

**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

**ELECTRONIC APPLICATION OF GRAYSON )  
COUNTY WATER DISTRICT FOR A )  
DEVIATION FROM METER TESTING ) CASE NO. 2019-00115  
REQUIREMENTS OF 807 KAR 5:066, )  
SECTION 16(1) )**

**RESPONSE OF**

**GRAYSON COUNTY WATER DISTRICT**

**TO**

**COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION**

**DATED JULY 15, 2019**

**FILED: August 1, 2019**

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SECTION 16(1) )**

**CERTIFICATION OF RESPONSE TO  
COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION**

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



Kevin Shaw, Manager  
Grayson County Water District

**GRAYSON COUNTY WATER DISTRICT**

**CASE NO. 2019-00115**

**Response to Commission Staff's First Request for Information**

**Question No. 1**

**Responding Witness: Kevin Shaw**

- Q-1. Refer to the application, paragraph 12, which states: "After the first group of meters reaches 15 years of age, GCWD will evaluate the data and request that the Commission: (1) extend the sample meter testing plan; (2) allow GCWD to replace meters on a 15-year cycle; or (3) approve another appropriate course of action." If the Commission were to find that the record supported extending the periodic testing cycle without conducting sample testing, state whether and why it would be necessary for the Commission to review and issue an order regarding the reliability of Grayson District's sample testing methodology.
- A-1. If the Commission were to determine that the record supported extending the periodic testing cycle to 15 years without conducting sample testing and issued an order granting Grayson District a deviation from 807 KAR 5:066, Section 16(1), it would not be necessary for the Commission to review and issue an order regarding the reliability of Grayson District's sample testing methodology.

**GRAYSON COUNTY WATER DISTRICT**

**CASE NO. 2019-00115**

**Response to Commission Staff's First Request for Information**

**Question No. 2**

**Responding Witness: Kevin Shaw & Legal Counsel**

- Q-2. Refer to the application, paragraph 13(d) and Exhibit 1, sample testing plan, in which it states that Badger, the meter manufacturer, represents that Grayson District's meters will remain accurate for 15 years.
- a. Provide all manufacturer materials, correspondence, opinions, and other documents received by Grayson District regarding the number of years its 5/8- x 3/4-inch Badger meters will remain accurate.
  - b. Provide all warranties for Grayson District's 5/8- x 3/4-inch Badger meters.
  - c. Explain whether and, if so, why a previous finding that 5/8- x 3/4-inch water meters are accurate for 15 years supports a finding that Grayson District's 5/8- x 3/4-inch Badger meters will remain accurate for that period.
  - d. Provide any other information Grayson District contends support its contention that its 5/8- x 3/4-inch Badger meters will remain accurate for 15 years.
- A-2.
- a. See attached.
  - b. See attached.
  - c. The Commission's approval of a similar deviation in Case No. 2016-00432 provides strong support for Grayson District's requested deviation to allow its 5/8- x 3/4-inch Badger meters to remain in service for 15 years. First, Grayson District has provided the same information and support as the utility in Case No. 2016-00432 provided. In addition, Grayson District proposes a statistical sample testing method that is very similar to the sample testing method reviewed and accepted by the Commission in Case No. 2016-00432. This sample testing methodology provides additional safeguards and allows the Commission to review the meter testing results.

- d. Attached are test results for all of the 2005 meters that were removed from service and tested in 2018.<sup>1</sup> The results provide further support that Grayson District's Badger meters remain extremely accurate at 13 years of age. As described in the Plan, Grayson District selected a sample pursuant to the ANSI Standard and reported the sample test results as Appendix A-1 of its Plan. The attached test results include the meters that were selected as the sample.

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<sup>1</sup> If approved, Grayson District's Plan provides that Grayson District will annually sample test all 5/8- x 3/4-inch Badger meters that have been in service at least 13 years. Thus, in the future, all meters will not be removed from service and test results of all meters will not be available until the meters reach 15 years of age.



**Badger Meter**

## Recordall® Disc Meters

Model 25, Lead-Free Bronze Alloy, Size 5/8 x 3/4" (DN 15 mm)  
NSF/ANSI Standards 61 and 372 Certified

### DESCRIPTION

The Recordall Model 25 Disc Series meters meet or exceed the most recent revision of AWWA Standard C700 and are available in a lead-free bronze alloy. The Model 25 meters comply with the lead-free provisions of the Safe Drinking Water Act, are certified to NSF/ANSI Standards 61 and 372 (Trade Designation: M25-LL) and carry the NSF-61 mark on the housing. All components of the lead-free bronze alloy meter (housing, measuring element, seals, and so on) comprise the certified system.

**Applications:** For use in measurement of potable cold water in residential, commercial and industrial services where flow is in one direction only.

**Operation:** Water flows through the meter's strainer and into the measuring chamber where it causes the disc to rotate. The disc, which moves freely, rotates on its own ball, guided by a thrust roller. A drive magnet transmits the motion of the disc to a follower magnet located within the permanently sealed register. The follower magnet is connected to the register gear train. The gear train reduces the disc rotations into volume totalization units displayed on the register or encoder face.

**Operating Performance:** The Recordall Disc Series meters meet or exceed registration accuracy for the low flow rates (95%), normal operating flow rates (100 ± 1.5%), and maximum continuous operation flow rates as specifically stated in AWWA Standard C700.

**Construction:** Recordall Disc meter construction, which complies with ANSI/AWWA standard C700, consists of three basic components: meter housing, measuring chamber, and permanently sealed register. The water meter is available in a lead-free bronze alloy with externally-threaded spuds. A corrosion-resistant engineered polymer material is used for the measuring chamber.

**Magnetic Drive:** Direct magnetic drive, through the use of high-strength magnets, provides positive, reliable and dependable register coupling for straight-reading or AMR/AMI meter reading options.

**Tamper-Proof Features:** Unauthorized removal of the register or encoder is inhibited by the option of a tamper detection seal wire screw, TORX® tamper-resistant seal screw or the proprietary tamper-resistant keyed seal screw. Each can be installed at the meter site or at the factory.

**Maintenance:** Badger Meter Recordall Disc Series meters are designed and manufactured to provide long-term service with minimal maintenance. When maintenance is required, it can be performed easily either at the meter installation or at any other convenient location.

To simplify maintenance, the register, measuring chamber, and strainer can be replaced without removing the meter housing from the installation. No change gears are required for accuracy calibration. Interchangeability of parts among like-sized meters also minimizes spare parts inventory investment. The built-in strainer has an effective straining area of twice the inlet size.

**Connections:** Tailpieces/Unions for installations of meters on various pipe types and sizes, including misaligned pipes, are available as an option.



### SPECIFICATIONS

#### Model 25 Disc Series Meter

<b>Typical Operating Range (100% ± 1.5%)</b>	1/2...25 gpm (0.11...5.7 m <sup>3</sup> /hr)
<b>Low Flow (Min. 98.5%)</b>	1/4 gpm (0.057 m <sup>3</sup> /hr)
<b>Maximum Continuous Operation</b>	15 gpm (3.4 m <sup>3</sup> /hr)
<b>Pressure Loss at Maximum Continuous Operation</b>	2.8 psi at 15 gpm (0.19 bar at 3.4 m <sup>3</sup> /hr)
<b>Maximum Operating Temperature</b>	80° F (26° C)
<b>Maximum Operating Pressure</b>	150 psi (10 bar)
<b>Measuring Element</b>	Nutating disc, positive displacement
<b>Meter Connections</b>	Available in NL bronze and thermoplastic to fit 3/4" (DN 15 mm) spud thread bore diameter sizes.

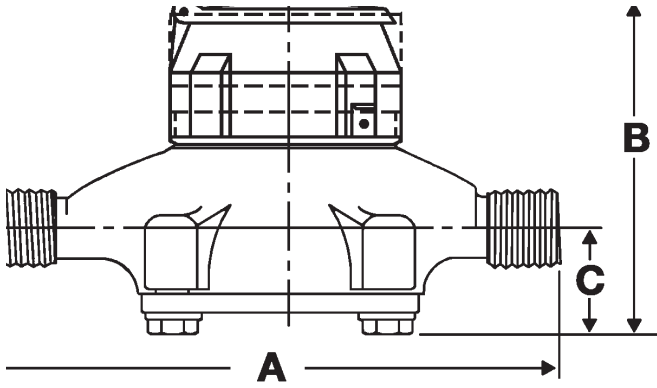
#### Meter Spud and Connection Sizes

Size Designation x	"L" Laying Length	"B" Bore Dia.	Coupling Nut and Spud Thread	Tailpiece Pipe Thread (NPT)
5/8" x 3/4"	7-1/2"	5/8", 3/4"	1" (3/4")	3/4"

#### Materials

<b>Meter Housing</b>	Lead-free bronze alloy
<b>Housing Bottom Plates</b>	Cast iron, engineered polymer, lead-free bronze alloy
<b>Measuring Chamber</b>	Engineered polymer
<b>Disc</b>	Engineered polymer
<b>Trim</b>	Stainless steel
<b>Strainer</b>	Engineered polymer
<b>Disc Spindle</b>	Stainless steel, engineered polymer
<b>Magnet</b>	Ceramic, polymer-bonded
<b>Magnet Spindle</b>	Stainless steel, engineered polymer
<b>Register Lid and Shroud</b>	Engineered polymer, bronze

## DIMENSIONS



Meter Size	Meter Model	A Laying Length	B Height Reg.	C Centerline Base	Width	Approx. Shipping Weight
5/8" x 3/4" (15 mm)	25	7-1/2" (190 mm)	4-15/16" (125 mm)	1-11/16" (42 mm)	4-1/4" (108 mm)	4-1/2 lb (2 kg)

## REGISTERS / ENCODERS

### Standard—Sweep-Hand Registration

The standard register is a straight-reading, permanently sealed magnetic drive register. Dirt, moisture, tampering and lens fogging problems are eliminated. The register has a six-odometer wheel totalization display, 360° test circle with center sweep hand, and flow finder to detect leaks. Register gearing is made of self-lubricating engineered polymer, which minimizes friction and provides long life. The multi-position register simplifies meter installation and reading. The register capacity is 10,000,000 gallons (1,000,000 ft<sup>3</sup>, 100,000 m<sup>3</sup>).



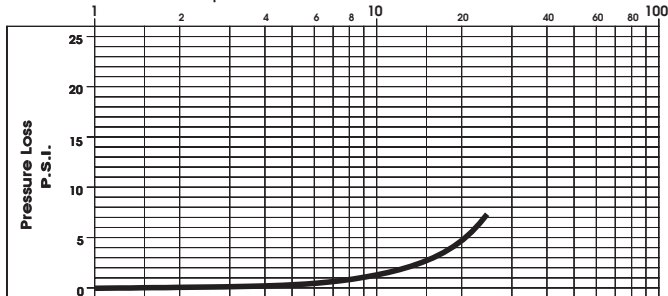
Meter Model	Gallon	Cubic Feet	Cubic Meter
25	10	1	0.1/0.01

### Optional—Encoders for AMR/AMI Reading Solutions

AMR/AMI solutions are available for all Recordall Disc Series meters. All reading options can be removed from the meter without disrupting water service. Badger Meter encoders provide years of reliable, accurate readings for a variety of applications and are also available pre-wired to Badger Meter approved AMR/AMI solutions. See details at [www.badgermeter.com](http://www.badgermeter.com).

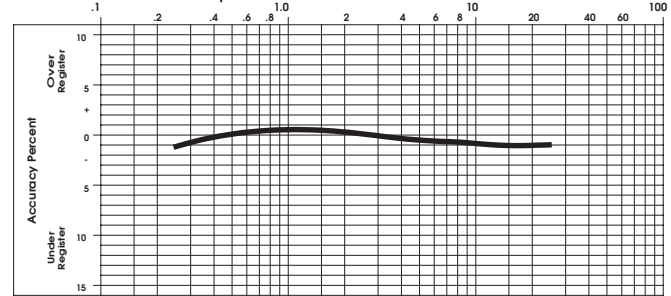
## PRESSURE LOSS CHART

Rate of Flow in Gallons per Minute



## ACCURACY CHART

Rate of Flow in Gallons per Minute



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[www.badgermeter.com](http://www.badgermeter.com)

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## Badger Meter Lead-Free Bronze Disc Meters

### PRODUCTS COVERED

This warranty shall apply to all Recordall® Lead-Free Bronze Disc Meters, models LP through 170, when used to measure potable water, including the registers and encoders used with these meters (collectively "Product") sold on or after November 1, 2012. This warranty is extended only to utilities, municipalities, other commercial users and authorized Badger Meter, Inc. distributors, hereafter referred to as "Customer" and does NOT apply to consumers or any person or entity who is not an original customer of Badger Meter or its authorized distributors.

### MATERIALS AND WORKMANSHIP

Badger Meter warrants Product to be free from defects in materials and workmanship appearing within the following time frames and those listed in the table below:

#### Housings

Twenty-five (25) years and six (6) months after shipment from Badger Meter.

#### Local Registers Supplied with the Meters Listed Herein

Twenty-five (25) years and six (6) months after shipment from Badger Meter.

	<b>AWWA New Meter Accuracy</b>	<b>AWWA Repaired Meter Accuracy (AWWA M6 Manual)</b>	<b>Badger Meter Extended Low Flow Meter Accuracy</b>
<b>Recordall Meter Model, Size</b>	<i>The meter product will meet or exceed new meter accuracy standards set forth in AWWA Standard C700 for the following periods:</i>	<i>The meter product will meet or exceed repaired meter accuracy standards set forth in AWWA Manual M-6, Chapter 5, Table 5.3 for the following periods:</i>	<i>Badger Meter further warrants the meter product to meet or exceed the following extended low flow accuracies in excess of AWWA standard:</i>
<b>Model LP, 5/8" and 5/8" x 3/4"</b>	Five (5) years from date of shipment or registration of 750,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 2,500,000 gallons, whichever occurs first, with a 20 gpm safe maximum operating capacity and a 10 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 95% at a rate of 1/4 gpm for five (5) years from date of shipment or registration of 675,000 gallons, whichever occurs first.
<b>Model 25, 5/8" and 5/8" x 3/4"</b>	Five (5) years from date of shipment or registration of 750,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 2,500,000 gallons, whichever occurs first, with a 25 gpm safe maximum operating capacity and a 15 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 98.5% at a rate of 1/4 gpm and low flow accuracy of 95.0% at a rate of 1/8 gpm for five (5) years from date of shipment or registration of 675,000 gallons, whichever occurs first.
<b>Model 35, 3/4"</b>	Five (5) years from date of shipment or registration of 750,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 2,500,000 gallons, whichever occurs first, with a 35 gpm safe maximum operating capacity and a 25 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 97% at a rate of 3/8 gpm for five (5) years from date of shipment or registration of 675,000 gallons, whichever occurs first.
<b>Model 55, 1"</b>	Five (5) years from date of shipment or registration of 1,000,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 3,000,000 gallons, whichever occurs first, with a 55 gpm safe maximum operating capacity and a 40 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 95% at a rate of 1/2 gpm for three (3) years from date of shipment or registration of 575,000 gallons, whichever occurs first.
<b>Model 70, 1"</b>	Five (5) years from date of shipment or registration of 1,100,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 3,250,000 gallons, whichever occurs first, with a 70 gpm safe maximum operating capacity and a 50 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 95% at a rate of 3/4 gpm for three (3) years from date of shipment or registration of 1,100,000 gallons, whichever occurs first.
<b>Model 120, 1-1/2"</b>	Two (2) years from date of shipment or registration of 1,600,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 5,600,000 gallons, whichever occurs first, with a 120 gpm safe maximum operating capacity and a 80 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 95% at a rate of 1-1/4 gpm for two (2) years from date of shipment or registration of 1,440,000 gallons, whichever occurs first.
<b>Model 170, 2"</b>	Two (2) years from date of shipment or registration of 2,100,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 10,400,000 gallons, whichever occurs first, with a 170 gpm safe maximum operating capacity and a 100 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 95% at a rate of 1-1/2 gpm for two (2) years from date of shipment or registration of 1,890,000 gallons, whichever occurs first.



## PRODUCT RETURNS

Any Product proved to the satisfaction of Badger Meter to have failed the foregoing warranties will, at the option of Badger Meter, be repaired or replaced without charge to the Customer. The obligation hereunder of Badger Meter shall be limited to such repair and replacement and shall be conditioned upon Badger Meter receiving written notice of any alleged defect within ten (10) days after its discovery. This exclusive remedy shall not be deemed to have failed its essential purpose so long as Badger Meter is willing and able to replace defective products or issue a credit to purchaser within a reasonable time of proof to Badger Meter that a defect is involved. Product returns must be shipped by the Customer prepaid F.O.B. to the nearest Badger Meter factory or distribution center. The Customer shall be responsible for all direct and indirect costs associated with removing original product and reinstalling the repaired or replacement Product.

## LIMITS OF LIABILITY

This warranty shall not apply to Product repaired or altered by any party other than Badger Meter. The foregoing warranty applies only to the extent that the Product is installed, serviced and operated strictly in accordance with AWWA Standard C700 and AWWA M6 Manual. The warranty shall not apply and shall be void with respect to Product exposed to conditions other than those detailed in Badger Meter Product technical literature and Installation and Operation Manuals (IOMs), or which have been subject to vandalism, negligence, accident, acts of God, improper installation, operation or repair, alteration, or other circumstances which are beyond the reasonable control of Badger Meter. With respect to Product not manufactured by Badger Meter, the warranty obligations of Badger Meter shall in all respects conform and be limited to the warranty extended to Badger Meter by the supplier.

**THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS AND IMPLIED WARRANTIES WHATSOEVER, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (except warranties of title).**

Any description of the Product, whether in writing or made orally by Badger Meter or Badger Meter agents, specifications, samples, models, bulletins, drawings, diagrams, engineering sheets or similar materials used in connection with any Customer's order are for the sole purpose of identifying the Product and shall not be construed as an express warranty. Any suggestions by Badger Meter or Badger Meter agents regarding use, application, or suitability of the Product shall not be construed as an express warranty unless confirmed to be such in writing by Badger Meter.

**Exclusion of Consequential Damages and Disclaimer of Other Liability.** The liability of Badger Meter with respect to breaches of the foregoing warranty shall be limited as stated herein. The liability of Badger Meter shall in no event exceed the contract price. **BADGER METER SHALL NOT BE SUBJECT TO AND DISCLAIMS: (1) ANY OTHER OBLIGATIONS OR LIABILITIES ARISING OUT OF BREACH OF CONTRACT OR OF WARRANTY, (2) ANY OBLIGATIONS WHATSOEVER ARISING FROM TORT CLAIMS (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR ARISING UNDER OTHER THEORIES OF LAW WITH RESPECT TO PRODUCTS SOLD OR SERVICES RENDERED BY BADGER METER, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATING THERETO, AND (3) ALL CONSEQUENTIAL, INCIDENTAL, AND CONTINGENT DAMAGES WHATSOEVER.**

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Meter	Manufacturer	Model	TestDate	LowResults	MedResults	HighResults	Reading
32303980	Badger	25 ADE	10/31/2018	99.0	101.0	99.1	725929.2
29584552	Badger	25 ADE	10/31/2018	98.0	100.0	99.6	144165.7
32303989	Badger	25 ADE	10/31/2018	99.0	101.0	99.0	550586.9
29584543	Badger	25 ADE	1/4/2019	98.0	102.0	99.7	357417.0
32303985	Badger	25 ADE	10/31/2018	99.0	100.0	99.6	357845.8
29584540	Badger	25 ADE	1/4/2019	97.0	101.0	98.7	785880.6
29584542	Badger	25 ADE	1/4/2019	97.0	101.0	99.3	640670.3
29584545	Badger	25 ADE	1/4/2019	97.0	100.0	99.0	1097469.3
29584544	Badger	25 ADE	1/4/2019	97.0	101.0	99.2	1100162.2
29584536	Badger	25 ADE	1/4/2019	95.0	101.0	98.5	639739.6
29584532	Badger	25 ADE	1/8/2019	99.0	100.0	99.2	360072.1
29584565	Badger	25 ADE	1/8/2019	99.0	99.0	99.3	624340.8
29584528	Badger	25 ADE	1/8/2019	99.0	100.0	99.2	433160.7
29584530	Badger	25 ADE	1/8/2019	96.0	102.0	98.8	1230929.0
29584568	Badger	25 ADE	1/8/2019	98.0	101.0	99.7	649686.2
29584553	Badger	25 ADE	1/8/2019	100.0	100.0	99.6	496769.3
29584556	Badger	25 ADE	1/8/2019	98.0	101.0	98.8	299902.8
29584566	Badger	25 ADE	1/8/2019	98.0	101.0	98.7	882681.5
29584537	Badger	25 ADE	1/8/2019	95.0	101.0	98.7	1657087.2
29584535	Badger	25 ADE	1/8/2019	95.0	100.0	98.7	853581.1
29584498	Badger	25 ADE	1/9/2019	98.0	100.0	98.9	411341.6
29584501	Badger	25 ADE	1/9/2019	99.0	100.0	99.2	956846.1
29584539	Badger	25 ADE	1/9/2019	100.0	101.0	100.0	106888.4
29584555	Badger	25 ADE	1/9/2019	98.0	102.0	99.5	642177.6
29584502	Badger	25 ADE	1/9/2019	99.0	101.0	99.7	618301.0
29584499	Badger	25 ADE	1/9/2019	98.0	101.0	98.8	270186.2
32303987	Badger	25 ADE	1/9/2019	98.0	101.0	99.4	366912.5
29584564	Badger	25 ADE	1/9/2019	98.0	101.0	99.7	932290.7
29584534	Badger	25 ADE	1/9/2019	99.0	100.0	99.0	635012.3
29584567	Badger	25 ADE	1/9/2019	99.0	100.0	99.0	504557.6
32303991	Badger	25 ADE	1/9/2019	100.0	100.0	99.2	566151.0
29584500*	Badger	25 ADE	1/9/2019	98.0	100.0	89.7	455160.7

\*This meter was part of a bench that was not tested correctly. The operator had scrapped the meter before the mistake was caught. With the exception of this meter, the entire bench was retested.

**GRAYSON COUNTY WATER DISTRICT**

**CASE NO. 2019-00115**

**Response to Commission Staff's First Request for Information**

**Question No. 3**

**Responding Witness: Kevin Shaw**

- Q-3. Refer to the application, paragraph No. 13(b) and Exhibit 1, Appendix B.
- a. Provide a detailed explanation of how the cost of the meters used in the estimate was determined, and provide evidentiary support for this amount.
  - b. Describe what is meant by the "cost to change out" the meter and how Grayson District estimated it would be \$25.28 per meter.
  - c. Briefly explain why the "cost of sample testing" is identical to the "cost to change out" the meter.

A-3.

- a. Grayson District considered the current cost of a meter and meter endpoint in calculating the cost savings associated with the Plan. Grayson District calculated the cost savings using a meter and meter endpoint price of \$196.25. The current price of a meter and meter endpoint is \$199.77. Attached is (1) a meter invoice dated May 3, 2019, which shows a meter cost of \$127.27 and (2) an email dated July 17, 2019, which shows a meter endpoint cost of \$72.50.
- b. Grayson District calculated the cost to change out a meter by considering the costs associated with the field staff and truck necessary to physically remove the meter from the customer location and the cost of testing the meter. Grayson District calculated each cost as follows:
  - 0.5 hours of field staff time at \$32.70/hour = \$16.35
  - 0.5 hours of truck time at \$12.30/hour = \$6.15
  - An employee at \$32.70/hour can test ten meters in approximately 1.25 hours.  $(\$32.70 \times 1.25)/10 = \$4.09$ .

The total cost of a meter change is \$26.59. Note that because labor rates have increased, these figures are slightly higher than the original estimate Grayson District provided in Appendix B.<sup>1</sup> Accordingly, because the labor costs and meter and meter endpoint costs have increased, Grayson District's cost savings are conservative and would be higher using current costs.

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<sup>1</sup> The Commission reviewed and approved Grayson District's increased labor costs in Tariff Filing TFS2019-00208.

- c. The “cost to change out” and “cost of sample testing” are identical because Grayson District incurs the field staff time, truck cost, and meter testing cost if the meter is removed from service or if the meter is sample tested.

<b>Date Ordered</b>	<b>Date Shipped</b>	<b>Customer PO #</b>	<b>Job Name</b>	<b>Job #</b>	<b>Bill of Lading</b>	<b>Shipped Via</b>	<b>Invoice #</b>
5/03/19	5/28/19	9266	STOCK			CORE & MAIN LP	K515549

Product Code	Description	Quantity		B/O	Price	UM	Extended Price
		Ordered	Shipped				
4307M25HRELCD6DIC	M25 5/8X3/4 MTR W/HRE-LCD REG 6 DIAL,USG,C1 BOTTOM, WITH ITRON IN-LINE CONNECTOR, 5' WIRE MUST INCLUDE TEST REPORTS	144	144		127.27000	EA	18,326.88

**Visit [coreandmain.com](http://coreandmain.com)**  
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<b>Freight</b>	<b>Delivery</b>	<b>Handling</b>	<b>Restock</b>	<b>Misc.</b>		<b>Subtotal:</b>	<b>18,326.88</b>
						<b>Other:</b>	<b>0.00</b>
						<b>Tax:</b>	<b>0.00</b>
						<b>Invoice Total:</b>	<b>\$18,326.88</b>

Terms: NET 30

Ordered By: JEREMY WOOSLEY

This transaction is governed by and subject to CORE & MAIN's standard terms and conditions, which are incorporated by reference and accepted. To review these terms and conditions, please visit: <http://tandc.coreandmain.com/>.

0001:0001

## Kyle Cannon

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**From:** Scott Smith <scotts@united-systems.com>  
**Sent:** Wednesday, July 17, 2019 10:56 AM  
**To:** Kyle Cannon  
**Subject:** RE: Cost of 100W Erts

Hello Kyle,

I can do them for \$72.50 plus shipping now. But I've heard rumors they will likely increase to \$75 before end of the year.

Thanks,



**Scott W. Smith**  
United Systems & Software, Incorporated  
Office: 800.455.3293 – Mobile: 270.703.0697



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**From:** Kyle Cannon <kcannon@graysonwater.com>  
**Sent:** Wednesday, July 17, 2019 10:17 AM  
**To:** Scott Smith <scotts@united-systems.com>  
**Subject:** Cost of 100W Erts

[EXTERNAL EMAIL]

Scott,

Could you give me a current cost of a 100w ert? Thanks.



**Kyle Cannon**  
**Accounting and Administration**  
21 Shull White Rd.  
Leitchfield, Ky. 42754  
[kcannon@graysonwater.com](mailto:kcannon@graysonwater.com)  
Office Phone: 270-259-2917  
Fax: 270-200-4302

**GRAYSON COUNTY WATER DISTRICT**

**CASE NO. 2019-00115**

**Response to Commission Staff's First Request for Information**

**Question No. 4**

**Responding Witness: Kevin Shaw**

Q-4. Refer to the application, paragraph No. 13(d), which states: "Under the Plan and GCWD's current request, the meters will not remain in service longer than 15 years without further Commission approval."

- a. Provide a breakdown by year of when all 5/8- x 3/4-inch Badger meters in Grayson District's system were first placed in service, e.g., the number that was first placed in service in 2005, 2006, etc.
- b. Confirm that under the proposed plan Grayson District will remove all 5/8- x 3/4-inch Badger meters from service on or before they reach 15 years in service.

A-4.

- a. The chart below provides by installation year the number of 5/8- x 3/4-inch Badger meters in Grayson District's system. The chart does not include meters first placed in service in 2005 because all of those meters have been removed from service.

Installation Year	Meters in System
2006	12
2007	100
2008	1153
2009	2837
2010	322
2011	298
2012	359
2013	287
2014	301
2015	160
2016	457
2017	152
2018	442
2019	348

- b. Grayson District confirms that it will remove all 5/8- x 3/4-inch Badger meters from service on or before they reach 15 years of service.

**GRAYSON COUNTY WATER DISTRICT**

**CASE NO. 2019-00115**

**Response to Commission Staff's First Request for Information**

**Question No. 5**

**Responding Witness: Kevin Shaw**

- Q-5. Identify who prepared Grayson District's sample testing plan.
- A-5. Mary Ellen Wimberly of Stoll Keenon Ogden PLLC prepared Grayson District's sample testing plan.



**GRAYSON COUNTY WATER DISTRICT**

**CASE NO. 2019-00115**

**Response to Commission Staff's First Request for Information**

**Question No. 6**

**Responding Witness: Kevin Shaw & Legal Counsel**

- Q-6. State whether Grayson District received any opinions from an engineer, statistician, or another person with relevant scientific or technical knowledge of sample testing practices regarding whether Grayson District's sample testing plan will reliably reflect the accuracy of its 5/8- x 3/4-inch Badger meters as a whole. If so, provide the following information:
- a. The name of each person who rendered such an opinion;
  - b. The education, experience, and qualifications of each such person;
  - c. The opinion of each such person regarding whether Grayson District's sample testing plan will reliably reflect the accuracy of its 5/8- x 3/4-inch Badger meters as a whole; and
  - d. The bases for each such person's opinion.
- A-6. As stated in the response to Question No. 6, Mary Ellen Wimberly of Stoll Keenon Ogden PLLC prepared the sample testing plan. Ms. Wimberly also prepared the sample testing plan reviewed and accepted by the Commission in Case No. 2016-00432. Given the Commission's previous review and acceptance of a very similar statistical sample testing methodology in Case No. 2016-00432, and the instructions for statistical testing available in the ANSI Standard, Grayson District did not consult with an engineer, statistician, or other person with specialized statistical knowledge in preparing the Plan.

**GRAYSON COUNTY WATER DISTRICT**

**CASE NO. 2019-00115**

**Response to Commission Staff's First Request for Information**

**Question No. 7**

**Responding Witness: Kevin Shaw & Legal Counsel**

- Q-7. Refer to Grayson District's sample testing plan in which it indicates that it will use an AQL of 10.0 for minimum flow rates.
- a. Explain how the use of an AQL of 10.0 is consistent with the requirements of the ANSI Standard, with reference to the relevant sections of the ANSI Standard.
  - b. Explain the basis for Grayson District's contention that an AQL of 10.0 for minimum flow rates is appropriate, other than the fact that it was used in another case.
  - c. Explain the basis for Grayson District's contention that an AQL of 10.0 for minimum flow rates would provide reliable results.
- A-7.
- a. The ANSI Standard explains in Section A4.1 that the Acceptance Quality Limit ("AQL") "represents a nominal value expressed in terms of percent nonconforming specified for a single quality characteristic." The ANSI Standard does not require the use of a certain AQL value. Table A-1 provides that an AQL value of 10.0 should be used for values ranging from 7.0 to 10.9.
  - b. The Commission's prior acceptance of an AQL value of 10.0 for the testing of minimum flow rates was the main driver in Grayson District's selection of an AQL value of 10.0 for minimum flow rates. Grayson District believes that the regulation's accuracy limit also supports the use of an AQL value of 10.0 for minimum flow rates. The accuracy limit in 807 KAR 5:066, Section 15 for repaired meters at a minimum flow rate is a minimum of 90%. Thus, the regulation allows a meter to deviate from the point of accuracy by 10% and still be in compliance with the regulation.
  - c. A sample test using the ANSI Standard procedures will provide *reliable* results regardless of the AQL value used. The AQL value simply specifies the allowance of percent nonconforming. To the extent that the Commission is concerned with accepting an AQL value that allows a higher percent nonconforming than the

method for intermediate and maximum flow rates, there are many compelling reasons why less scrutiny should be applied to minimum flow rates.<sup>2</sup>

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<sup>2</sup> See Case No. 2016-00432, Hardin County Water District No. 2's Response to Commission Staff's Second Request for Information, Question No. 5, Page 4 of 5 (Ky. PSC filed June 5, 2017).

**GRAYSON COUNTY WATER DISTRICT**

**CASE NO. 2019-00115**

**Response to Commission Staff's First Request for Information**

**Question No. 8**

**Responding Witness: Kevin Shaw & Legal Counsel**

- Q-8. Refer to the application, Exhibit 1, and the sample testing plan, which indicates that Grayson District will use an AQL of 2.5 for maximum and intermediate flow rates.
- a. Explain how the use of an AQL of 2.5 is consistent with the requirements of the ANSI Standard, with reference to the relevant sections of the ANSI Standard.
  - b. Explain the basis for Grayson District's contention that an AQL of 2.5 for maximum and intermediate flow rates is appropriate, other than the fact that it was used in another case.
  - c. Explain the basis for Grayson District's contention that an AQL of 2.5 for maximum and intermediate flow rates would provide reliable results.
- A-8.
- a. The ANSI Standard explains in Section A4.1 that the Acceptance Quality Limit ("AQL") "represents a nominal value expressed in terms of percent nonconforming specified for a single quality characteristic." The ANSI Standard does not require the use of a certain AQL value. Table A-1 provides that an AQL value of 2.5 should be used for values ranging from 1.65 to 2.79.
  - b. The Commission's prior acceptance of an AQL value of 2.5 for the testing of maximum and intermediate flow rates in Case No. 2016-00432 was the main driver in Grayson District's selection of an AQL value of 2.5 for maximum and intermediate flow rates. Additionally, Grayson District found it persuasive that the Commission has approved the use of an AQL value of 2.5 in many electric meter testing sample plans. Grayson District believes that the regulation's accuracy limits also supports the use of an AQL value of 2.5. The accuracy limit in 807 KAR 5:066, Section 15 for repaired meters at a minimum flow rate is 98.5% to 101.5%. Thus, the regulation allows a meter to deviate from the point of accuracy by a total of 3% (1.5% above or below) and still be in compliance with the regulation.
  - c. A sample test using the ANSI procedures will provide *reliable* results regardless of the AQL value used. The AQL value simply specifies the allowance of percent

nonconforming. The Commission's past acceptance of an AQL value of 2.5 provides strong support that the Commission believes the AQL value reliably determines meter accuracy.

**GRAYSON COUNTY WATER DISTRICT**

**CASE NO. 2019-00115**

**Response to Commission Staff's First Request for Information**

**Question No. 9**

**Responding Witness: Kevin Shaw & Legal Counsel**

Q-9.

- a. Confirm that using an AQL of 10.0 for minimum flow rates and an AQL of 2.5 for maximum and intermediate flow rates requires Grayson District to test significantly fewer meters at the minimum flow rate.
- b. State whether Grayson District would incur any additional cost if it conducted a minimum flow rate test on every meter on which it conducted the maximum and intermediate flow rate tests and if so, quantify the additional cost.
- c. Confirm that the results of Grayson District's sample testing plan would be more accurate if it conducted the minimum flow rate test on every meter on which it conducted the intermediate and maximum flow rate tests but did not change another aspect of its sample testing plan, and if Grayson District cannot confirm, please explain.
- d. Explain each basis for not conducting a minimum flow rate test on all meters Grayson District pulls for maximum and intermediate flow rate testing as opposed to only a portion of the meters Grayson District pulls for maximum and intermediate flow rate testing.

A-9.

- a. The difference in the number of meters to be tested at maximum and intermediate flow rates and minimum flow rates is due to the different AQL values, different inspection levels, and the different testing procedures.
- b. The additional cost is negligible.
- c. Grayson District disagrees with this assertion. As Grayson District explained in its Plan, for the maximum and intermediate flow rates, the upper and lower accuracy limits of 807 KAR 5:066, Section 15(2) require the use of the ANSI Standard's Double Specification Limit. For the minimum flow rates, the single lower accuracy limit of 807 KAR 5:066, Section 15(2) necessitates the use of the ANSI Standard's Single Specification Limit. The Double Specification Limit and the Single Specification Limit provide different testing procedures to determine

whether a sample is accepted. Particularly, the Double Specification Limit and the Single Specification Limit methods reference different tables to determine the sample size.<sup>3</sup> Even if the same AQL values, inspection levels, and lot size were used, the Double Specification Limit and the Single Specification Limit methods would require the use of different sample sizes. Thus, it is not possible for Grayson District to use the same sample to complete the calculations for the Single Specification Limit test on the minimum flow rates and the Double Specification Limit test on the intermediate and maximum flow rates.

- d. See the response to part (c). Grayson District is following the Double Specification Limit and Single Specification Limit methods in the ANSI Standard. The two methods require different sample sizes.

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<sup>3</sup> As Grayson District explained in its Plan, Table B-3 provides the sample size for the Double Specification Limit method used for the maximum and intermediate flow rates. Table B-4 provides the sample size for the Single Specification Limit method used for the minimum flow rates. *See* Plan at 3.

**GRAYSON COUNTY WATER DISTRICT**

**CASE NO. 2019-00115**

**Response to Commission Staff's First Request for Information**

**Question No. 10**

**Responding Witness: Kevin Shaw & Legal Counsel**

- Q-10. Explain whether the ANSI Standard anticipates increasing the level of scrutiny for subsequent lots if previous lots performed poorly, and, if so, explain why Grayson District's sample testing plan does not require similar increased scrutiny.
- A-10. 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."<sup>4</sup> Grayson District's Plan does not provide for this type of increased scrutiny because Grayson District's Plan instead requires that a group of meters that fails to be accepted under the ANSI Standard be removed.<sup>5</sup> This is a stricter treatment than the increased scrutiny provided by the ANSI Standard.

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<sup>4</sup> ANSI Standard, Item A10.3.1.

<sup>5</sup> Grayson District explained in its Plan that if a sample is not accepted under the ANSI Standard, Grayson 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.



**GRAYSON COUNTY WATER DISTRICT**

**CASE NO. 2019-00115**

**Response to Commission Staff's First Request for Information**

**Question No. 11**

**Responding Witness: Kevin Shaw & Legal Counsel**

Q-11. Explain in detail how meters for each lot will be randomly selected.

A-11. Grayson District provided in its Plan that it would use an "Excel spreadsheet, its billing system, or another computerized process to randomly select meters for testing."<sup>6</sup> Grayson District randomly selected the meters it sample tested in 2018 by using the "=RANDBETWEEN" function on the Excel spreadsheet of all meters installed in 2005.<sup>7</sup> Grayson District plans to continue to use the same Excel process to randomly select meters in the future unless the Commission suggests a different process.

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<sup>6</sup> Plan at 2.

<sup>7</sup> To populate a list of random selections for the meters installed in 2005, the following formula was used: =INDEX(A2:A34, RANDBETWEEN(1, COUNTA(A2:A34)), 1). Because the ANSI Standard required a sample size of five meters, this formula was copied into five cells to generate five randomly selected meters. For different sized lots, a different cell range would be used.

**GRAYSON COUNTY WATER DISTRICT**

**CASE NO. 2019-00115**

**Response to Commission Staff's First Request for Information**

**Question No. 12**

**Responding Witness: Kevin Shaw**

- Q-12. Provide a breakdown of the 5/8- x 3/4-inch Badger meters in Grayson District by model, and briefly explain any differences among the models.
- A-12. All meters in Grayson District's system are Badger Model 25 meters.

**GRAYSON COUNTY WATER DISTRICT**

**CASE NO. 2019-00115**

**Response to Commission Staff's First Request for Information**

**Question No. 13**

**Responding Witness: Kevin Shaw**

- Q-13. Provide the minutes of the meetings of Grayson District's Board of Commissioners in which the current request for deviation was discussed and authorized.
- A-13. The meeting minutes are attached.

REGULAR MEETING  
OF THE  
BOARD OF DIRECTORS  
OF THE  
GRAYSON COUNTY WATER DISTRICT

TIME: Monday, February 25, 2019

PLACE: Grayson County Water District Office

PRESENT: DIRECTORS  
John Tomes  
Kirby Johnson  
Nancy Cain  
Michael Kipper

OTHER  
Kevin Shaw  
Kyle Cannon  
Bob Taylor  
Tom Goff

I. CALL TO ORDER

Chairman John Tomes called the meeting to order.

II. MINUTES

A motion was made by Kirby Johnson and seconded by Nancy Cain that the minutes of the meeting of the Board of Directors held on Monday, January 28th, 2019 be approved as presented. Motion carried unanimously.

III. REVIEW OPERATING REPORT

Kevin Shaw presented the January 2019 operating report. A motion was made by Michael Kipper and seconded by Kirby Johnson to approve the Operating Report as distributed. Motion carried unanimously.

IV. WRITE OFFS

A motion was made by Nancy Cain and seconded by Kirby Johnson to approve write-offs of \$1,894.94. Motion carried unanimously.

V. EAST WEST INTERSECT PHASE 1 (ENGINEER SELECTION)

Kevin Shaw presented the board with the options for engineering services for the East West Intersect Phase 1 Project. Statements of Qualifications were received from Kentucky Engineering Group and Thoroughbred Engineering. After examining the qualifications for both groups and completing the required check list a motion was made by Michael Kipper and seconded by Kirby Johnson to accept Kentucky Engineering Group as the engineer for the project. The motion carried unanimously. The required check list is attached to the signed copy of these minutes.

VI. RAW WATER PUMP CHANGE OUT

Kevin Shaw presented the board with four bids for the raw water pumps. Bids were received from Jags, Layne, Endosol, and Straeffler for \$82,920.00, \$79,750.00, \$49,770.00, and \$52,700.00 respectively. After much discussion it was decided that Kentucky Engineering would examine all the bids and would present the board with a recommendation on which bid should be accepted. No further action was taken.

VII. STATUS OF AGREED ORDER

Kevin Shaw updated the board on the current status of the Agreed Order received from the Division of Water. Kevin informed the board that the District has 90 days to respond back with a corrective action plan. He explained to the board that along with the corrective action plan he will inform the Division of Water that the District has been compliant for four quarters and he will ask that the agreed order be lifted. He also requested the board approve an additional \$6,000.00 to wrap up legal issues concerning the agreed order. A motion was made by Michael Kipper and seconded by Nancy Cain. The motion carried unanimously.

#### VIII. NON-REOCCURRING COSTS

Kevin Shaw told the board that all required documents and information had been turned into Gerry Wuetcher with Stoll Keenon and Ogden PLLC for review and that he was close to completing the review. Kevin said that he hoped to be ready to present by next meeting. No further action was taken.

#### IX. METER TEST TIME EXTENSION

Kevin Shaw told the board that Mary Ellen Wemberly with Stoll Keenon and Ogden PLC had the meter test extension ready to present to the PSC. Her recommendation was to request to take the meter test time from 13 years to 15 years but also to leave the request open ended so that the District could request more years as long as meters continued to test within acceptable limits. A motion as made by Nancy Cain to move forward with request and to authorize John Tomes to sign on the behalf of the District. The motion was seconded by Michael Kipper and passed unanimously.

#### X. CITY OF LEITCHFIELD WHOLESALE RATE

Kevin Shaw informed the board that the Wholesale Rate with the City of Leitchfield would be coming up for review soon. No further action was taken.

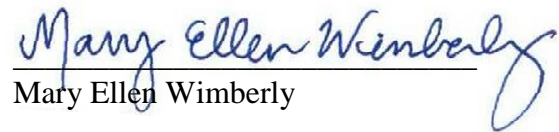
#### XI. ADJOURNMENT

A motion was made by Kirby Johnson and seconded by Nancy Cain to adjourn the monthly board meeting. The motion carried unanimously.

  
Kenny Sharp, Secretary

## CERTIFICATE OF SERVICE

In accordance with 807 KAR 5:001, Section 8, I certify that Grayson County Water District's August 1, 2019 electronic filing of this Response is a true and accurate copy of the same document being filed in paper medium; that the electronic filing has been transmitted to the Commission on August 1, 2019; that there are currently no parties that the Commission has excused from participation by electronic means in this proceeding; and that one copy in paper medium of this Response will be delivered to the Commission within two business days.

  
Mary Ellen Wimberly