SUPPLEMENT
to the
INFRASTRUCTURE IMPROVEMENT PLAN
for the
UNACCOUNTED-FOR WATER LOSS
REDUCTION PLAN

WESTERN PULASKI COUNTY
WATER DISTRICT
APRIL 2023

The Western Pulaski County Water District (WP) is in the process of implementing their Infrastructure Improvement Plan for the Unaccounted-For Water Loss Reduction Plan. The Plan consists of purchasing new water meters that will be used to replace existing water meters that are over ten years old which will enable WP to determine the location of water leaks quicker and more efficiently, and to purchase a listening device to assist them in locating water leaks.

WP operates a potable water system primarily in the northern portion of Pulaski County and serves a small portion of residents in Russell County and Wayne County. Their water system consists of approximately 470 miles of water lines that range in size from 3-inch diameter to 16-inch diameter, and they serve approximately 9,400 customers, most of which are residential users.

According to their Annual Report for the calendar year 2021, and on file at the Kentucky Public Service Commission (PSC), for that year WP purchased 539,754,000 gallons of water and had unaccounted for water loss of 137,915,000 gallons of water which calculates to an unaccounted for water loss of 25.6 percent. In addition, WP compiles water loss on a monthly basis in the form of a Monthly Water Loss Report. Excerpts from the Annual Report and WP's Monthly Water Loss Report for the month of March, 2023 are shown in Appendix 1.

On September 22, 2022, PSC authorized WP to assess a monthly water surcharge of $1.70 per customer for 48 months, or until $683,000 has been assessed, whichever occurs first, to fund its unaccounted-for water loss reduction efforts.

Approximately five years ago WP developed a plan to improve their ability to locate and eliminate water leaks by dividing the water system into zones and comparing the amount of water delivered to each zone to the amount of water purchased by consumers through the consumers individual meters. However, WP recognized that the accuracy of the consumer's meter readings was questionable based on the fact that many of the meters exceed ten years in age and test results revealed a large percentage of them registered greater than 2 percent low or did not register at all. As reported on WP's Quarterly Meter Report for the period of the first quarter of 2023, WP tested 770 water meters and found that 223 meters registered greater than 2 percent low (29%) and that 112 meters did not register at all (15%). A copy of that Quarterly Meter Report is in Appendix 2. Based on this fact, WP has proposed to spend $667,100 as accumulated through the monthly water surcharge to purchase new 5/8-inch x ¾-inch radio read water meters at an estimated cost of $175.00 per meter, which calculates to a total number of meters purchased of 3,812. A copy of the specifications of the water meter and the radio transmitter is in Appendix 3.

A look into the past practices of WP in regard to consumer meter testing revealed that meters were not being tested as required which has resulted in aged meters in operation that a portion of which are known to be inaccurate as described above. According to WP General Manager, Joe McClendon, approximately five years ago WP committed to test at least 1,000 meters per year in anticipation of completing the testing of all of their approximately 9,400 meters in ten years. Upon completion of the ten year period, WP would begin the ten year cycle again and this method of testing each meter within a ten year period would become a part of their Standard Operating Procedure.

Since the initiation of the meter testing program, WP has opted to change their water meters from the manual read type to the drive by radio read type. As of the end of the first quarter of 2023, over the past five years WP has replaced 5,894 of the manual read type meters with new radio drive by meters. This leaves approximately 3,500 meters that are scheduled to be upgraded as soon as WP can financially afford to complete the changeover. Once completed it would result in WP having a radio based drive by meter reading system throughout their entire water system.

In regard to the zone master meters, in 2015 WP spent over $600,000 to install a radio telemetry system that would monitor and report water system conditions at 24 sites. These sites consisted of a master control station at the WP central office, seven water tank sites, six booster pump stations which includes one of the purchase master meters, the four remaining purchase master meters, and six master meters strategically located in the system to serve as zone master meters. A copy of the final invoice for the installation of the system is in Appendix 4 and it itemizes the site/name of each location a in which a telemetry unit was installed and its associated cost. To date, WP has 13 telemetry operated master meters that serve as zone meters that monitor 10

zones that cover the entire water system. WP produces a monthly Zone Water Loss Report and a copy of the March 2023 Report is in Appendix 5.

According to Mr. McClendon, since the telemetry system has been in operation in conjunction with the addition of the new drive by radio read meters it has significantly improved WP's ability to find water leaks by comparing trends of zone meter readings and changes in those trends that have resulted in faster determination of the location of water leaks by eliminating the need to search in areas where the trend remains constant. In addition, as zones become equipped with the radio read consumer meters, this is allowing WP to determine more accurately than before the degree of leakage occurring in each zone. This will allow WP to focus on the zones that have the highest amount of leakage resulting in a more efficient leak location determination which will result in a more efficient reduction of water loss. With the implementation of the monthly water surcharge this will allow WP to finance the purchase of the proposed new radio read meters and install them such that the entire water system will have an improved method for locating water leaks and reducing water loss.

In addition to the purchase of the water meters WP is proposing to purchase a new ultrasonic flow meter equipped with a listening device. The estimated cost for the device is $15,900 and it will replace WP's existing device which has become inoperable. Mr. McClendon indicated that when their device was working it allowed them to find leaks that did not surface where they could be visually seen. Due to the karst topography of their service area approximately 50 percent of the leaks that are found are occurring underground. A copy of the Leak Detector Specifications is in Appendix 6.

A list of Attachments is as follows:

Appendix 1:	PSC Annual Report Excerpt & Monthly Water Loss Report March 2023
Appendix 2:	Quarterly Meter Report
Appendix 3:	Water Meter Specifications
Appendix 4:	Radio Telemetry List & Invoice
Appendix 5:	March 2023 Zone Water Loss Report
Appendix 6:	Leak Detector Specifications

APPENDIX 1

7000500 Western Pulaski County Water District 01/01/2021 - 12/31/2021

Water Statistics (Ref Page: 30)

	Description	Gallons (Omit 000`s)	Percent
1. Water Produced, Purchased and Distributed			
2. Water Produced			
3. Water Purchased		539,754	
4. Total Produced and Purchased		539,754	
6. Water Sales:			
7. Residential		346,076	
8. Commercial		53,869	
9. Industrial			
10. Bulk Loading Stations			
11. Wholesale			
12. Public Authorities			
13. Other Sales (explain)			
14. Total Water Sales		399,945	
16. Other Water Used			
17. Utility/water treatment plant			
18. Wastewater plant			
19. System flushing			
20. Fire department			
21. Other Usage (explain)	System Flushing, Fire Departments and Other Usage	1,894	
22. Total Other Water Used		1,894	
24. Water Loss			
25. Tank Overflows			
26. Line Breaks		35,401	
27. Line Leaks		102,464	
28. Excavation Damages		50	
29. Theft			
30. Other Loss (Explain)			
31. Total Water Loss		137,915	
Note: Line 14 + Line 22 + Line 31 must equal Line 4			
Water Loss Percentage			

Water Statistics (Ref Page: 30)

Description	Gallons (Omit 000`s)	Percent
Line 31 divided by Line 4		25.5515

PUBLIC SERVICE COMMISSION

Monthly Water Loss Report

Water Utility: Western Pulaski County Water District

For the Month of: March Year: 2023

LINE #	ITEM	GALLONS (Omit 000's)
1	**WATER PRODUCED AND PURCHASED**	
2	Water Produced	-
3	Water Purchased	44,613
4	**TOTAL PRODUCED AND PURCHASED**	44,613
5		
6	**WATER SALES**	
7	Residential	22,857
8	Commercial	1,683
9	Industrial	-
10	Bulk Loading Stations	-
11	Wholesale	-
12	Public Authorities	-
13	Other Sales (explain) _____	-
14	**TOTAL WATER SALES**	24,540
15		
16	**OTHER WATER USED**	
17	Utility and/or Water Treatment Plant	-
18	Wastewater Plant	-
19	System Flushing	125
20	Fire Department	30
21	Other Usage (explain)_____	0
22	**TOTAL OTHER WATER USED**	155
23		
24	**WATER LOSS**	
25	Tank Overflows	12
26	Line Breaks	
27	Line Leaks	19,906
28	Excavation Damages	
29	Theft	
30	Other Loss (explain) _____	
31	**TOTAL WATER LOSS**	19,918
32		
33	**Note:** Line 14 + Line 22 + Line 31 **MUST** Equal Line 4	
34		
35	**WATER LOSS PERCENTAGE**	
36	(Line 31 divided by Line 4)	44.65%

APPENDIX 2

QUARTERLY METER REPORT
TO THE KENTUCKY PUBLIC SERVICE COMMISSION

GENERAL INFORMATION

NAME OF UTILITY	Western Pulaski Water District	QUARTER	1
ADDRESS	2128 west Hwy 80	TEST YEAR	2023
CITY, STATE, ZIP	Somerset, KY 42503	DATE SUBMITTED	March 28, 2023

METER STATISTICS

CUSTOMER TYPE	METERED	NON-METERED	TOTAL
RESIDENTIAL	9290	0	9290
COMMERCIAL	68	0	68
INDUSTRIAL	0	0	0
OTHER	0	0	0
TOTALS	9358	0	9358

STATUS OF METER TEST PROGRAM	QUANTITY
METERS TO BE TESTED THIS YEAR	1000
METERS TESTED THIS YEAR (TO DATE)	770
METERS STILL TO TEST THIS YEAR	230

METER TESTING

YEARS SINCE METER WAS LAST TESTED	METER TEST RESULTS				METERS TESTED	METERS NOT TESTED
	WITHIN ±2%	> 2% FAST	> 2% SLOW	NR*		
NEW - 5 YEARS	0	0	0	0	0	0
5 - 8 YEARS	0	0	0	0	0	0
9 YEARS	0	0	0	0	0	0
10 YEARS	0	0	0	0	0	0
10+ YEARS	435	0	223	112	770	0
UNKNOWN	0	0	0	0		0
TOTALS	0	0	0	0	770	0
PERCENT	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%

* Non-Registering

PERIODIC METER TEST PROGRAM	yes
CASE NUMBER and/or SAMPLE METHOD PLAN	
METERS REMOVED FROM SERVICE AND TESTED THIS QUARTER	770
NEW SERVICE CONNECTIONS (METERS) INSTALLED THIS QUARTER	34
TOTAL METERS TESTED THIS QUARTER	770
UTILITY OR APPROVED AGENCY DOING METER TESTING	Western pulaski water
METERS THAT TEST MORE THAN 2% FAST OR 2% SLOW	Discard&Replace

CUSTOMER AND REFUND INFORMATION

NUMBER OF TESTS MADE AT CUSTOMER'S REQUEST	0
NUMBER OF TESTS MADE AT COMMISSION'S REQUEST	0
NUMBER OF METERS ON WHICH REFUNDS WERE MADE	0
TOTAL AMOUNT OF REFUNDS MADE DURING THIS QUARTER	$0.00
NUMBER OF CUSTOMERS BILLED FOR SLOW METERS	0
TOTAL AMOUNT BILLED ON SLOW METERS	$0.00
NUMBER OF CUSTOMERS BILLED FOR NON-REGISTERING METERS	0
TOTAL AMOUNT BILLED ON NON-REGISTERING METERS	$0.00

METER TESTING INFORMATION APPROVED BY:

SIGNED Joe McClendon

TITLE General manager

CUSTOMER & REFUND INFORMATION APPROVED BY:

SIGNED Tammy Vaught

TITLE Office Manager

APPENDIX 3

MUELLER

420 SERIES BRONZE

420 Bronze PD Meter - Sizes 5/8" x 1/2" and 5/8" x 3/4"

FEATURES

Applications: The Mueller® 420 bronze is a nutating disc style, positive displacement meter designed for residential and small commercial applications where water volumes are low and low flow sensitivity is important.

Conformance to Standards: All Mueller 420 bronze meters meet or exceed the latest revision of the AWWA C 700 Standard for positive displacement meters. Every 420 bronze no lead meter is compliant with the latest initiatives of NSF, ANSI and EPA standards.

Construction: Mueller 420 water meters consist of three basic parts: maincase, measuring chamber, and permanently sealed register. The maincase is made of bronze for long life. Direction of flow arrows and model are cast into each maincase for ease of identification. The bottom cover is epoxy coated cast iron with a molded plastic liner separating it from the waterway. Optional bronze and polymer bottom covers are available. The measuring chambers are designed for reduced wear during operation. The measuring chamber, integral strainer, nutating disc and thrust roller are thermoplastic, which is dimensionally stable and will not corrode. The register housing and lid are available in your choice of plastic or bronze for standard visual read registers. The meter is designed so that the register can be replaced easily without removing the meter from the service line.

Register: The permanently sealed visual read register has a unique triple "L" seal and heat treated, glass lens to eliminate dirt, moisture infiltration and fogging. An integral tamper proof locking feature is provided to resist tampering with the register. The totalizing register has a straight reading odometer type display, a 360° test circle with center sweep hand and a low flow (leak) detector. Standard gearing is used, making registers interchangeable by size. The 420 bronze meter is available with all AMR and AMI options for increased reading efficiency.

Operation: Water flows through the meter's strainer where debris is screened out. The incoming water fills a known volume of the measuring chamber on one or the other side of a movable disc that separates the chamber into two sections. As water enters, it moves the disc (nutates), forcing a known volume of water out of the meter from the opposite side of the disc. The process repeats as the sections refill and empty in turn. The nutating action of the disc is coupled magnetically to the register to indicate the volume of water that passes through the meter.

Maintenance: The Mueller 420 positive displacement meter is designed and manufactured to provide long service life with virtually no maintenance required. Repair components available include complete chamber assemblies and bottom plate gaskets. All components can be accessed without removing the meter body from the service line for simplified maintenance.

Connections: Supplied with external straight pipe threads (NPSM) per ANSI B1.20.1

5/8" X 1/2" 420 BRONZE PD METER

MATERIALS AND SPECIFICATIONS

Model	420 Bronze Meter
Sizes	5/8" x 1/2", 5/8" x 3/4"
Standards	AWWA C-700, Most current NSF-61, ANSI, & EPA Initiatives
Service	Measurement of flow in forward direction only
Installation	Horizontal or Vertical
Operating Flow Range	See charts on the following pages
Accuracy	See charts on the following pages
Maximum Working Pressure	150 psi
Temperature Range	33° F to 100° F water temperature
Measuring Element	Nutating Disc PD Chamber
Register Type	Straight reading, permanently sealed, magnetic drive with low flow indicator and remote reading capability
Meter Connections	External straight pipe threads (NPSM)
Materials	Meter case - Bronze Bolts - Stainless Steel Measuring Element Chamber and Disc - Thermoplastic Disc Pin - SST Strainer - Thermoplastic
Options	AMR/AMI Reading Systems

420 SERIES BRONZE

420 Bronze PD Meter - Sizes 5/8" x 1/2" and 5/8" x 3/4"

METER REGISTRATION

METER SIZE	INITIAL DIAL*	CAPACITY	INITIAL DIAL*	CAPACITY
5/8"	10 Gallons	10 Million	1 Cubic Feet	1 Million

*Registration equal to one full revolution of the sweep hand.

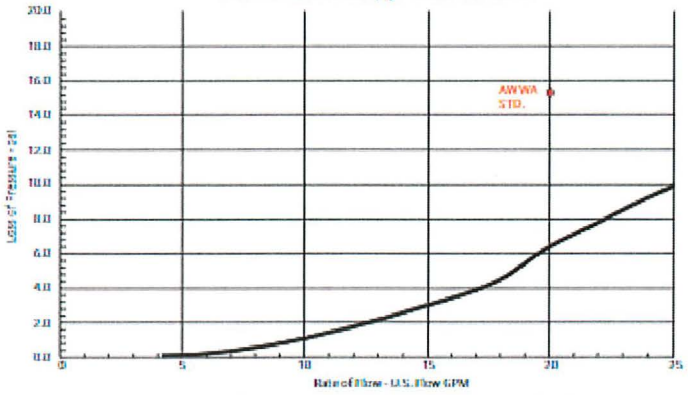
FLOW CHARACTERISTICS

METER SIZE	TYPICAL LOW FLOW (95% MINIMUM)	TYPICAL OPERATING RANGE (100% ± 1.5%)	MAXIMUM CONTINUOUS OPERATION
5/8"	1/8 GPM	1/2 to 20 GPM	15 GPM

PERFORMANCE

HEAD LOSS

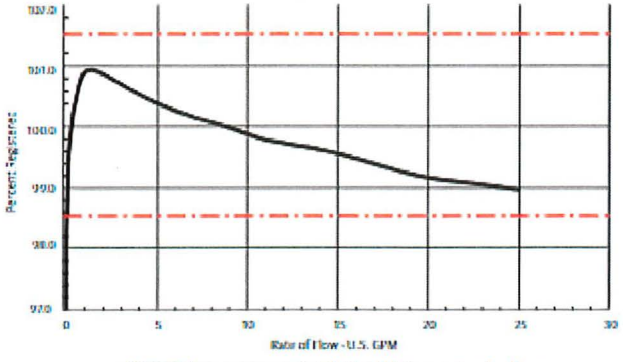
Head Loss on 5/8" 420 Bronze



NOTE: Performance curves are typical only and NOT a guarantee of performance.

ACCURACY

Accuracy on 5/8" 420 Bronze



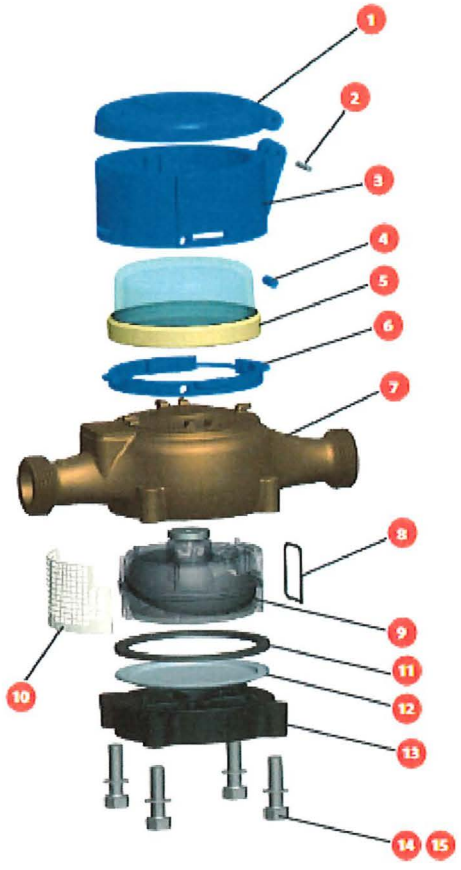
NOTE: Performance curves are typical only and NOT a guarantee of performance.

420 SERIES BRONZE

420 Bronze PD Meter - Sizes 5/8" x 1/2" and 5/8" x 3/4"

MODEL 420 BRONZE METER ASSEMBLY COMPONENTS

ITEM	PART #	DESCRIPTION	QTY
1	C5768	Plastic Register Cover	1
	C5774	Bronze Register Cover	
2	C5769	Plastic Register Housing Base	1
	C5772	Bronze Register Housing Base	
3	AS41122	Plastic Lid Spirol Pin	1
	AS41123	Bronze Lid Spirol Pin	
4	AS12658	Blue Color Register Locking Pin	1
	AS126581	Bronze Color Register Locking Pin	
5	D36981	Model 420 Visual Register SG	1
	D36982	Model 420 Visual Register CF	
	D36983	Model 420 Visual Register CM	
6	C5770	Register Housing Insert	1
7	D36805I	5/8" x 3/4" Model 420 Main Case	1
	D3681-15I	5/8" x 1/2" Model 420 Main Case	
8	A13120	Model 420 Chamber O-Ring	1
9	D3635PO	Model 420 Chamber Assembly	1
10	C6681	Model 420 Bronze Strainer Retainer	1
11	B8664	Model 420 Bronze Gasket	1
12	B8665	Model 420 Liner (Iron/Brz Only)	1
13	B8663	Model 420 Iron Bottom Plate	1
	B8662	Model 420 Bronze Bottom Plate	
	C6682	Model 420 Polymer Bottom Plate	
14	90026	5/16 - 18 x 7/8" Hex Bolt SS (Iron/Brz Btm)	4
	90010	5/16 - 18 x 1 1/4" Hex Bolt SS (Plastic Btm)	
15	90018	5/16 Flat Washer SS (Polymer Btm)	4

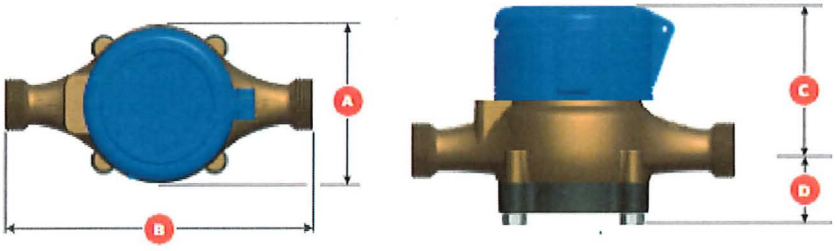


DIMENSIONS, WEIGHTS AND PARTS

METER SIZE	⅝"		
MODEL	420 BRONZE STANDARD REGISTER	420 BRONZE SSR REGISTER	420 BRONZE ME-8 REGISTER
	DIMENSION		
A	3.8125"	3.8125"	3.8125"
B	7.5"	7.5"	7.5"
C	3.3125	3"	3.5"
D	1.375"	1.375"	1.375"
Weight	3.7	3.7	3.7

Weights are in pounds are approximate.
Inlet and outlet ⅝" or ¾"

420 BRONZE METER



Mi.Node M: "AMI-Ready" Mobile

- Fully functional, 2-way AMI node utilizing LoRa long range technology
- Remote disconnect utilizing the 420 RDM
- Stores 500 days worth of readings in standard mode
  - 105 days of hourly data
  - Configurable to 5 minutes in meter-sizing mode
- Automatically configures to AMI mode when a network collector is installed
- AMR mobile mode is available as a "disaster recovery" option
- Remote firmware upgrades available

Mueller SYSTEMS

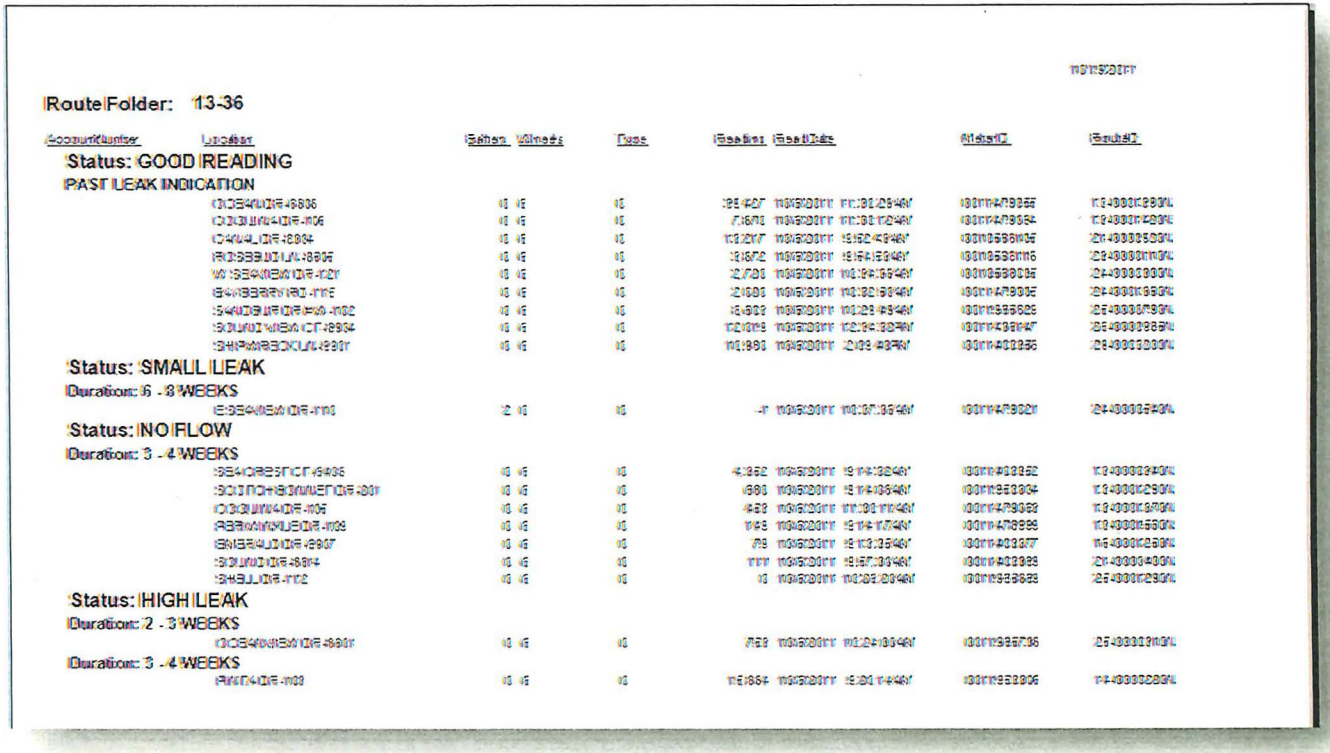
Mi.Net M Transceiver Mobile Collector

- Utilizes LoRa modulation for extremely long range communications
- Full 2-way communications with Mi.Node M transceiver endpoints
  - Download datalogging information on-demand or by route
- Compact design

Mueller SYSTEMS

“XDATA” Report

The Extended Data Report displays all the instant data logging alert information in one location.



Route Folder: 13-36

Account Number	Location	Status	Wireless	Type	Reading	Read Date	Meter ID	Route ID
Status: GOOD READING								
PAST LEAK INDICATION								
Status: SMALL LEAK								
Duration: 6 - 8 WEEKS								
Status: NO FLOW								
Duration: 3 - 4 WEEKS								
Status: HIGH LEAK								
Duration: 2 - 3 WEEKS								
Duration: 3 - 4 WEEKS								

Mueller SYSTEMS

APPENDIX 4

MONARCH ENGINEERING, INC.
LAWRENCEBURG, KENTUCKY

PERIODIC ESTIMATE FOR PARTIAL PAYMENT

PROJECT: TELEMETRY CONTROL SYSTEM
PROJECT NO. : 1319 / 1408

OWNER: WEST PULASKI COUNTY WATER DISTRICT
CONTRACTOR: HTI, Inc.

ESTIMATE NO. 6

FOR PERIOD: June 21, 2015 through March 26, 2016
100.0% Percent Complete

CONTRACT ESTIMATE						PAY QUANTITIES			
Item No.	Item Description	Bid Quantity	Unit	Unit Price	Amount	Previous Estimate	Current Estimate	Total To Date	Total Amount
	BASE CONTRACT								
1	Water Office Master Terminal Unit	1	LS	$82,200.00	$82,200.00	100%	0%	100%	$82,200.00
2	Faubush Road Tanks Site	1	LS	21,600.00	21,600.00	100%	0%	100%	21,600.00
3	Old Columbia Road Tank Site	1	LS	22,100.00	22,100.00	100%	0%	100%	22,100.00
4	Pleasant Point Road Tank Site	1	LS	15,200.00	15,200.00	100%	0%	100%	15,200.00
5	Denham Knob Tank Site	1	LS	21,300.00	21,300.00	100%	0%	100%	21,300.00
6	Bourbon Road (South) Tank Site	1	LS	15,500.00	15,500.00	100%	0%	100%	15,500.00
7	North Tank Site	1	LS	21,200.00	21,200.00	100%	0%	100%	21,200.00
8	Hickory Nut Tank Site	1	LS	15,600.00	15,600.00	100%	0%	100%	15,600.00
9	Hickory Nut Booster PS No. 1 Site	1	LS	19,500.00	19,500.00	100%	0%	100%	19,500.00
10	Faubush Road Booster PS No. 1 Site	1	LS	17,600.00	17,600.00	100%	0%	100%	17,600.00
11	Hickory Nut Booster PS No. 2 Site	1	LS	19,300.00	19,300.00	100%	0%	100%	19,300.00
12	Clifty Road (North) Pump Station Site	1	LS	19,300.00	19,300.00	100%	0%	100%	19,300.00

SUMMARY OF ALL ESTIMATES

Estimate No. 1 $ 295,113.42
Estimate No. 2 $ 110,864.92
Estimate No. 3 $ 26,245.54
Estimate No. 4 $ 46,603.40
Estimate No. 5 $ 100,967.22
Estimate No. 6 $ 38,160.85

CONTRACTOR'S CERTIFICATION:
The undersigned Contractor certifies that to the best of their knowledge, information and belief the work covered by this payment estimate has been completed in accordance with the contract documents, that all amounts have been paid by the contractor for work for which previous payment estimates was issued and payments received from the owner, and that current payment shown herein is now due.

HTI, INC. By: _____ Date:_____

APPROVED BY RESIDENT INSPECTOR:
MONARCH ENGINEERING, INC. By: _____ Date: _____

ENGINEER'S CERTIFICATION:
The undersigned certifies that the work has been carefully inspected and to the best of their knowledge and belief, the quantities shown in this estimate are correct and the work has been performed in accordance with the contract documents.

MONARCH ENGINEERING, INC. By: _____ Date:_____

APPROVED BY OWNER:
WEST PULASKI COUNTY WATER DISTRICT By: _____ Date:_____

SUMMARY

Total Work to Date	$617,955.35
Stored Materials	$0.00
Retainage @ 5%	$0.00
Total Due Contractor to Date	$617,955.35
Less Previous Payments	$579,794.50
Amount Due From This Estimate	$38,160.85

ACCEPTED BY: RURAL DEVELOPMENT
The review and acceptance of this estimate by Rural Development does not attest to the correctness of the quantities shown or that the work has been performed in accordance with the contract documents.

By: _____ Date:_____
U.S.D.A. RURAL DEVELOPMENT

MONARCH ENGINEERING, INC.
LAWRENCEBURG, KENTUCKY

PROJECT: TELEMETRY CONTROL SYSTEM
PROJECT NO. : 1319 / 1408

OWNER: WEST PULASKI COUNTY WATER DISTRICT
CONTRACTOR: HTI, Inc.

ESTIMATE NO. 6

FOR PERIOD: June 21, 2015 through March 26, 2016
100.0% Percent Complete

CONTRACT ESTIMATE						PAY QUANTITIES			
Item No.	Item Description	Bid Quantity	Unit	Unit Price	Amount	Previous Estimate	Current Estimate	Total To Date	Total Amount
	BASE CONTRACT								
13	Bourbon Road (South) Booster Pump	1	LS	19,300.00	19,300.00	100%	0%	100%	19,300.00
	Station & Master Meter Site								
14	Lees Ford/Fishing Creek Bridge Pump	1	LS	18,700.00	18,700.00	100%	0%	100%	18,700.00
	Station (KY 80)								
15	KY Highway 1664 Master Meter Site	1	LS	17,800.00	17,800.00	100%	0%	100%	17,800.00
16	KY Highway 235 Master Meter Site	1	LS	18,200.00	18,200.00	100%	0%	100%	18,200.00
17	KY Highway 196 Master Meter Site	1	LS	18,500.00	18,500.00	100%	0%	100%	18,500.00
18	KY Highway 80 Master Meter Site	1	LS	18,500.00	18,500.00	98%	2%	100%	18,500.00
19	Oak Hill Road Master Meter Site	1	LS	18,500.00	18,500.00	98%	2%	100%	18,500.00
20	North Master Meter Site	1	LS	18,100.00	18,100.00	98%	2%	100%	18,100.00
21	Oakview Master Meter Site	1	LS	18,600.00	18,600.00	100%	0%	100%	18,600.00
22	Slate Branch Road Master Meter Site	1	LS	18,600.00	18,600.00	98%	2%	100%	18,600.00
24	Slate Branch/Bridge Hollow Road Master	1	LS	18,800.00	18,800.00	100%	0%	100%	18,800.00
	Meter Site								
25	Russell Springs Master Meter Site	1	LS	18,700.00	18,700.00	100%	0%	100%	18,700.00
	TOTAL BASE CONTRACT				**$512,700.00**				**$512,700.00**
	CHANGE ORDER NO. 1								
1	Faubush Tanks Valve Vault	1	LS	28,686.00	28,686.00	100%	0%	100%	28,686.00
2	Old Cloumbia Road Tank Valve Vault	1	LS	28,686.00	28,686.00	100%	0%	100%	28,686.00
3	Pleasant Point Tank Valve Vault	1	LS	30,006.00	30,006.00	100%	0%	100%	30,006.00
	TOTAL CHANGE ORDER NO. 1				**$87,378.00**				**$87,378.00**
	CHANGE ORDER NO. 2								
1	Bourbon Road Telemetry Transmitter	1	LS	2,502.00	2,502.00	100%	0%	100%	2,502.00
2	KY Highway 1664 Telemetry Transmitter	1	LS	1,534.00	1,534.00	100%	0%	100%	1,534.00
3	KY Highway 235 Telemetry Transmitter	1	LS	1,534.00	1,534.00	100%	0%	100%	1,534.00
4	KY Highway 196 Telemetry Transmitter	1	LS	1,534.00	1,534.00	100%	0%	100%	1,534.00
5	Oakview Road Telemetry Transmitter	1	LS	1,534.00	1,534.00	100%	0%	100%	1,534.00
6	Slate Branch Telemetry Transmitter	1	LS	1,534.00	1,534.00	100%	0%	100%	1,534.00
7	Russell Springs Telemetry Transmitter	1	LS	1,534.00	1,534.00	100%	0%	100%	1,534.00
	TOTAL CHANGE ORDER NO. 2				**11,706.00**				**11,706.00**
	CHANGE ORDER NO. 3								
1	Install Sump Pumps & Meter Vault Drains	1	LS	6,171.35	6,171.35	0%	100%	100%	6,171.35
	TOTAL CHANGE ORDER NO. 3				**6,171.35**				**6,171.35**
	TOTAL ALL WORK				**$617,955.35**				**$617,955.35**

APPENDIX 5

Month : MARCH Year: 2023

South Master Meter Reading	10,441,328
(Subtract) Bridge Hollow	4,453,000
Total Bought Water	5,988,328
Sold Water Rt. 14	1,735,390
Sold Water Rt. 16	2,399,870
Water Loss For Zone	1,853,068
Loss GPM.	41.51

Bridge Hollow Reading	4,453,000
Sold Water Rt. 15	3,537,286
Water Loss For Zone	915,714
Loss GPM.	20.5

North Master Meter Reading	7,188,058
Sold Water Rt. 11	1,113,170
Sold Water Rt. 12	803,406
Sold Water Rt.13	742,830
Water Loss For Zone	4,528,652
Loss GPM.	101.4

Somerset Master Meter Reading	21,840,000
(Add)Oak View Meter Reading	2,949,000
Total	24,789,000
(Subtract) Lees Ford Reading	14,827,000
(Subtract) New Hickory #2	3,030,988
Zone Total RT.1,2 Bought	6,931,012
Sold Water Rt.1	2,547,084
Sold Water Rt.2	1,413,980
Water Loss For Zone	2,969,948
Loss GPM.	66.53

Oak Hill Master Meter Reading	5,143,864
(Subtract) Oak View Meter	2,949,000
Total Bought Water	2,194,864
Sold Water Rt.20	1,169,480
Water Loss For Zone	1,025,384
Loss GPM.	49.16

Lees Ford Meter Reading	14,827,000
(Subtract)Hwy 235 Meter	1,630,000
(Subtract)Hwy 196 Meter	3,786,000
(Subtract) Hwy1664 Meter	1,831,000
(Subtract) Hickory Nutt #1	0
Zone Total Bought Rt.22,3,6	7580000
Sold Water Rt. 22	822,707
Sold Water Rt. 3	1,654,790
Sold Water Rt. 6	612,418
Water Loss For Zone	4,490,085
Loss GPM.	100.5

Hwy 235 Meter Reading	1,630,000
Sold Rt.4	1,122,805
Water Loss For Zone	507,195
Loss GPM.	11.36

Hwy 1664 Meter Reading	1,831,000
Sold Rt. 24	1,125,381
Water Loss For Zone	705,619
Loss GPM.	15.8

Hwy 196 Meter Reading	3,786,000
Sold Water Rt. 26	738,220
Sold Water Rt. 7	1,180,836
Water Loss For Zone	1,866,944
Loss GPM.	41.8

Hickory Nutt #2 Reading	3,030,988
Sold Water Rt. 5	1,325,740
Sold Water Rt. 8	454,980
Water Loss For Zone	1,250,268
Loss GPM.	28

Total GPM. Per Day Loss	476.56

APPENDIX 6

SubSurface Leak Detection®

DLD DIGITAL LEAK DETECTOR

- Digital Sound Quality
- Sensitive
- Lightweight
- Easy to Use

DLD DIGITAL LEAK DETECTOR

Standard Items

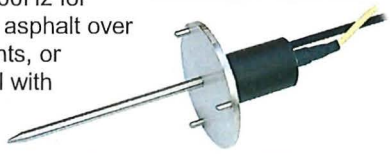
1. DLD Audio Processor
2. Stereo Headphones, Cushion Ear Seals
3. Ground Listening Stick and Plate
4. Ground Spike / Probe for Soil
5. DLD Accelerometer
6. DLD Magnet Assembly

Standard Accessories

7. Black Padded Case for All Items
8. Carrying Case for Audio Processor
9. Safety Vest
10. Spare Batteries Plastic Case
11. DLD Quick Reference Guide

Features

- Digital Audio Processor with dynamic range compression, precise digital filters, digital display of leak loudness, and automatic rejection of AC electric inteference
- High sensitivity sensor and magnet with cable that are waterproof and submersible.
- Automatic leak loudness score displayed in 3 digits from 0 to 999 in LCD.
- Five digital filters with frequencies between 100Hz and 1800Hz for listening on concrete or asphalt over pipes; on valves, hydrants, or services; and in soft soil with Ground Spike Probe.



Specifications

Digital Audio Processor

• Frequency Range	: 30 - 4000Hz
• Filter Ranges	: Open 100 - 1800Hz Ground 100 - 400Hz Service 250 - 800Hz Contact 300 - 1800Hz Survey 150 - 750Hz
• Power	: 2 AA alkaline batteries
• Battery Life	: 12.5 hours minimum in continuous use
• Weather Resistance	: IP54, weather-proof, splash-proof
• Weight	: 15 ounces (408 grams)
• Size	: 5 by 3.5 by 1.5 inches (127mm x 89mm x 38mm)

DLD Accelerometer

• Type	: High sensitivity piezo ceramic
• Sensitivity	: 20 V/g
• Resolution	: 0.05 µg/√Hz
• Protection	: IP68, waterproof, submersible
• Shock Proof	: 6,000 g

Manufactured by:

SubSurface Leak Detection®

P.O. Box 5490
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office: (775) 298-2701
www.subsurfaceleak.com
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Distributed by: