COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF	**)**
WEST DAVIESS COUNTY WATER	**) CASE NO. 2020-00137**
DISTRICT FOR A DEVIATION FROM	**)**
METER TESTING REQUIREMENTS	**)**

RESPONSE OF

WEST DAVIESS COUNTY WATER DISTRICT

TO

COMMISSION STAFF'S SECOND REQUEST FOR INFORMATION

DATED AUGUST 11, 2020

FILED: August 28, 2020

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF	)
WEST DAVIESS COUNTY WATER	) **CASE NO. 2020-00137**
DISTRICT FOR A DEVIATION FROM	)
METER TESTING REQUIREMENTS	)

CERTIFICATION OF RESPONSE TO COMMISSION STAFF'S SECOND REQUEST FOR INFORMATION

This is to certify that I have supervised the preparation of West Daviess County Water District's Response to the Commission Staff's Second Request for Information. The response submitted on behalf of West Daviess County Water District is true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

William Higdon

William Higdon, Manager
West Daviess County Water District

WEST DAVIESS COUNTY WATER DISTRICT

CASE NO. 2020-00137

Response to Commission Staff's Second Request for Information

Question No. 1

Responding Witness: William Higdon

Q-1. Refer to West Daviess District response to Commission Staff's First Request for Information (Staff's First Request), Item 2.

a. Provide the date West Daviess District would consider requesting further extensions of the meters' service life from the Commission.

b. Provide a list of vendors that have a trade-in program and any details of the potential program.

c. Provide the estimated salvage value for meters sold as scrap.

d. Provide an explanation of the process required to recycle the meters and place them back in to service. Include the estimated cost that this process will incur.

e. Provide the estimated cost of replacing the meters once they have been in service for 15 years for each sample group, by year. Include an explanation of how West Daviess District would fund the replacement of meters.

A-1.

a. As West Daviess District stated in its Application, it plans to evaluate the data after the first group of meters reaches 15 years of age. At that time, West Daviess District will request that the Commission (1) extend the sample meter testing plan; (2) allow West Daviess District to replace meters on a 15-year cycle; or (3) approve another appropriate course of action. Thus, West Daviess District would request further extensions of the meters' service life no earlier than 2025.

b. West Daviess District is only aware of a manufacturer meter trade-in program for its meters through Sensus. The Sensus trade-in program provides a discount on new meters when old meters are traded in.

c. The salvage value for meters fluctuates based on the market value of metal at the time the meters are sold for scrap. Currently, the scrap value for a meter is approximately $5 to $7.

d. West Daviess District does not "recycle" meters and place them back in service. Instead, pursuant to 807 KAR 5:066, Section 16(1), West Daviess District removes meters after 10 years of service, tests all meters, and then re-installs the meters that still meet the accuracy limits set forth in 807 KAR 5:066, Section 15(2)(a). The cost of doing so is approximately $48 per meter, which includes the field staff, truck, and testing cost.

e. West Daviess District last purchased Sensus SRII meters at a price of $135 per meter.[1] Using this figure, the yearly cost to replace all 15-year-old meters would be as follows:

	15-year-old Meters	Cost of New Meter	Cost for all New Meters
2025	821	$135	$110,835
2026	914	$135	$123,390
2027	913	$135	$123,255
2028	195	$135	$26,325
2029	0	$135	$0
2030	0	$135	$0

West Daviess District will fund the replacement of its meters using depreciation reserve funds.

[1] See **Exhibit 1-1**, which shows West Daviess District's most recent meter invoice. The meters were $112/each with a trade-in and $135/each without a trade-in.

EXHIBIT 1-1

C.I. Thornburg

Invoice

INVOICE DATE	INVOICE NUMBER
02/10/2020	S100105081.003

REMIT TO:
THE C.I. THORNBURG CO., INC.
P.O. BOX 2163
HUNTINGTON, WV 25722

PAGE NO: 1 of 1

BILL TO:

WEST DAVIESS COUNTY WATER DISTRICT
3400 BITTEL ROAD
OWENSBORO, KY 42301

SHIP TO:

WEST DAVIESS COUNTY WATER DISTRICT
3400 BITTEL ROAD
OWENSBORO, KY 42301

CUSTOMER NUMBER	CUSTOMER PO NUMBER	JOB NAME / RELEASE NUMBER	SALESPERSON
8442	METER QUOTE		Hunt McCollum

WRITER	SHIP VIA	TERMS	SHIP DATE	ORDER DATE
Cody Trimble	NATCHER PKWY	NET 30 DAYS	02/10/2020	12/09/2019

ORDER QTY	SHIP QTY	DESCRIPTION	UNIT PRICE	EXT PRICE
69ea	69ea	^SLP 5/8"X3/4" SRII TRPL 100G PL/BTM 5WH ELEC L/HOUSING SX2X538P1GGXS0D W/ SAME SN & ID AMR LL METER	112.000/ea	7728.00
60ea	60ea	5/8"X3/4" SRII TRPL 100G PL/BTM 5WH ELEC L/HOUSING SX2X538P1GGXS0D W/ SAME SN & ID AMR LL METER	135.000/ea	8100.00

02-10-2020 10:39:51 AM
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LB

Laura Broadley

Meters

MS

2-15-20
15,828.00
3-18-20

Subtotal	15828.00
S&H Charges	0.00
Tax	0.00
Payments	0.00
Amount Due	15828.00

Invoice is due by 03/11/2020

Past Due invoices may be subject to 1.50% late charge.

No returns without proper written authorization. Return material subject to restocking, handling, and freight charges. Warranties limited to those provided by manufacturer. As of December 31, 2017 we will no longer mail or fax invoices or monthly statements. Please tell us where you would like your invoices and statements emailed by calling Carma Voorhees or Cheri Green at 304-523-3484 or via email at carma.voorhees@cithornburg.com or cheri.green@cithornburg.com. Thank

Printed By: KLARKY on 2/12/2020 9:42:54 AM

C.I. Thornburg

Leading the World Through Clean Water

THE C.I. THORNBURG CO., INC.
140B AMBASSADOR DRIVE
BOWLING GREEN, KY 42101
270-843-0852
Fax 270-780-9894

Ship Ticket

SHIP DATE	ORDER NUMBER
02/10/2020	S100105081.003

THE C.I. THORNBURG CO., INC.
140B AMBASSADOR DRIVE
BOWLING GREEN, KY 42101
270-843-0852
Fax 270-780-9894

PAGE NO.: 1 of 1

SOLD TO:

WEST DAVIESS COUNTY WATER DISTRICT
3400 BITTEL ROAD
OWENSBORO, KY 42301
Phone # : 270-685-5594

SHIP TO:

WEST DAVIESS COUNTY WATER DISTRICT
3400 BITTEL ROAD
OWENSBORO, KY 42301
Phone # : 270-685-5594

JW

CUSTOMER NUMBER	CUSTOMER PO NUMBER	JOB NAME / RELEASE NUMBER	SALESPERSON
8442	METER QUOTE		XXCody Kirby

WRITER	SHIP VIA	WAREHOUSE	ORDER DATE	FREIGHT ALLOWED
Cody Trimble	NATCHER PKWY	Ship: 4 Price: 4	12/09/2019	No

ORDER QTY	SHIP QTY	HM	DESCRIPTION
			SHIPPING INSTRUCTIONS CALL PRIOR TO ALL METER DELIVERIES 270-685-5594 **********
69ea	69ea		^SLP 5/8"X3/4" SRII TRPL 100G PL/BTM 5WH ELEC L/HOUSING SX2X538P1GGXS0D W/ SAME SN & ID AMR LL METER
60ea	60ea		5/8"X3/4" SRII TRPL 100G PL/BTM 5WH ELEC L/HOUSING SX2X538P1GGXS0D W/ SAME SN & ID AMR LL METER

Rec
2-10-20

For Hazardous Materials [or Dangerous Goods] Incident
Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night
Within the USA and Canada: 1-800-424-9300
Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

Subtotal	
S&H Charges	
Tax	
Payments	
Amount Due	

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WEST DAVIESS COUNTY WATER DISTRICT

CASE NO. 2020-00137

Response to Commission Staff's Second Request for Information

Question No. 2

Responding Witness: William Higdon

Q-2. Refer to West Daviess District response to Staff's First Request, Item 4. Confirm that in order for West Daviess District to benefit from the 15-year manufacturer's warranty, the individual meter would have to be tested and confirmed inaccurate.

A-2. Confirmed.

WEST DAVIESS COUNTY WATER DISTRICT

CASE NO. 2020-00137

Response to Commission Staff's Second Request for Information

Question No. 3

Responding Witness: William Higdon

Q-3. Refer to West Daviess District response to Staff's First Request, Item 6.

a. Confirm that the meters listed in the response will continue to be tested in accordance with Commission regulations.

b. Provide a summary of West Daviess District's test results of meters other than Sensus SRII meters for the past five years.

c. Confirm that the meters listed in the response will be replaced, once they have reached the end of their useful life, with new Sensus SR II meters the type of meters that are subject of the proposed sample testing.

A-3.

a. Confirmed.

b. The following table provides the average test flows for 5/8- x 3/4-inch meters other than Sensus SRII meters at minimum, intermediate, and maximum flow rates for the past five years:

	Minimum Flow	**Intermediate Flow**	**Maximum Flow**
2015	94.6%	100.5%	99.1%
2016	95.9%	100.4%	99.3%
2017	94.8%	100.5%	99.2%
2018	94.7%	100.4%	99.4%
2019	94.8%	99.9%	98.9%

c. At this time, West Daviess District plans to replace all 5/8- x 3/4-inch meters at the end of their useful lives with new Sensus SRII meters.

WEST DAVIESS COUNTY WATER DISTRICT

CASE NO. 2020-00137

Response to Commission Staff's Second Request for Information

Question No. 4

Responding Witness: William Higdon

Q-4. Refer to West Daviess District response to Staff's First Request, Item 10, b.

a. Provide a detailed description, including the capabilities of the advanced metering infrastructure program titled, Sensus Analytics.

b. Confirm that for West Daviess District to fully use the Sensus Analytics program, the Sensus SR II meters must be installed on West Daviess entire system.

A-4.

a. Sensus Analytics manages the data collected from advanced metering infrastructure. It includes advanced analytics tools to help utilities make data-driven decisions on important issues such as preventative maintenance, leak maintenance, and outage management. A brochure about Sensus Analytics, which is attached as **Exhibit 4-1**, provides additional details.

b. This is incorrect. An advanced metering infrastructure transmitter is attached to all of West Daviess District's meters, which enables West Daviess District to use the Sensus Analytics program with all of its meters.

EXHIBIT 4-1

Nothing's out of reach.

MAKING YOUR DATA INSIGHTS SIMPLE, RELEVANT AND ACTIONABLE

Sensus Analytics

SENSUS
a xylem brand

Convert smart data into smarter insight.

Utilities know that collecting the right information from meters and sensors is the best way to optimize a system and make the most of every investment. But the data itself doesn't tell the whole story. It's the process of sorting through this data—the analytics—that reveals relevant, actionable insights to help improve everything from operations to customer service.

Sensus Analytics provides the functionality needed to do just that. Our customizable suite of applications provides user-friendly dashboards that help you make informed decisions quickly and confidently. Our powerful data management tools aggregate information from your AMI, AMR and other sources. A secure connection to the cloud delivers these intuitive apps right to your desktop, tablet or smartphone.

With intuitive applications that are quick to implement and easy to use, you can rely less on IT resources. And role-based access allows service providers to share information across the organization for improved productivity, operational efficiency and customer satisfaction.

Experience tailor-made analytics for tailored results.

Data analytics is not a one-size-fits-all strategy. So Sensus Analytics offers you the flexibility to buy single applications or pre-bundled packages of our most popular apps to ideally fit your business needs. With Sensus Analytics, you have the power to extract value from your data through our industry-proven descriptive analytics. Not only can you see where you've been and where you are now, but you can also perform predictive analytics for actionable insights on what may happen in the future.

It's a good day when the power is on, the water is clean, and gas is safely flowing. Sensus Analytics gives you the foresight and insight to make every day a good day.

Sensus Analytics is the heart of our smart utility technology.

Big data is a big deal—but it doesn't have to be intimidating. Our advanced analytics provide all the number-crunching you need in an intuitive user-friendly approach to take your utility to the next level of smart. Here are just some of the valuable benefits:

App-based
Each purpose-built application accesses data from multiple systems and presents it in user-friendly dashboards.

Affordable
Our flexible packages allow you to buy as many or as few apps as you need to meet your business goals. And when things change? No problem. Just add another app to your existing Sensus Analytics system without any hassle.

Accessible
Our secure, cloud-based delivery platform puts your information within reach no matter where you are.

Real-time Analysis
Applications are continuously updated as information enters the system, so you can make decisions based on the latest data.

Scalable
Our Data Store, along with three years of cloud-based storage, enables you to add applications or increase storage quickly—often in hours.

Integration-ready
Sensus Analytics draws information from many systems through the cloud, so little time and cost are required for standard systems integration.

Visible
Role-based access allows information sharing across the organization—from customer service and operations to accounting and rates—for improved efficiency and cross-functional understanding.

Secure
Guided by dedicated security teams, backed by best-practice policies and strict standards, and committed to swiftly handling evolving risks, Sensus meets the existing and future security needs of our utility customers.

Sensus Essential Analytics

Ready. Set. Mobilize.

Sensus Essential Analytics is a bundle of applications to quickly provide the core meter data management performance you need without the high cost, commitment to enterprise-wide integration or seemingly endless learning curve.

Admin

A management tool for system-level settings including access and privileges, device groups, billing calendars and more.

Report Access

A business intelligence tool that offers a menu of reports that instantly summarize the information you need to know right away.

Device Access

A customer service tool that, combined with account and customer information, presents detailed usage history and trends, identifies anomalies and enables custom alert programming to track specific issues.

Billing Access

A billing interface tool that previews and audits billing extracts for issues, enabling the utility to take corrective action and then generate final billing files for production.

Meter Insight

A dashboard providing a summary of incoming network, account and meter data to identify and prioritize issues needing to be addressed.

Validation, estimation and editing. This is not your grandfather's VEE.

With the Sensus FlexNet® communication network, you're getting data at over two times the power of competitive systems. The need for many of the historical features of VEE becomes obsolete when you're running an accurate, reliable system. Many components of VEE are built right into our architecture and software. Our private network means you'll never have transmission interference or have to share frequencies. Designed for 100% coverage, even during major storm events, your data is transmitted securely and reliably over spectrum that is protected by federal law.

Sensus doesn't just meet the intent of VEE. We do it better.

Sensus Enhanced Analytics

Ready. Set. Analyze.

In addition to the key features found in Essential Analytics, Sensus Enhanced Analytics also provides alarm management capabilities. Go beyond billing applications to get true insight on system performance and health.

Alert Manager

A notification tool to immediately alert individuals, teams or key customers on conditions such as high temperature, high/low voltage, power failure/ restoration, leakage and tampering.

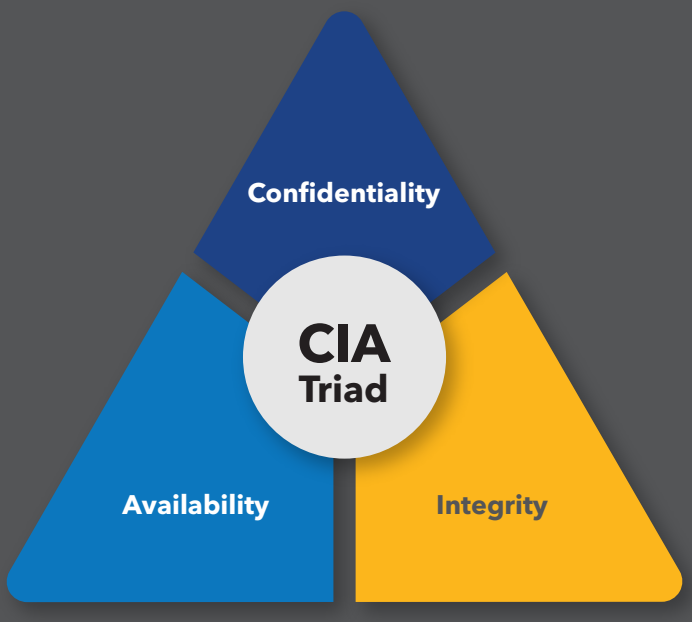
Alarm Insight

A monitoring tool for your entire system with near-real-time alarms, allowing you to drill down into individual events, view historical data and map the alarm events to watch event trends.

Secure by design

All Sensus solutions have been designed and built from the ground up to provide end-to-end security protection. Our security policies and practices are continuously driven by customer feedback, industry standards and best practices, and emerging and potential threats. Our security controls are rigorously guided by the requirement to maintain the "CIA triad":

- **Confidentiality** of data
- **Integrity** of data
- **Availability** of services



Sensus Advanced Analytics

Ready. Set. Customize.

Sensus Advanced Analytics is a flexible option that combines our easy-to-use applications and professional services to create a solution tailored for your needs. In addition to the key capabilities found in Essential and Enhanced, Sensus Advanced Analytics offers additional features and lets you choose the right applications to best fit your business needs.

Unbilled Insight

A forecasting tool providing an up-to-date view of service delivered but not yet billed, so you can accurately predict future revenue for upcoming billing cycles.

Energy Insight

A tool providing a "bottom up" view of loading along the circuit, enabling an unprecedented view of your system that allows you to understand what is being asked of the distribution design.

Transformer Utilization

An aggregation-based tool to determine potential transformer failure and help right-size installations. Coming soon: tools that expand analysis to additional devices including fuses and switches.

Voltage Insight

A tool uncovering opportunities where you can lower and balance voltage across your distribution territory during high-use periods and reduce the need to purchase energy at expensive peak prices.

Outage Management

A tool to display all active outages and recent restorations. Enhanced reporting capabilities will be added soon.

Acoustic Monitoring

An acoustic leak detection analysis tool used in conjunction with PermaLog devices to identify leaks in distribution systems.

Hidden Revenue Locator

A perfect application for a water meter testing and replacement program, this app examines meter inaccuracies to identify apparent losses. This solution empowers proactive revenue recovery and operational efficiencies through identifying meter under-performance due to under-registration, meter read errors and incorrect meter sizing.

Service Management

COMING SOON!

A tool providing remote shut off and activation of large numbers of valves inside Sensus devices. In contrast to tools for Field Technicians, this application is designed for Customer Service Representatives or others working from an office.

Daily Reads

A data collection tool for daily time-dependent meter readings. For example, reconciling rate vs. consumption for utilities working with transportation customers.

Smart City Innovations

Utility systems are fundamental to every city, and smarter management of this infrastructure is the foundation for any smart city. Go beyond metering to true intelligent resource management and monetization of your assets.

With Sensus Smart Gateways, the FlexNet® communication network and Sensus Analytics, the potential of smart is endless.

Analyze data from more than 100 types of sensors, including temperature, pressure, depth, distance, light, smoke and more.

- Make sure storm drains are clear before possible flooding
- Know when city garbage cans are full and need servicing
- Enable drivers to find open public parking spaces
- And discover many, many more smart city applications

We give you the tools to build your smart city. Only your imagination and innovation set the limits.

Sensus Analytics and the Customer Portal enabled Cedar Park, Texas, to quickly catch continuous flow, sending leak alerts and tier-billing information to residents. In the first year, the water municipality saved $67,000 and 15 million gallons of water.

$67,000

15 million gallons

Customer Portal

Engage customers for smart impact.

Sensus Analytics Customer Portal is a web-based, custom-branded, interactive application for utility consumers. This intuitive portal provides virtually everything a consumer needs to understand consumption patterns, correct current issues and make more informed decisions about future usage. Customer Portal also serves as an additional communication channel for the utility to provide enhanced customer service.

Customer Portal provides the consumer with the most current data available—the same data that the utility customer service representative is observing in Sensus Analytics. For example, a customer can see hourly water consumption down to a gallon, updated every four hours. No other utility analytics package on the market can provide this level of speed and detail. Your customers can use this information to set up alerts for managing daily usage, billing cycle usage and even vacation alerts.

Helping drive the success of your business.

Sensus Analytics goes beyond data analysis to streamline your entire organization's workflows and create more efficient operations. Sensus Analytics combines analytical information with business processes to enable smart and fast data-driven decisions for improved service and revenue.

While other software packages are designed for all industries and built for users with a high degree of expertise or years of experience, Sensus Analytics is made by utility experts for utilities. We know every utility is unique, so our software is right-sized and flexible—and you don't need to be a statistician or data scientist to use it. Our approach provides applications targeting daily utility functions that make managing the AMR or AMI system an integral part of managing the utility's existing goals.

With Sensus Analytics, you can focus on what you really want: near-real-time analysis of data to understand trends, improve operations and enhance customer experiences.

Prepare and execute billing on meters

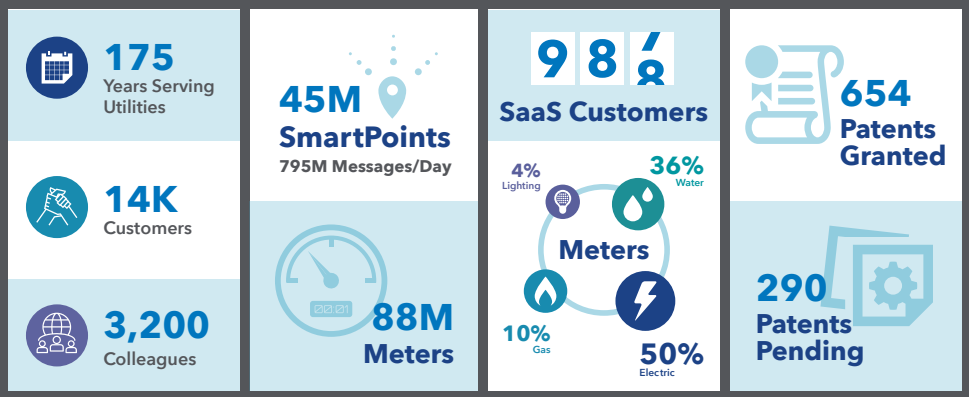
Support customer service

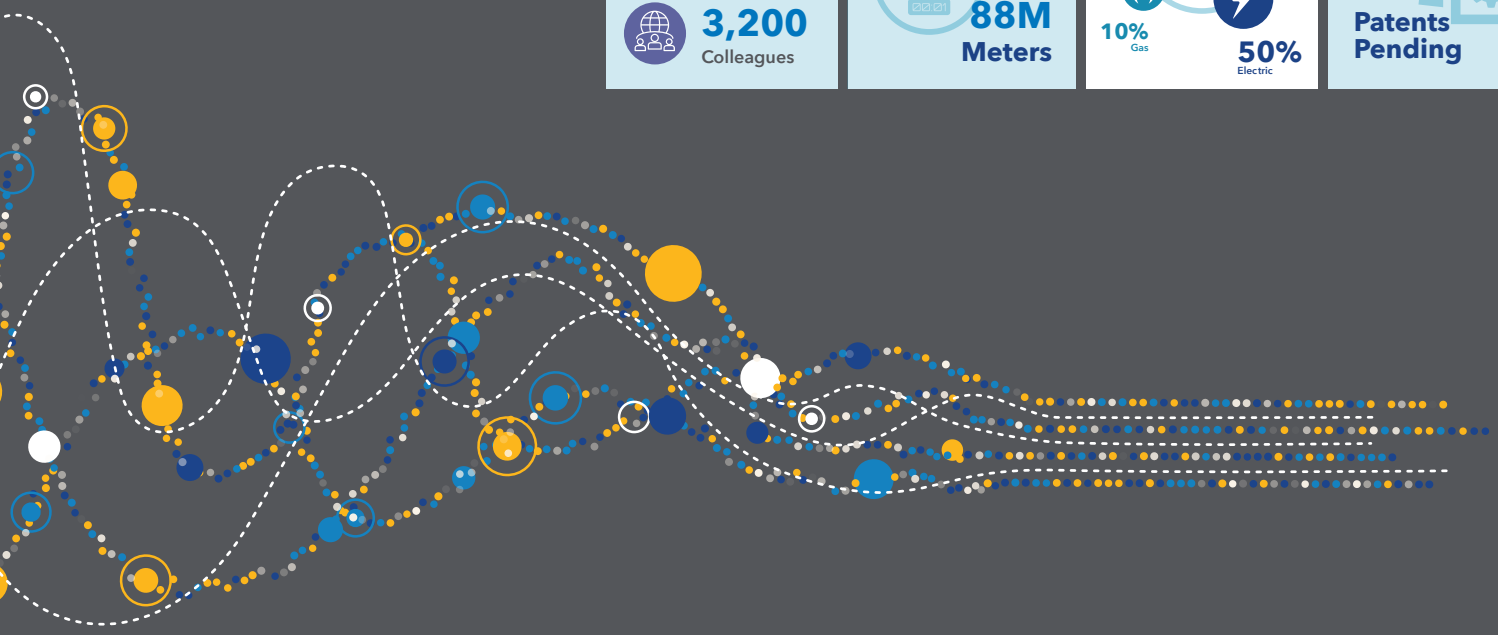
Maintain and manage meter performance and data

About Sensus

Sensus, a Xylem brand, helps a wide range of public service providers–from utilities to cities to industrial complexes and campuses–do more with their infrastructure to improve quality of life in their communities. We enable our customers to reach farther through the application of technology and data-driven insights that deliver efficiency and responsiveness. We partner with them to anticipate and respond to evolving business needs with innovation in sensing and communications technologies, data analytics and services. Learn more at sensus.com and follow us on Facebook, LinkedIn and Twitter through @sensusglobal.

Sensus by the numbers





SENSUS
a xylem brand

YBR-11114-03

WEST DAVIESS COUNTY WATER DISTRICT

CASE NO. 2020-00137

Response to Commission Staff's Second Request for Information

Question No. 5

Responding Witness: William Higdon

Q-5. Provide West Daviess District current unaccounted-for water loss percentage for 2020.

A-5. For the first seven months of 2020, West Daviess District's water loss percentage is 11.59%. West Daviess District's Monthly Water Loss Report from January 2020 to July 2020 is attached as **Exhibit 5-1**.

EXHIBIT 5-1

PUBLIC SERVICE COMMISSION

Monthly Water Loss Report

Water Utility: West Daviess County Water District

For the Month of: January 2020 to July 2020

		Jan 2020	Feb 2020	Mar 2020	Apr 2020	May 2020	Jun 2020	Jul 2020	Cumulative
WATER PRODUCED AND PURCHASED									
Water Produced									
Water Purchased		30,323	27,043	31,864	31,649	34,236	41,107	41,555	237,777
TOTAL PRODUCED AND PURCHASED		30,323	27,043	31,864	31,649	34,236	41,107	41,555	237,777
WATER SALES									
Residential		21,628	16,590	18,524	22,736	25,066	27,051	25,575	157,170
Commercial		3,924	3,184	3,847	3,111	3,447	3,535	3,664	24,712
Apartments		666	523	608	630	682	618	587	4,314
Farmstead		1,934	1,439	1,819	2,265	2,429	3,164	3,870	16,920
Wholesale		401	297	496	547	551	697	693	3,682
Public Authorities									
Other Sales (explain)									
TOTAL WATER SALES		28,553	22,033	25,294	29,289	32,175	35,065	34,389	206,798
OTHER WATER USED									
Utility and/or Water Treatment Plant									
Wastewater Plant									
System Flushing		-	-	150	1,485	200	617	975	3,427
Fire Department									
Other Usage (explain)									
TOTAL OTHER WATER USED		-	-	150	1,485	200	617	975	3,427
WATER LOSS									
Tank Overflows									
Line Breaks									
Line Leaks		1,770	5,010	6,420	875	1,861	5,425	6,191	27,552
Excavation Damages									
Theft									
Other Loss									
TOTAL WATER LOSS		1,770	5,010	6,420	875	1,861	5,425	6,191	27,552

Note: Line 14 + Line 22 + Line 31 MUST Equal Line 4

WATER LOSS PERCENTAGE								
(Line 31 divided by Line 4)	5.84%	18.53%	20.15%	2.76%	5.44%	13.20%	14.90%	11.59%

WEST DAVIESS COUNTY WATER DISTRICT

CASE NO. 2020-00137

Response to Commission Staff's Second Request for Information

Question No. 6

Responding Witness: William Higdon

Q-6. State whether it is West Daviess District's policy to install only new meters.

A-6. West Daviess District purchases only new meters. As West Daviess District stated in response to Question 1(d), it does re-install meters that have been used in its system and that have been tested in accordance with 807 KAR 5:066, Section 16 and still meet the accuracy limits set forth in 807 KAR 5:066, Section 15(2)(a).

WEST DAVIESS COUNTY WATER DISTRICT

CASE NO. 2020-00137

Response to Commission Staff's Second Request for Information

Question No. 7

Responding Witness: William Higdon

Q-7. State whether West Daviess District repairs meters when they are removed from service, other than in instances when the meter is under warranty.

A-7. West Daviess District does not repair meters.

WEST DAVIESS COUNTY WATER DISTRICT

CASE NO. 2020-00137

Response to Commission Staff's Second Request for Information

Question No. 8

Responding Witness: William Higdon

Q-8. State whether West Daviess District rebuilds meters when they are removed from service, other than in instances when the meter is under warranty.

A-8. West Daviess District does not rebuild meters.

WEST DAVIESS COUNTY WATER DISTRICT

CASE NO. 2020-00137

Response to Commission Staff's Second Request for Information

Question No. 9

Responding Witness: William Higdon & Legal Counsel

Q-9. Explain how using the same sample-testing group of meters each year for sample testing purposes is consistent with the ANSI standard.

A-9. As described in the Sample Meter Testing Plan, West Daviess District plans to randomly select a sample of meters from each installation year and re-test those meters in each subsequent year. For instance, West Daviess District randomly selected a sample of 35 meters installed in 2010 that were tested in Year 1 of the Sample Meter Testing Plan. Unless instructed otherwise by the Commission, West Daviess District will sample test the same 35 randomly selected meters in Year 2, Year 3, and beyond.

West Daviess District believes that such an approach is consistent with the procedures in the ANSI Standard. In the A7 section of the ANSI Standard titled "Sample Selection," subsection A7.1 explains how sample size should be determined and subsection A7.2 explains how samples should be selected. Regarding selection, the ANSI Standard states only that "[u]nits of the sample shall be selected at random without regard to their quality."[2] The ANSI Standard does not further address whether a different group of units must make up the sample each year.

In 2020, West Daviess District randomly selected and tested 35 meters installed in 2010 to represent the lot of meters installed in 2010. When West Daviess District tests the same 35 meters in 2021 as 11-year-old meters, the 35 meters remain a random selection of the meters installed in 2010. As required by the ANSI Standard, the 35 meters are units of the 2010 lot that were selected at random without regard to quality. Thus, West Daviess District believes that testing the same random selection each year is appropriate and in accordance with the ANSI Standard. Further, the Commission previously approved Sample Meter Testing Plans that provided

[2] A7.2 of ANSI Standard.

for the sample testing of the same group of meters each year in Case Nos. 2016-00432 and 2019-00115.

WEST DAVIESS COUNTY WATER DISTRICT

CASE NO. 2020-00137

Response to Commission Staff's Second Request for Information

Question No. 10

Responding Witness: William Higdon & Legal Counsel

Q-10. Confirm the meters selected for sample testing identified in West Daviess District's Application, Appendix A were new when originally installed in West Daviess District's system.

A-10. Confirmed. All meters included in West Daviess District's Sample Meter Testing Plan were new when originally installed. West Daviess District's Sample Meter Testing Plan does not include any meters that were re-installed after 10 years of service.

WEST DAVIESS COUNTY WATER DISTRICT

CASE NO. 2020-00137

Response to Commission Staff's Second Request for Information

Question No. 11

Responding Witness: William Higdon & Legal Counsel

Q-11. Explain why West Daviess District does not propose to use the same Double Specification Limit for minimum flow rates as it does for maximum and intermediate flow rates.

A-11. The ANSI Standard's Double Specification Limit method ("DSL") is appropriate to determine acceptance of the meters at maximum and intermediate flow rates because 807 KAR 5:066, Section 15(2) provides both upper (101.5%) and lower (98.5%) accuracy limits for those flow rates. For the minimum flow rates, the single lower (90%) accuracy limit in 807 KAR 5:066, Section 15(2) necessitates the use of the Single Specification Limit method ("SSL"). The SSL should be used when the lot must only meet an upper *or* lower limit, whereas the DSL should be used when the lot must meet an upper *and* lower limit.

WEST DAVIESS COUNTY WATER DISTRICT

CASE NO. 2020-00137

Response to Commission Staff's Second Request for Information

Question No. 12

Responding Witness: William Higdon

Q-12. Provide the cost differential for testing a meter just at the maximum and intermediate flows versus testing the meter at all three flow rates.

A-12. Testing a meter at all three flow rates incurs additional cost than testing a meter just at the maximum and intermediate flow rates. For instance, if 35 meters are sample tested at maximum and intermediate flow rates, West Daviess District estimates that it would take approximately one additional hour to test all 35 meters instead of only 7 at a minimum flow rate and record the data. The hourly wage of the employee conducting the tests is approximately $31/hour.[3] Additional water will also be necessary to conduct minimum flow rate tests. The test requires 10 gallons of water and can test up to 10 meters at a time. Thus, testing all 35 meters at a minimum flow rate instead of only 7 would require 30 additional gallons of water.

[3] $31/hour includes an hourly wage of approximately $17/hour and fringe benefits of approximately $14/hour.

WEST DAVIESS COUNTY WATER DISTRICT

CASE NO. 2020-00137

Response to Commission Staff's Second Request for Information

Question No. 13

Responding Witness: William Higdon & Legal Counsel

Q-13. Explain whether the ANSI Standard anticipates increasing levels of scrutiny for subsequent lots if previous lots performed poorly, and if so, explain why West Daviess sample testing plan does not require similar increased scrutiny.

A-13. The ANSI Standard provides that "[w]hen normal inspection is in effect, tightened inspection shall be instituted when two out of five consecutive lots or batches have been rejected on original inspection."[4] West Daviess District's Plan does not provide for this type of increased scrutiny because West Daviess District's Plan instead requires that a group of meters that fails to be accepted under the ANSI Standard be removed.[5] This is a stricter treatment than the increased scrutiny provided by the ANSI Standard.

[4] ANSI Standard, Item A10.3.1.

[5] West Daviess District explained in its Plan that if a sample is not accepted under the ANSI Standard, West Daviess District will first try to identify a poorly performing sub-group, and if no such group can be identified, it will remove the entire control group of meters within 12 months of the group's failure.

WEST DAVIESS COUNTY WATER DISTRICT

CASE NO. 2020-00137

Response to Commission Staff's Second Request for Information

Question No. 14

Responding Witness: William Higdon & Legal Counsel

Q-14. Explain how West Daviess District plans to statistically account for meters in its sample testing plan that were removed from the system due to failing to meet the flow rate standards in 807 KAR 5:066, Section 15.

A-14. West Daviess District does not believe that statistically accounting for meters that are removed from service due to failing to meet the flow rate standards is necessary. As West Daviess District stated in its Plan, any tested meter that does not meet all of the flow rate standards in 807 KAR 5:066, Section 15 will be removed from service. The meter test result will still be reported as part of the sample group and used in the calculation of the acceptance of the sample unless the meter was vandalized, tampered with, or suffered a failure that is not equally likely to occur in the lot as a whole. As West Daviess District stated in its Plan, if the sample is not accepted under the ANSI Standard and a poorly performing subgroup of meters cannot be identified, West Daviess District will test and remove the entire group of meters within 12 months of the group's failure.

For example, consider a hypothetical of one 12-year-old sample tested meter testing at 98.3% at a maximum flow rate. If the meter was not vandalized, tampered with, nor suffered a failure equally likely to occur in the lot as a whole, West Daviess District would include the meter in its test results of the 12-year-old sample test. The sample would either pass or fail the ANSI Standard test. If the sample failed and a poorly performing subgroup of meters could not be identified, West Daviess District would test and remove *all* 12-year-old meters within 12 months. If the sample passed the ANSI Standard, the 12-year-old meters would stay in service and West Daviess District would continue to sample test the meters according to the Plan. West Daviess District would remove from service the 12-year-old meter that tested at 98.3% and did not meet the accuracy standards in 807 KAR 5:066, Section 15 and replace it in the sample selection with another randomly selected meter.

WEST DAVIESS COUNTY WATER DISTRICT

CASE NO. 2020-00137

Response to Commission Staff's Second Request for Information

Question No. 15

Responding Witness: William Higdon & Legal Counsel

Q-15. Explain how West Daviess District will identify a poorly performing subgroup of meters existing in the sample.

A-15. West Daviess District will identify a poorly performing subgroup of meters by analyzing meter data to identify patterns. West Daviess District will consider factors such as the time of manufacture of the meter, the terrain in which the meter is installed, and any other factors that may differentiate the meter from others in the group. West Daviess District would only request that the sub-group be separated from the original control group if it could determine that the poor performance was likely due to an issue that did not affect the meter group as a whole. Notably, this language was also included in sample water meter testing plans recently reviewed by the Commission in Case Nos. 2016-00432 and 2019-00115.

WEST DAVIESS COUNTY WATER DISTRICT

CASE NO. 2020-00137

Response to Commission Staff's Second Request for Information

Question No. 16

Responding Witness: William Higdon & Legal Counsel

Q-16. Refer to the ANSI Standard A8 in which it states that the ANSI Standard assumes that the underlying distribution of individual measurements to be normal in shape and states that a person knowledgeable in statistics should be consulted to advise whether the distribution appears suitable for sampling by variables. Explain why West Daviess contends that the underlying distribution of individual measurements of its meters is normal in shape.

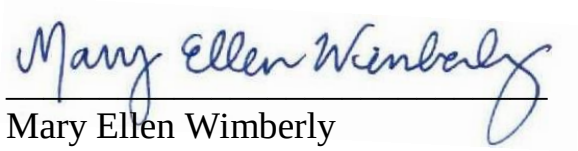
A-16. As West Daviess District explained in response to Staff's First Request, Question No. 9, given the Commission's previous review and acceptance of very similar statistical sample testing methodology in Case Nos. 2016-00432 and 2019-00115, West Daviess District did not consult with a statistician in preparing its Plan. The Commission Staff inquired about the normality of the distribution in discovery in Case No. 2019-00115,[6] but the Commission's final order did not address the normality of the distribution when it approved the proposed sample meter testing plan with minor revisions. West Daviess District believes such precedent indicates that the Commission believes that meter test results follow a normal distribution or believes that the ANSI Standard is still an effective method for sample testing meters even if the meter results do not follow a normal distribution.

Table A-2 of the ANSI Standard provides in footnote 1 that "[t]he theory governing inspection by variables depends on the properties of the normal distribution and, therefore, this method of inspection is only applicable when there is *reason to believe* that the frequency distribution is normal."[7] Thus, the ANSI Standard also suggests that an approximation of the normality of the distribution is appropriate. When a dataset follows a normal distribution, approximately 68% of the measurements fall within one standard deviation of the mean, about 95% of the observations fall within 2 standard deviations of the mean, and about 99.7% of the observations fall within 3 standard deviations of the mean. West Daviess District believes its meter testing results approximately follow a normal distribution.

[6] *See* Case No. 2019-00115, Commission Staff's Second Request for Information, Question No. 8.
[7] ANSI Standard, Table A-2, n.1 (emphasis added).

CERTIFICATE OF SERVICE

In accordance with 807 KAR 5:001 Section 8(7) and the Commission's March 16, 2020 Order in Case No. 2020-00085, I certify that West Daviess County Water District's electronic filing of this Response was transmitted to the Commission on August 28, 2020; that there are currently no parties that the Commission has excused from participation by electronic means in this proceeding; and that a physical copy of the filing will be submitted to the Commission once the State of Emergency has ceased.



Mary Ellen Wimberly