100 gallons, 10 cubic feet, 1 cubic metre

### Register capacity (six-wheel odometer)

- 100,000,000 gallons
- 10,000,000 cubic feet
- 1,000,000 cubic metres

### Measuring element

- AWWA Class II Turbine

## Options

### Size

- 2½" outlet (with 2½" gate valve)

### Strainer

- Stainless steel (internal)

### Orifice plate

- Size for application

### Units of measure

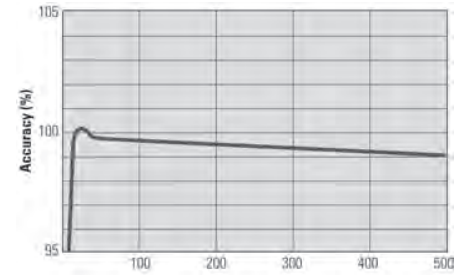
- U.S. gallons, cubic feet, cubic metres

### Connections

- Less Coupling: 3" x 2" NPT
- With Coupling: 2½" NH

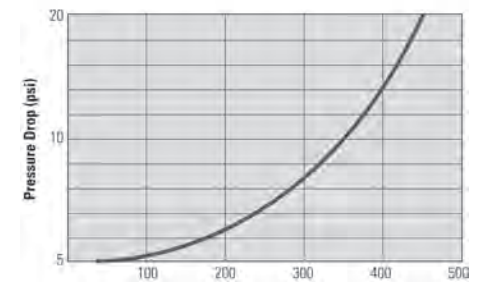
## ACCURACY CHART

(Rate of Flow in Gallons per Minute)



## PRESSURE LOSS CHART

(Rate of Flow in Gallons per Minute)



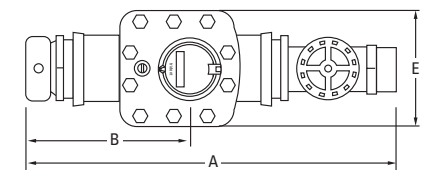
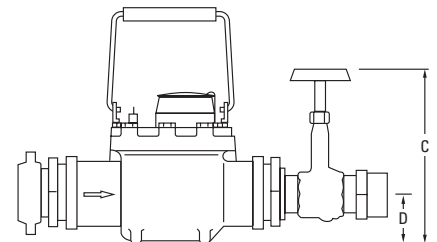
These charts show typical meter performance. Individual results may vary.

## Operating Characteristics

Meter Size	Normal Operating Range @ 100% Accuracy (+/- 1.5%)	Maximum Intermittent Flow	AWWA Standard
3"	5 to 450 US gpm 1.14 to 102.2 m³/h	560 US gpm 127.2 m³/h	8 to 435 US gpm 1.8 to 98.8 m³/h

## Dimensions

3" Fire Hydrant	A inches	B inches	C inches	D inches	E inches	Weight lbs.
Less Coupling	15 ½	7 ½	11 ½	2 ⅞	7 ½	23
With Coupling	19 ¼	10	11 ½	2 ⅞	7 ½	29



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neptunetg.com

Neptune Technology Group  
1600 Alabama Highway 229  
Tallahassee, AL 36078  
800-633-8754 f 334-283-7293





A PRODUCT SHEET OF NEPTUNE TECHNOLOGY GROUP

# T-10 Meter

SIZES  $\frac{5}{8}$ " ,  $\frac{3}{4}$ " , AND 1"

Every T-10® water meter meets or exceeds the latest AWWA C700 Standard. Its nutating disc, positive displacement principle has been time-proven for accuracy and dependability since 1892, ensuring maximum utility revenue.

## Construction

The T-10 water meter consists of three major assemblies: a register, a lead free, high-copper alloy maincase, and a nutating disc measuring chamber.

The T-10 meter is available with a variety of register types. For reading convenience, the register can be mounted in one of four positions on the meter.

The corrosion-resistant, lead-free, high-copper alloy maincase will withstand most service conditions; internal water pressure, rough handling, and in-line piping stress.

The innovative floating chamber design of the nutating disc measuring element is unaffected by meter position of in-line piping stresses while the unique chamber seal extends the low-flow accuracy by sealing the chamber outlet port to the maincase outlet port. The nutating disc measuring element utilizes corrosion-resistant materials throughout and a thrust roller to minimize wear.

## Warranty

Neptune® provides a limited warranty with respect to its T-10 water meters for performance, materials, and workmanship.

When desired, maintenance is easily accomplished either by replacement of major assemblies or individual components.

## Guaranteed Systems Compatibility

All T-10 water meters are guaranteed adaptable to our ARB®V, ProRead™ (ARB VI) AutoDetect, ProCoder™, E-CODER® (ARB VII), E-CODER®)R900i™, E-CODER®)R450i™, E-CODER®)L900i™, TRICON®/S, TRICON/E®3, and Neptune meter reading systems without removing the meter from service.

## Systems Compatibility

Adaptability to all present and future systems for flexibility is available only with Neptune's ARB® Utility Management Systems™.



## KEY FEATURES

### REGISTER

Magnetic-driven, low-torque registration ensures accuracy

Impact-resistant register

High-resolution, low-flow leak detection

Bayonet-style register mount allows in-line serviceability

Tamperproof seal pin deters theft

Date of manufacture, size, and model stamped on dial face

### LEAD FREE MAINCASE

Made from lead free, high-copper alloy

NSF/ANSI 372, NSF/ANSI 61

Lifetime guarantee

Resists internal pressure stresses and external damage

Handles in-line piping variations and stresses

Lead free, high-copper alloy provides residual value vs. plastic or composite

Electrical grounding continuity

### NUTATING DISC MEASURING CHAMBER

Positive displacement

Widest effective flow range for maximum revenue

Proprietary polymer materials maximize long-term accuracy

Floating chamber design is unaffected by meter position or in-line piping stresses

## Specifications

- NSF/ANSI 372, NSF/ANSI 61
- National Type Evaluation Program (NTEP) certification

### Application

- Cold water measurement of flow in one direction in residential service applications

### Maximum Operating Water Pressure

- 150 psi (1034 kPa)

### Maximum Operating Water Temperature

- 80°F

### Measuring Chamber

- Nutating disc technology design made from proprietary synthetic polymer

## Options

### Sizes

- 5/8", 5/8" x 3/4"
- 3/4", 3/4" SL, 3/4" x 1"
- 1", 1" x 1 1/4"

### Units of Measure:

- U.S. gallons, imperial gallons, cubic feet, cubic metres

### Register Types

- Direct reading: bronze box and cover (standard)

### Remote Reading:

- ProRead, ProCoder, E-CODER, E-CODER)R900i, E-CODER)R450i, E-CODER)L900i, TRICON/S, TRICON/E3

- Reclaim

### Bottom Caps

- Synthetic polymer (5/8" only)
- Cast iron
- Lead free, high-copper alloy

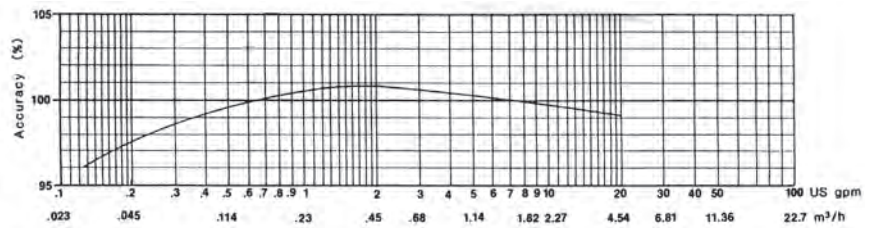
### Connections

- Lead free, high-copper alloy, straight or bent

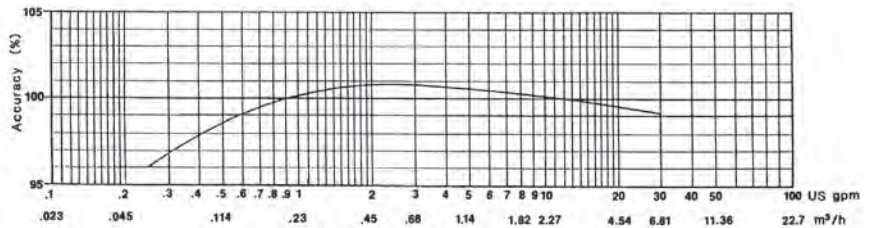
### Environmental Conditions

- Operating temperature:  
+33° F to +149° F (0° C to +65° C)
- Storage temperature:  
+33° F to +158° F (0° C to +70° C)

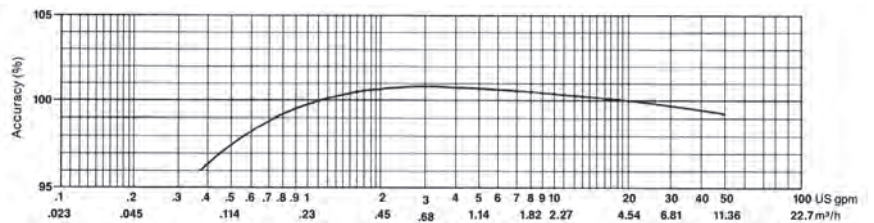
## 5/8" ACCURACY



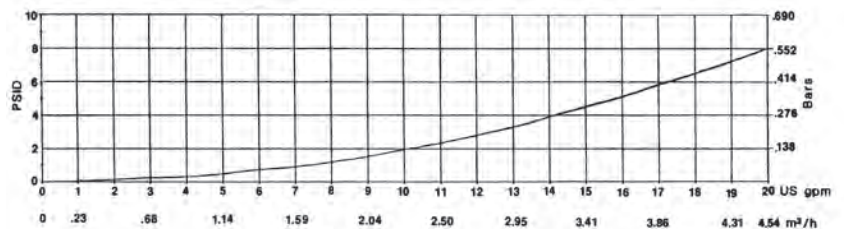
## 3/4" ACCURACY



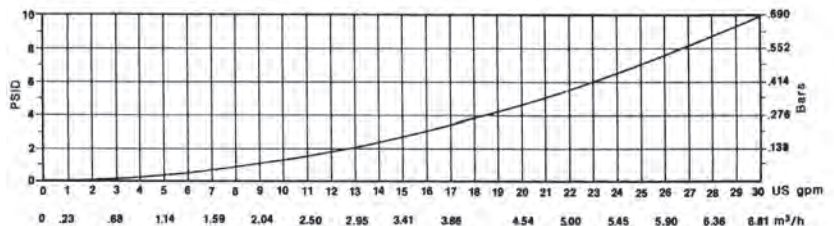
## 1" ACCURACY



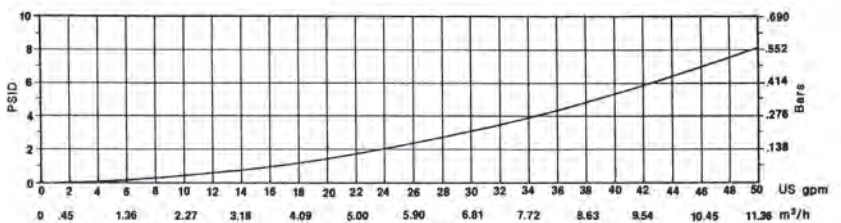
## 5/8" PRESSURE LOSS



## 3/4" PRESSURE LOSS

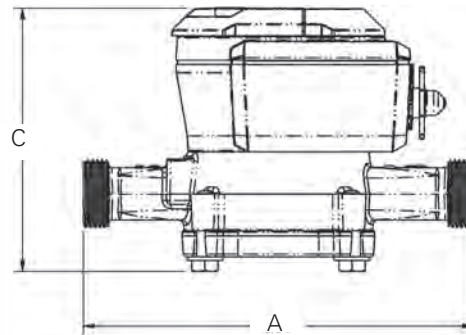
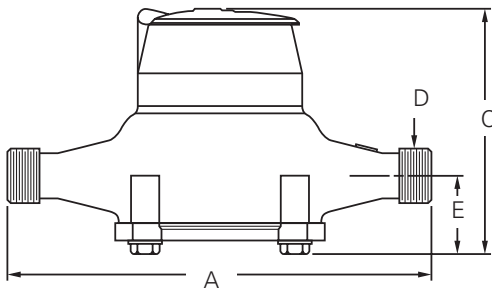
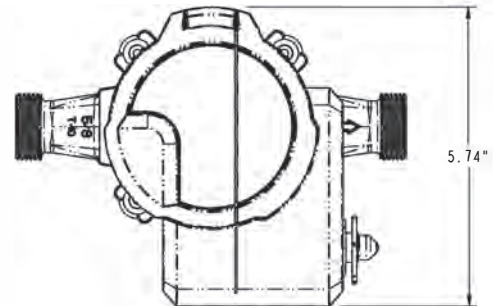
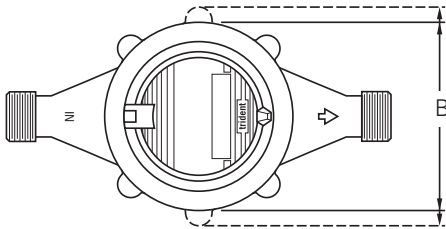


## 1" PRESSURE LOSS



## Dimensions

Meter Size	A	B	C					D-	E-	Weight lbs/kg
	in/mm	in/mm	Std. in/mm	ARB in/mm	ProCoder™ or E-CODER®	ProCoder™) R900i™ or ProCoder™) R450i™	E-CODER®) R900i™ or E-CODER®) R450i™	NPSM Thread	in/mm	
5/8	7½ 191	3⅝ 92	4⅜ 111	5¼ 133	5¼ 133	5¼ 133	5¼ 133	¾" - 14	1½ 38	3¼ 1.4
5/8 x ¾	7½ 191	3⅝ 92	4⅜ 111	5¼ 133	5¼ 133	5¼ 133	5¼ 133	1" - 11½	1½ 38	3⅝ 1.5
Pre 2011 ⅝	7½ 191	3⅝ 92	4⅞ 124	5½ 146	5½ 139	5½ 139	5½ 139	¾" - 14	1⅝ 41	3¾ 1.7
Pre 2011 ⅝ x ¾	7½ 191	3⅝ 92	4⅞ 124	5½ 146	5½ 139	5½ 139	5½ 139	1" - 11½	1⅝ 41	4 1.8
¾	9 229	4⅜ 111	5½ 140	6¼ 159	6¼ 159	6¼ 159	6¼ 159	1" - 11½	1⅞ 48	6 2.7
¾" SL	7½ 911	4⅜ 111	5½ 140	6¼ 159	6¼ 159	6¼ 159	6¼ 159	1" - 11½	1⅞ 48	5½ 2.5
¾ x 1"	9 229	4⅜ 111	5½ 140	6¼ 159	6¼ 159	6¼ 159	6¼ 159	1¼" - 11½	1⅞ 48	6½ 2.9
1"	10¾ 273	6½ 165	6⅝ 162	7 178	7 178	7 178	7 178	1¼" - 11½	2⅞ 54	9¾ 4.4
1" x 1¼"	10¾ 273	6½ 165	6⅝ 162	7 178	7 178	7 178	7 178	1½" - 11½	2⅞ 54	10¼ 4.6



## Operating Characteristics

Meter Size	Normal Operating Range @ 100% Accuracy (+/- 1.5%)	AWWA Standard	Low Flow @ 95% Accuracy
5/8"	1/2 to 20 US gpm 0.11 to 4.55 m <sup>3</sup> /h	1 to 20 US gpm 0.23 to 4.5 m <sup>3</sup> /h	1/8 US gpm 0.03 m <sup>3</sup> /h
3/4"	3/4 to 30 US gpm 0.17 to 6.82 m <sup>3</sup> /h	2 to 30 US gpm 0.45 to 6.8 m <sup>3</sup> /h	1/4 US gpm 0.06 m <sup>3</sup> /h
1"	1 to 50 US gpm 0.23 to 11.36 m <sup>3</sup> /h	3 to 50 US gpm 0.68 to 11.4 m <sup>3</sup> /h	3/8 US gpm 0.09 m <sup>3</sup> /h

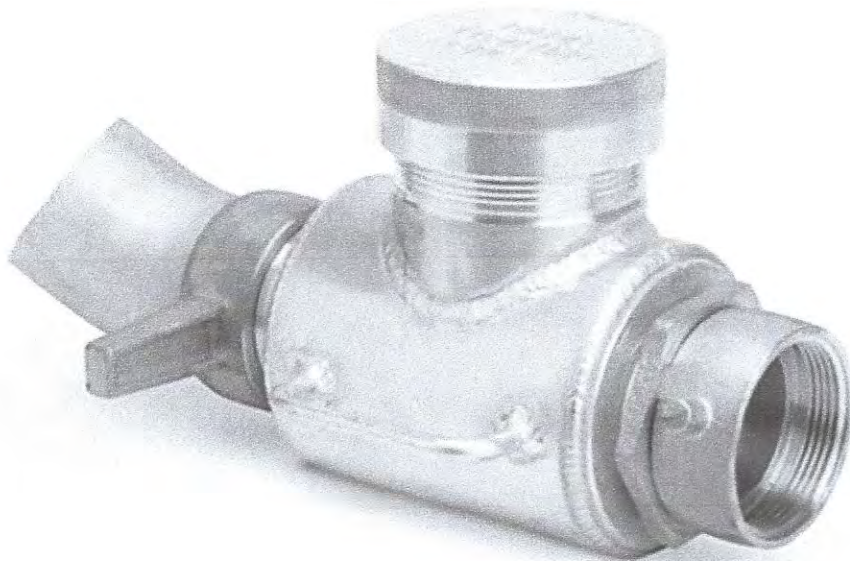
## Registration

ProRead Registration (per sweep hand revolution)		5/8"	3/4" & 1"
10	US Gallons	√	√
10	Imperial Gallons	√	√
1	Cubic Foot	√	√
0.1	Cubic Metre	√	√
Register Capacity ProRead, ProCoder, and E-CODER		5/8"	3/4" & 1"
10,000,000	US Gallons	√	√
10,000,000	Imperial Gallons	√	√
1,000,000	Cubic Feet	√	√
100,000	Cubic Metres	√	√
ProCoder and E-CODER High Resolution (8-digit reading)		5/8"	3/4" & 1"
0.1	US Gallons	√	√
0.1	Imperial Gallons	√	√
0.01	Cubic Feet	√	√
0.001	Cubic Metres	√	√



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Neptune Technology Group  
1600 Alabama Highway 229  
Tallahassee, AL 36078  
800-633-8754 f 334-283-7293





**West Carroll Water District  
Case No. 2019-00041  
Requests for Information contained in  
Appendix C to the Commission's Order entered March 12, 2019**

45. Provide the utility's system flushing records, by month, from January 1, 2018, to the date of the issuance of this Order, and describe the formula relied upon, identifying all variables, and all assumptions and workpapers utilized to produce this information.

**Response:**

Please see the response to Request 1 above. The flushing records are included by month in response to Request 1. Also, see the response to Request 44 for further details on estimating volume. West Carroll is also attaching a copy from *Operator's Companion* by USA BlueBook.

Q 45

10<sup>th</sup> Edition **Chris**

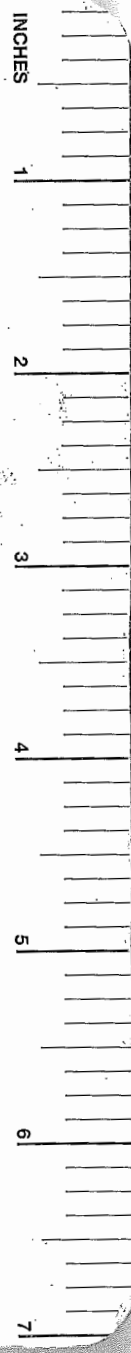
\$19.95

**EXPANDED EDITION**  
Featuring 20 new pages of information!

# OPERATOR'S COMPANION

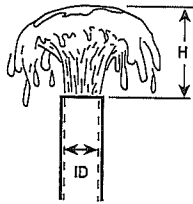
by **USA BlueBook**

Handy Tables, Formulas,  
and Other Stuff



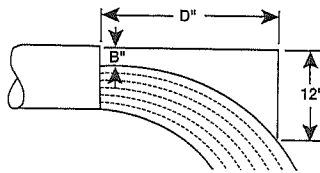


## Estimating Flow from a Vertical Pipe



I.D. Pipe, inches	Flow in Gallons per Minute											
	Vertical Height of Flow (H), inches											
	3	3.5	4	4.5	5	5.5	6	7	8	10	12	
2	38	41	44	47	50	53	56	61	65	74	82	
3	81	89	96	103	109	114	120	132	141	160	177	
4	137	151	163	174	185	195	205	222	240	269	299	
6	318	349	378	405	430	455	480	520	560	635	700	
8	567	623	684	730	776	821	868	945	1020	1150	1270	
10	950	1055	1115	1200	1280	1350	1415	1530	1640	1840	2010	

## Estimating Discharge from a Horizontal Pipe not Running Full Flow



$$\text{Flow (gpm)} = A \times D \times 1.039 \times F$$

A = Area of pipe in sq. in. = inside dia<sup>2</sup> x 0.7854

D = Horizontal distance in inches

F = Effective area factor obtained from table at right

### Example:

Given: Inside dia pipe = 6 inches

D = 16 inches

B = 4 inches

$$A = 36 \times 0.7854 = 28.3 \text{ in.}^2$$

$$\text{Ratio } B/D = 4/16 = 25\%$$

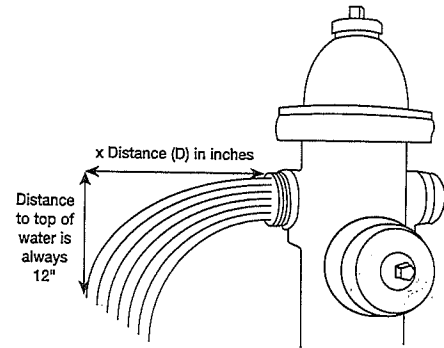
F = 0.805 (from table)

$$\begin{aligned} \text{Flow (gpm)} &= A \times D \times 1.039 \times F \\ &= 28.3 \times 16 \times 1.039 \times 0.805 \\ &= 379 \text{ gpm (approx)} \end{aligned}$$

Effective Area Factor Based on B/D	
Ratio B/D %	Eff. Area Factor F
5	0.981
10	0.948
15	0.905
20	0.858
25	0.805
30	0.747
35	0.688
40	0.627
45	0.564
50	0.500
55	0.436
60	0.373
65	0.312
70	0.253
75	0.195
80	0.142
85	0.095
90	0.052
95	0.019
100	0.000

## Estimating Low Flow Rates From a 2 1/2" Hydrant Nozzle

The approximate flow from a 2 1/2" hydrant nozzle can be determined by measuring the distance of the water flow at a point 12" below the top of the water as it leaves the nozzle.



Distance (D) in inches	Flow in gpm
6"	30
8"	40
10"	50
12"	60
14"	70
16"	80
18"	90
20"	100
30"	150

Page 3 of 3  
 Witness: Chris Rose  
 045

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

ELECTRONIC INVESTIGATION INTO )  
EXCESSIVE WATER LOSS BY KENTUCKY'S ) Case No. 2019-00041  
JURISDICTIONAL WATER UTILITIES )

---

VERIFICATION OF VICKIE EDWARDS


---

COMMONWEALTH OF KENTUCKY )  
 )  
COUNTY OF CARROLL )

Vickie Edwards, being duly sworn, states that she has supervised the preparation of the responses of West Carroll Water District to Requests for Information contained in Appendix C to the Commission's Order entered March 12, 2019 in the above-referenced proceeding and that the matters and things set forth in those responses are true and accurate to the best of her knowledge, information and belief, formed after reasonable inquiry.

  
VICKIE EDWARDS

The foregoing Verification was signed, acknowledged and sworn to before me this 11<sup>th</sup> day of April, 2019, by Vickie Edwards.

  
NOTARY PUBLIC  
Commission Expiration: Sept. 25, 2021

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

ELECTRONIC INVESTIGATION INTO )
EXCESSIVE WATER LOSS BY KENTUCKY'S ) Case No. 2019-00041
JURISDICTIONAL WATER UTILITIES )

VERIFICATION OF BILL OSBORNE

COMMONWEALTH OF KENTUCKY )
COUNTY OF CARROLL )

Bill Osborne, being duly sworn, states that he has supervised the preparation of the responses of West Carroll Water District to Requests for Information contained in Appendix C to the Commission's Order entered March 12, 2019 in the above-referenced proceeding and that the matters and things set forth in those responses are true and accurate to the best of his knowledge, information and belief, formed after reasonable inquiry.

[Handwritten signature of Bill Osborne]

BILL OSBORNE

The foregoing Verification was signed, acknowledged and sworn to before me this 11th day of April, 2019, by Bill Osborne.

[Handwritten signature of Corina Beach]

NOTARY PUBLIC

Commission Expiration: Sept. 25, 2021

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

ELECTRONIC INVESTIGATION INTO )
EXCESSIVE WATER LOSS BY KENTUCKY'S ) Case No. 2019-00041
JURISDICTIONAL WATER UTILITIES )

VERIFICATION OF CHRIS ROSE

COMMONWEALTH OF KENTUCKY )
COUNTY OF CARROLL )

Chris Rose, being duly sworn, states that he has supervised the preparation of the responses of West Carroll Water District to Requests for Information contained in Appendix C to the Commission's Order entered March 12, 2019 in the above-referenced proceeding and that the matters and things set forth in those responses are true and accurate to the best of his knowledge, information and belief, formed after reasonable inquiry.

[Handwritten signature of Chris Rose]
CHRIS ROSE

The foregoing Verification was signed, acknowledged and sworn to before me this 11th day of April, 2019, by Chris Rose.

[Handwritten signature of Corina Beach]
NOTARY PUBLIC
Commission Expiration: Sept. 25, 2021