



Kentucky Rural Water Association

Helping water and wastewater utilities help themselves

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NOV 22 2017

PUBLIC SERVICE
COMMISSION

November 15, 2017

Ms. Gwen R. Pinson, Executive Director
Public Service Commission
P. O. Box 615
Frankfort, KY 40602-0615

Re: Case No. 2017-00429 – Filing Deficiency

Dear Ms. Pinson:

Kentucky Rural Water Association submitted an application requesting continuing education credit for Water District Commissioners who attend our Regional Meetings during the month of October. The deficiency notice references a copy of written materials given to water commissioners attending the program was not provided in our initial request.

Speakers did not provide handouts to attendees at these sessions. A copy of the PowerPoint presentations used by the speakers during their presentations is enclosed.

Please accept my apologies for this error. If additional information is needed to cure the deficiency please let me know.

Sincerely,

Janet Cole
Education Coordinator
j.cole@krwa.org

Enclosures (3)

October 10, 2017
Northeast Regional Meeting
Reno's Steakhouse
Morehead, Kentucky

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NOV 22 2017

PUBLIC SERVICE
COMMISSION

Topic: Valves and Hydrants
Speaker: Merle Pearce, Mueller Company

Part 1 - Valves



MUELLER GATE VALVES



CHATTANOOGA, TENNESSEE



RESILIENT SEAT / RESILIENT WEDGE GATE VALVE

- ✓ In compliance with ANSI/AWWA C515 standard.
- ✓ UL listed / FM approved up to 12".
- ✓ 350 psig maximum working pressure for 3"-12".
- ✓ 250 psig maximum working pressure for 14"-54".
- ✓ Bi-directional flow.



2361 Series

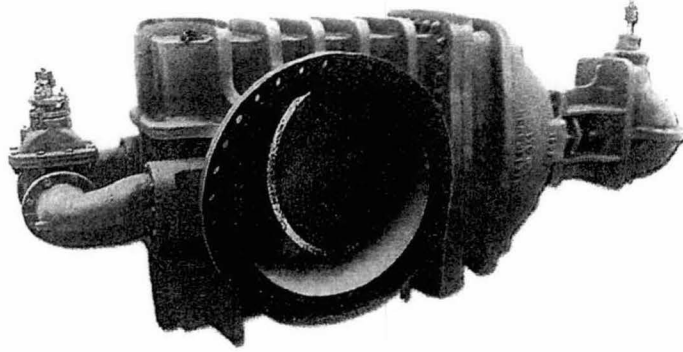
Mueller Co.
Reliable Connections

54" GATE VALVE



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Reliable Connections

GATE VALVE BY-PASS



- ✓ Available on 16" – 54" Gate valves
 - 16" RW FLxFL, MJxMJ, FLxMJ ends ONLY

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RESILIENT SEAT / RESILIENT WEDGE GATE VALVE

- ✓ New fully encapsulated Ductile Iron wedge design (patent pending) allows for 350psi rating.
- ✓ SBR elastomer as standard, EPDM option.
- ✓ New 12" Mueller NGV Disc Design:
 - 150 ft./lbs. of input torque will seal 500psi.
- ✓ Polymer guide caps.



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Reliable Connections

GUIDE CAPS



Mueller Co.
Reliable Connections

350 PSI NEXT GENERATION GATE VALVES

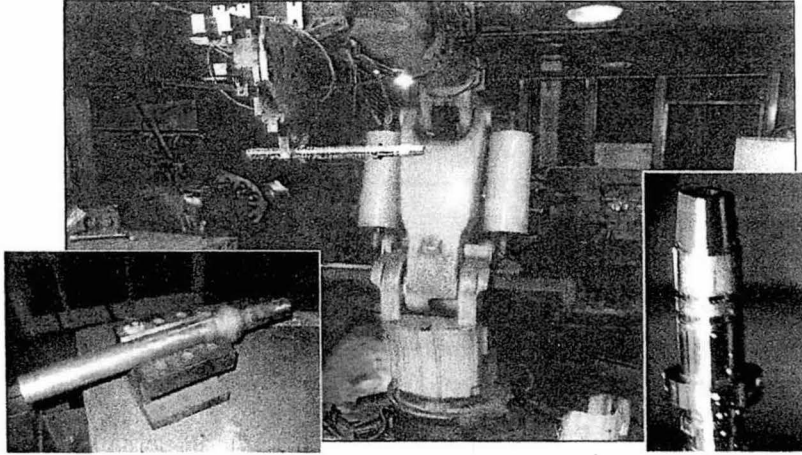
- ✓ **Resilient Wedge Reduced Wall.**
 - Gate Valves (Ductile Iron)
 - NGV 3"-12"
- ✓ **New wedge design allows for a narrower profile while maintaining the same pipe stab depth & pipe end deflection.**
 - 12" 2362 is 15", NGV is 12"
- ✓ **Stem is interchangeable with installed 2360 valves and available in the following materials:**
 - Manganese Bronze: ASTM B138 Alloy C67600 HO4
 - Everdur: ASTM B98 Alloy C66100 HO2
 - 304 / 316 Stainless Steel: ASTM A276/A273



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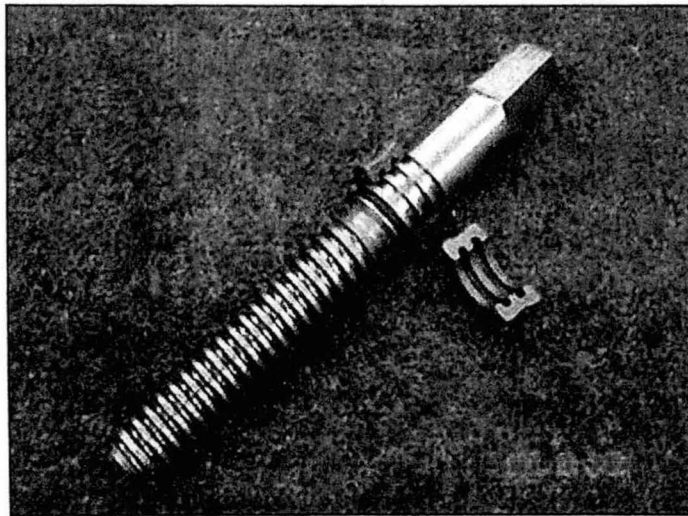
INTEGRAL THRUST COLLAR

Forged Manganese Bronze Stem and Integral Thrust Collar



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Reliable Connections

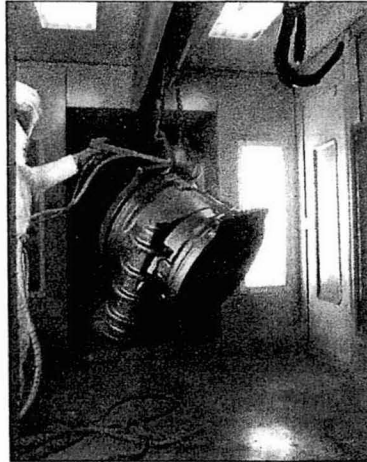
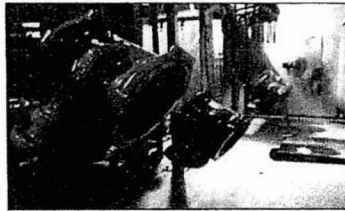
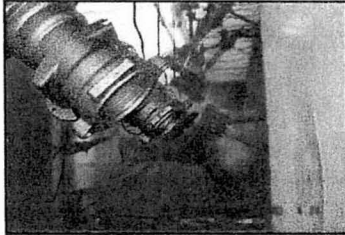
NON-INTEGRAL THRUST COLLAR



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Reliable Connections

EPOXY COATING

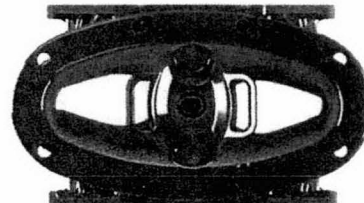
Applied 10 mils nominal



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RESILIENT SEAT / RESILIENT WEDGE GATE VALVE

- ✓ **Stuffing Box & Bonnet Bolts 316 Stainless Steel 2"-16".**
- ✓ **Lifting Lugs integral to stuffing box enables use of straps or hooks.**
- ✓ **Stuffing Box centers Valve Box:**
 - 6-1/2" VB fits over 4"-6" Lifting Lugs
 - 7" VB fits over 8" Lifting Lugs
 - 8" VB fits over 10"-12" Lifting Lugs



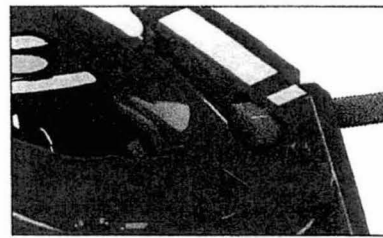
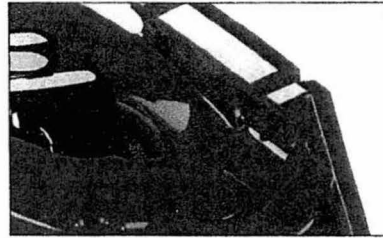
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RESILIENT SEAT / RESILIENT WEDGE GATE VALVE

✓ End Connections Available for 350psi.

- Mechanical Joint (3" – 12")
(Features T-Head Bolt Retention on the slotted MJ Flange holes)
- Flanged (3"-12") with use of special gasket per Section 1.1 of ANSI/AWWA C110/A21.10-08
- Slip-on (4"-12")

✓ 0.3" Oversized Port opening.



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Reliable Connections™

350 AWWA/UL/FM FL X FL BODY

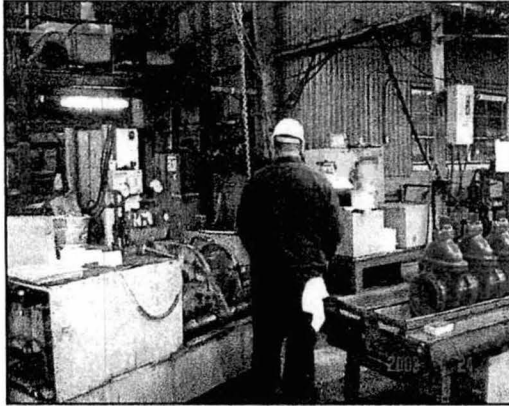
- Applicable to R2361 / A2361 / P2361
- New 4" - 12" FL x FL bodies
- "Light-weight" design
- Flange ends
 - Flange type identifying tabs
 - ANSI B16.1 Class 125
 - ISO PN 10 / PN 16
- Lay length per the ASME ANSI B16.10, Class 125



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Reliable Connections™

RESILIENT WEDGE PRESSURE TESTS

- ✓ Pressure test every valve at 525 or 375 psig in addition to every tenth valve at 50 psig.
- ✓ Shell test every valve at 700 or 500 psig.
- ✓ UL listed / FM approved at 350psi for 2361 Series



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O.S.&Y. GATE VALVE

- ✓ In compliance with AWWA's C515 standards.
- ✓ Manufacture sizes
 - Resilient Wedge (Ductile Iron) 2"-24"
- ✓ Utilized in above ground applications.
- ✓ Hand-wheel operation.
- ✓ UL listed / FM approved thru 24".
- ✓ 350 psig Max working pressure 4"- 12"
- ✓ 250 psig Max working pressure 14"- 24"



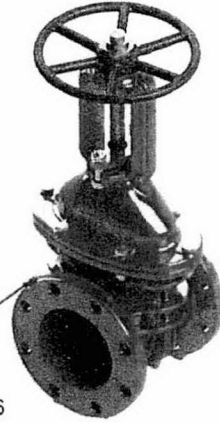
R-2361 Series

Mueller Co.
Reliable Connections

NEW O.S.&Y. FEATURES

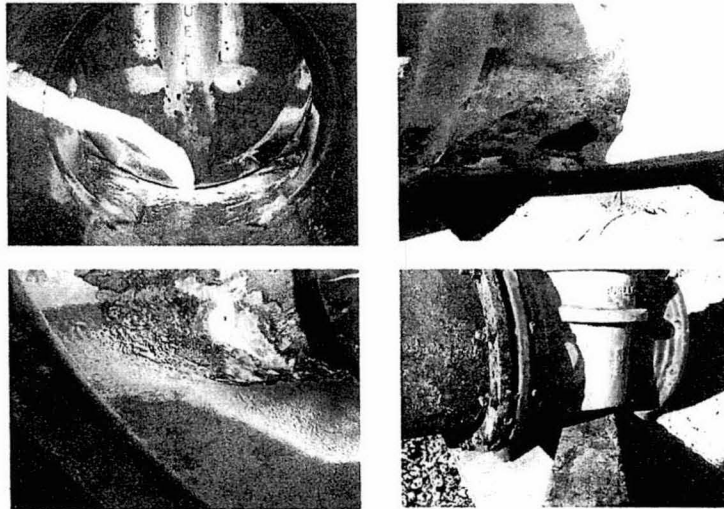
R2361 NGV Product Offering

- Size range: 4" – 12"
- All new redesigned (DI)
 - FL x FL NGV Body
 - OS&Y Bonnet/Yoke Combo
- AWWA (C515) / UL / FM – 350 PSI
- Flange ends
 - Flange type identifying tabs
 - ASME B16.1 Class 125 & PN 10/ PN 16
- Also offered AWWA (C509) /UL/FM - 250 PSI 4"-12" Thick-wall Body & Bonnet



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THROTTLING



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GATE VALVE MAINTENANCE

✓ Valve Exercising

- ✓ 1 time/year
- ✓ 2-3 cycles
- ✓ Hydrant open downstream
- ✓ Hydraulic valve exerciser recommended (contact valve company for torque requirements)

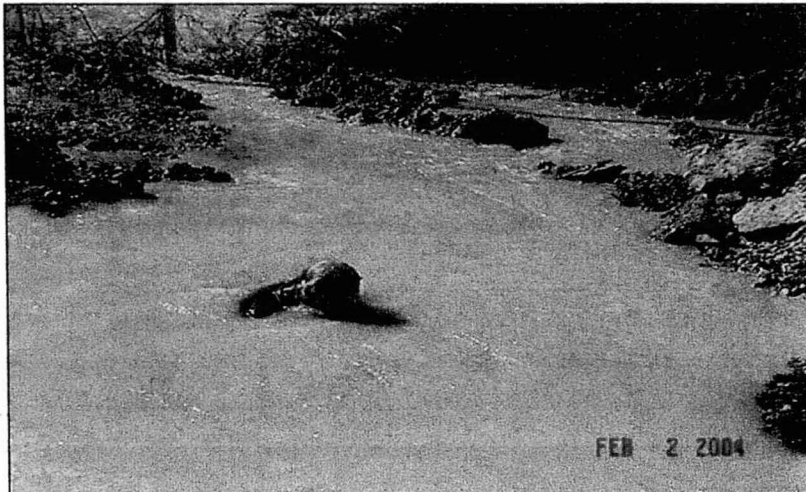
✓ Formula for Number of Turns?

- ✓ $3 \times \text{Size} + (2 \text{ or } 3)$

✓ Record Keeping

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LACK OF MAINTENANCE LEADS TO GATE VALVE REPAIR



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IDENTIFICATION

- ✓ A Mueller valve can be identified by checking to see if the stuffing box runs parallel with the pipe up to 16".
- ✓ Identify valves with Red or Black operating nut.
 - Can replace stem and stem nut without removing valve from line.
- ✓ The operating nut can also determine whether the valve is a DDGV or RWGV.



STAINLESS STEEL TYPE 316 FASTENERS

SST 316 Fastener Conversion & Standardization

➤ Effective:

1. 2" - 16" (RWGV) - May 1, 2017
2. 18" - 54" (RWGV) & 14" - 36" (DDGV) – July 1, 2017

Conversion Scope:

- Substitution of SST 304 with SST 316 on 2" -12"
 - Substitution of Carbon Steel and SST 304 with SST 316 on 14" -54"
 - Stainless option cost adder removed where appropriate
- ✓ Some options will remain until spec. change



MUELLER A2361 C515 GATE VALVE

- ✓ 350 PSI Max Working Pressure
 - 3"-12" NGV
- ✓ Fully Encapsulated Wedge
- ✓ Guide Gaps
- ✓ Lighter Weight Valve
- ✓ Easier to Operate
- ✓ Forged Manganese Bronze Stem
- ✓ Stem with Integral Thrust Collar
- ✓ Integral Lifting Lugs
- ✓ T-head Bolt Retention
- ✓ Stainless Steel Bolts
- ✓ Stuffing Box centers Valve Box



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October 10, 2017
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Reno's Steakhouse
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Topic: Valves and Hydrants
Speaker: Merle Pearce, Mueller Company

Part 2 - Hydrants



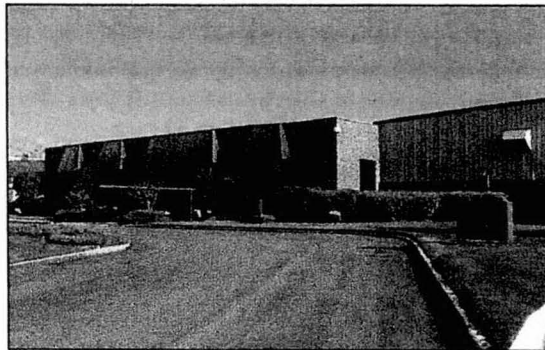
SUPER CENTURION 250 FIRE HYDRANT

Setting the Standard

Mueller Co.
Reliable Connections

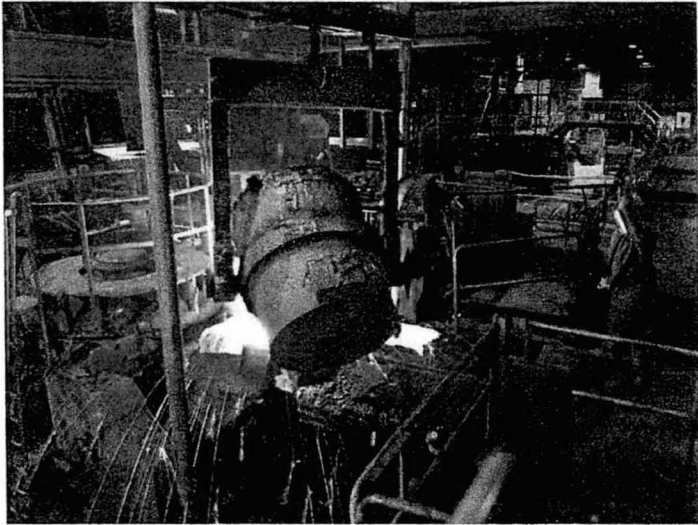
ALBERTVILLE, ALABAMA

- Facility opened in 1975.
- Manufactured Centurion Line until 1996.
- Began production of Super Centurion Line in 1997.
- Manufactured over 4 million hydrants.



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ALBERTVILLE, ALABAMA



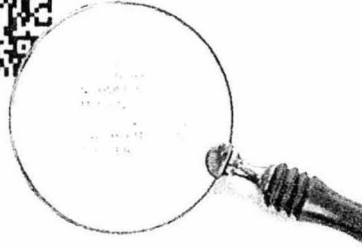
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UPPER BARREL CONFIGURATIONS



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HYDRANT QR TAG



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PROPER TOOLS



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PROPER HEIGHT



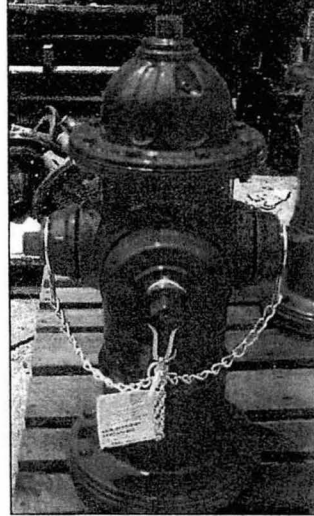
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BONNET

✓ Features:

- Operating Nut
- Hold Down Nut
- Oil filler Plug
- O-Ring seals

- ✓ Hold down nut is reverse thread, with resilient weather shield.



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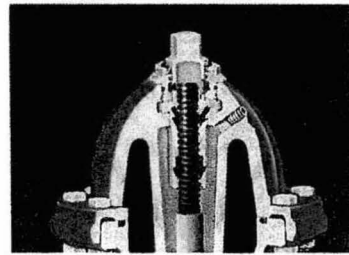
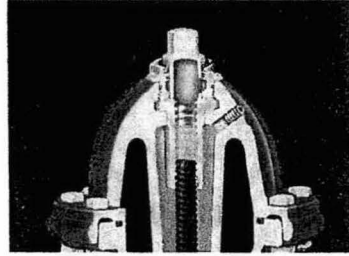
DO NOT OVER OPEN!



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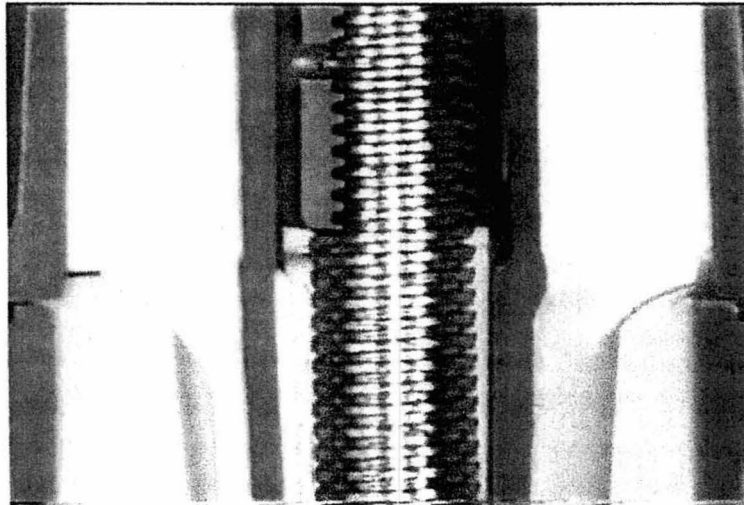
OIL RESERVOIR

- Specially formulated food grade hydrant oil
- Operating hydrant fully opened to close, lubricates stem and bearing surfaces



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Reliable Connections

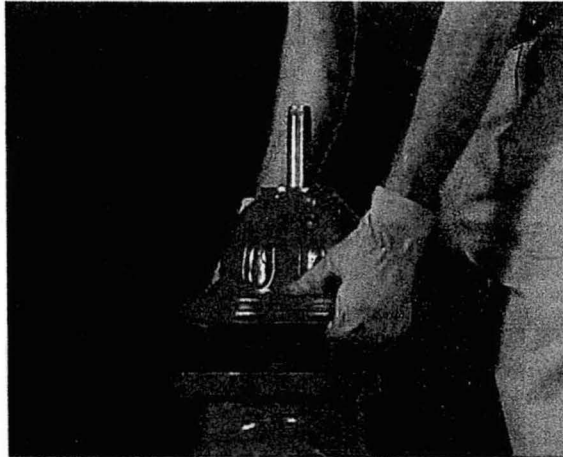
OIL RESERVOIR



Mueller Co.
Reliable Connections

BRASS SAFETY SLEEVE

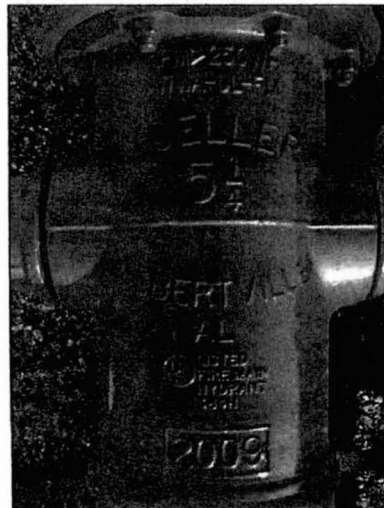
- Protects O-rings from being scored while removing bonnet.
- Optional sleeve retains oil and protects O-rings.



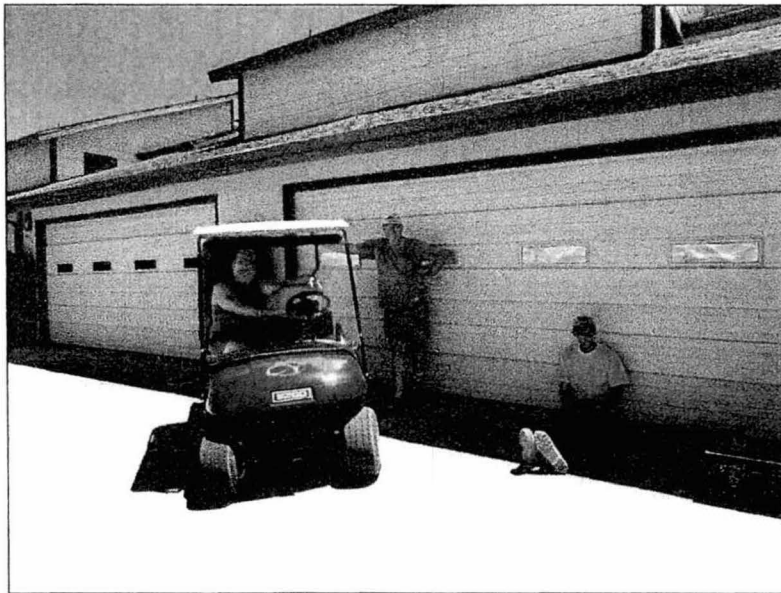
Mueller Co.
Reliable Connections[®]

UPPER BARREL

- Nozzle design contributes to superior flow.
- Safety chains securely attached.
- Triple listed- UL & FM AWWA 250 psi rating.



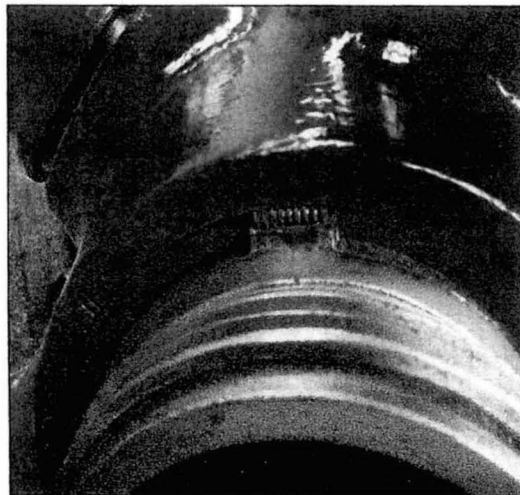
Mueller Co.
Reliable Connections[®]



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Reliable Connections[®]

SUPER CENTURION NOZZLES

- Reverse thread with nozzle lock.
- Designed for higher flow.
- Field replaceable.



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NOZZLE COEFFICIENTS

2 FIRE HYDRANTS

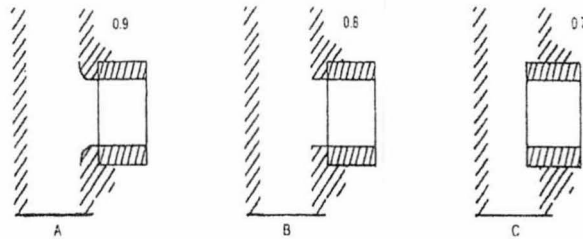
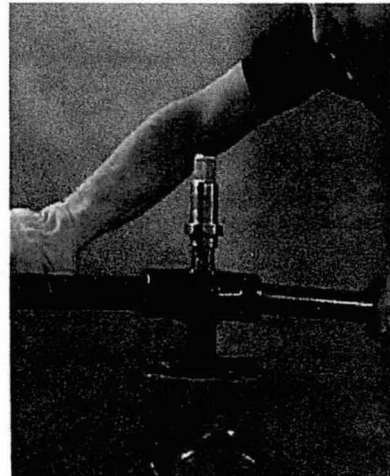


Figure 6-3 Outlet-nozzle coefficients.

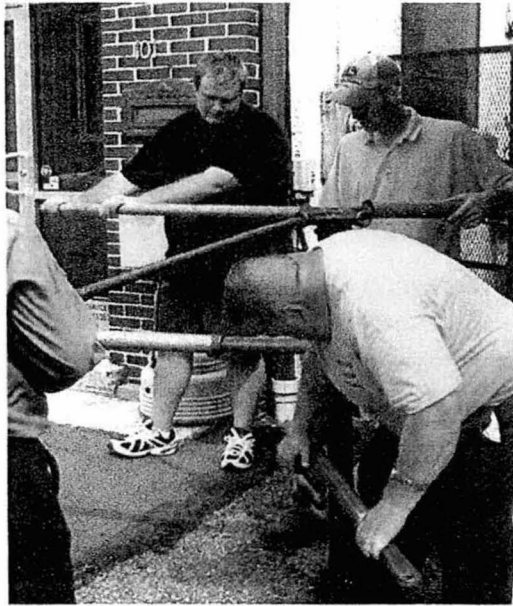
Mueller Co.
Reliable Connections

REMOVING MAIN VALVE

- Can be removed to make any necessary repairs.
- Reversible main valve gives you a repair part, in the original.

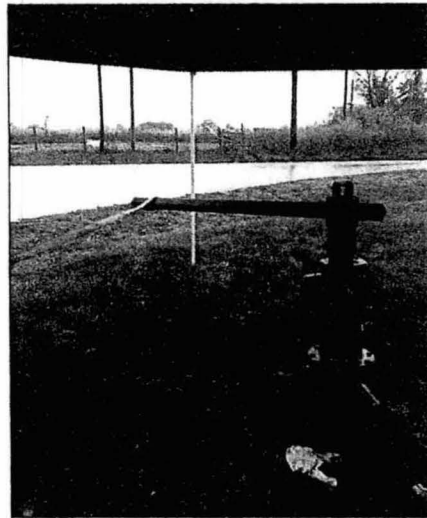


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MILLS SEAT REMOVAL WRENCH



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SAFETY FLANGE AND COUPLING

- Safety flange and SS coupling designed to break at impact.
- Eliminates stress from being transmitted to shoe.
- Perpendicular pin placement on coupling.



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SAFETY FLANGE VIDEO



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EXTENSION KIT



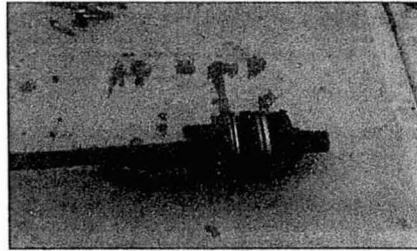
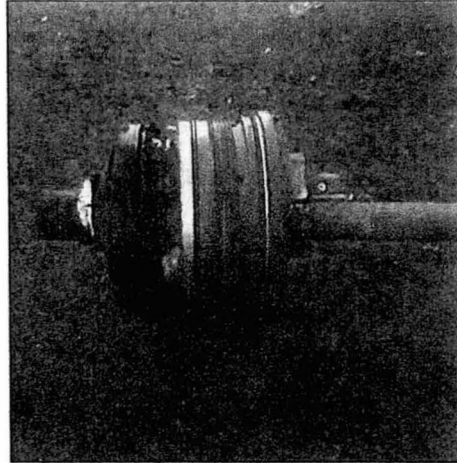
Mueller Co.
Reliable Connections[®]

SHOE VIDEO



Mueller Co.
Reliable Connections[®]

IMPORTANCE OF FULLY OPENED



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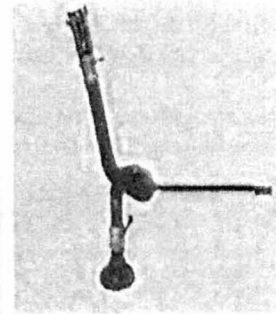
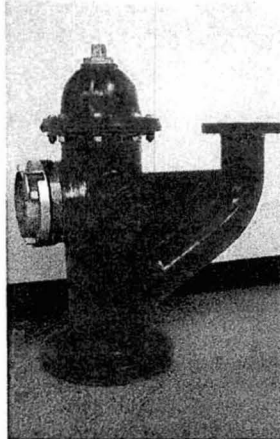
IMPORTANCE OF FLUSHING



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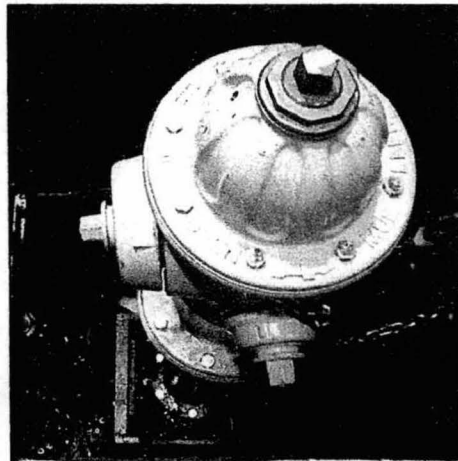
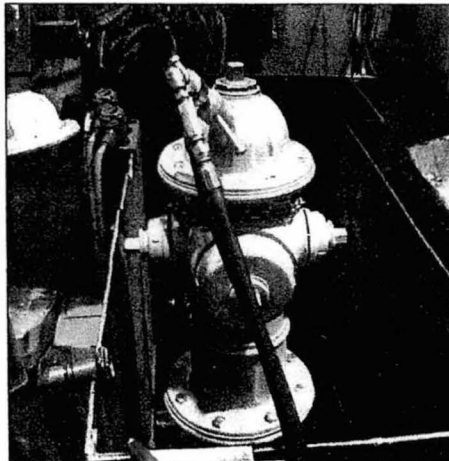
MONITOR STYLE HYDRANTS

- Same features as the Super Centurion 250, the Monitor Hydrant has an extra 4" flanged outlet.
- Used in power plants, tank farms, manufacturing, lumber yards, warehouse districts, and refineries.



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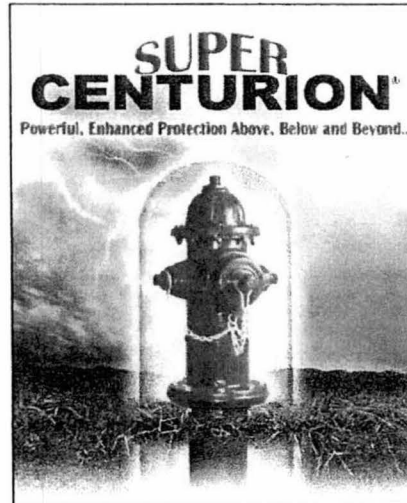
PRESSURE TESTING



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NEW HYDRANT PAINTING SYSTEM

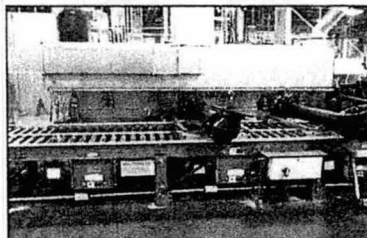
- Better UV protection.
- Greater gloss retention.
- Reduce top coat chipping & cracking.
- Reduce rust bleed through.



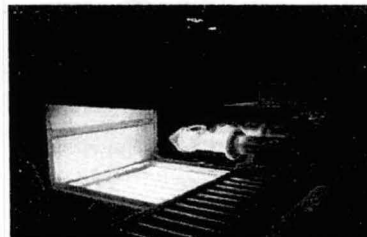
Mueller Co.
Reliable Connections

NEW HYDRANT PAINTING SYSTEM

- New Hydrant Washing Process.
- New Flash off Booth removes solvents which cause bubbles in paint.
- New PPG Amercoat 370 Epoxy primer replaces Dip primer, HP Epoxy, and Tnemec unless required by customer.



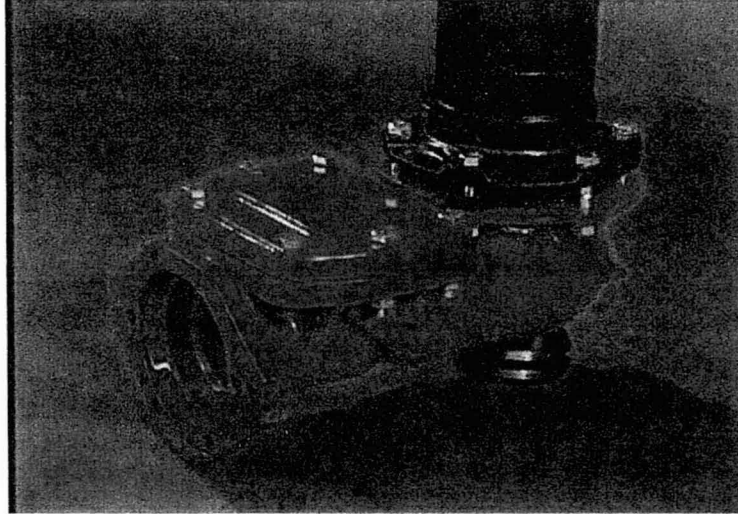
New Washer Station



Infrared Drying

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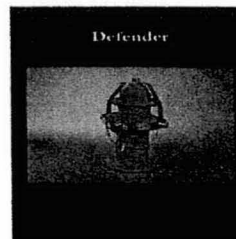
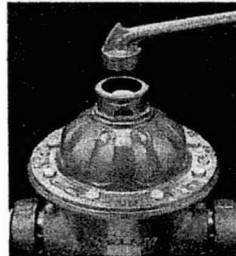
SUPER CENTURION 250 HS



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SECURITY DEVICES

- Tamperproof design provides protection against theft of services.
- Hydrant Defender provides protection against theft of services and vandalism.

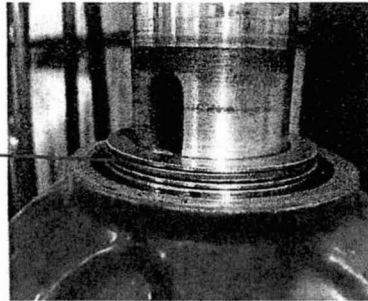


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SUPER CENTURION 350

Product launch January 2014 A423 & A421

- ✓ 350psi AWWA/UL/FM
- ✓ Reduced operating torque for higher pressure systems
- ✓ Differences from 250 version
 - 3 piece roller bearing located above thrust collar (hold down nut machined to provide clearance)



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Reliable Connections

SUPER CENTURION 350

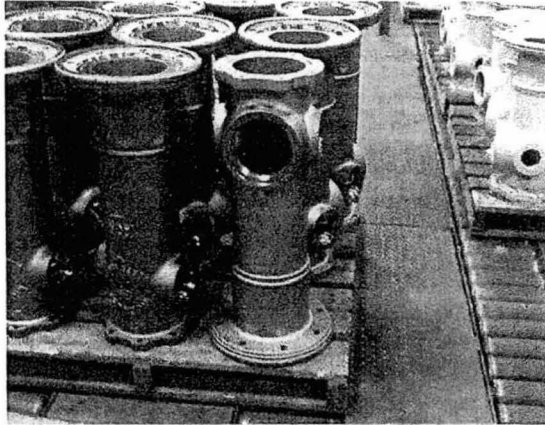
- ✓ Higher grade bonnet bolts/nuts due to higher pressure.
- ✓ Single groove safety flange (may become standard).
- ✓ Reinforced main valve (will become standard).

Reduced operating torque 35% after 1,000 cycles at 350psi vs. the current Super Centurion at 250psi.

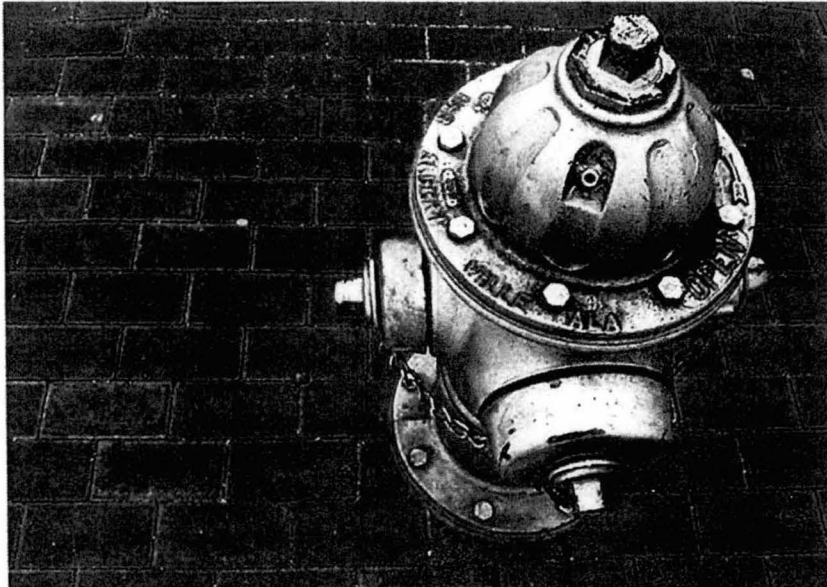
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SNOW BURY HYDRANT

- 6" Taller for increased visibility.
- Replaces need for 6" above ground extension.
- 24" Nozzle clearance.



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October 12, 2017
Green River Regional Meeting
Riverview Restaurant
Hawesville, KY

October 19, 2017
Western Regional Meeting
Ponderosa Steakhouse
Draffenville, KY

**Leak Detection and Water Loss Control
in the *Mountains***

**Dell Harris
Kentucky Rural Water Association**

Topic for sessions: **Leak Detection**

Speaker: **Dell Harris, Kentucky Rural Water Association**

Leak Detection at 20 years experience

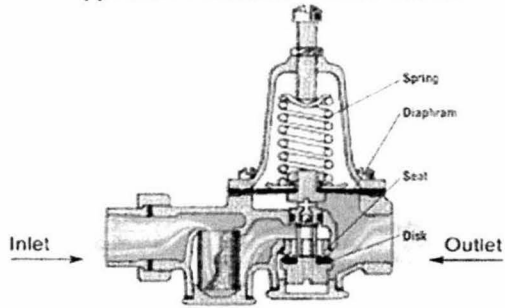
Systems Personnel and Configuration
System Surveillance
Day to Day Operation
Pin Point Leaks
Finding Leaks That Do Not Surface

Tour of Duty In Eastern Kentucky / Winter 2017

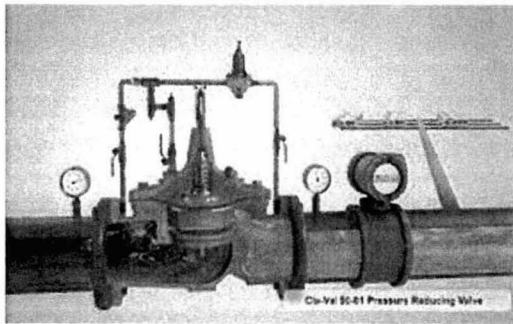
Unique Challenges:
Lack of Personnel and Equipment
Union Shop Mentality
Design and Maintenance Issues
Geographic Concerns / Elevation Issues / PRVs
Lack of Revenue / Economy

Enough for these concerns lets focus on Leak Detection.

Typical Pressure Relief Valve



PRV Setup in Field



How do you use a PRV to detect leaks?

PRV should not run constantly in some areas.
This is especially true in off demand hours.

What would mean if the discharge pressure
decreased on the output side of the PRV?
Should you increase the pressure to help on
customer complaints from low pressure?

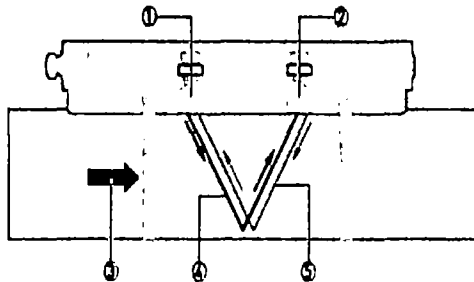
**A Positive Example /
Mountain Water District**

David Taylor is the operations manager at Mountain Water District. This is a big operation. Mountain water district has over 17,000 service connections and over 80 primary tanks. Electrical costs are critical. Everything has to be pumped, sometimes by several stations, and this is expensive. Any leakage greatly increases these electrical cost.

Methodology

David was kind enough to share his leak detection methodology with me. This methodology would be appropriate for Rural and nonmetallic systems and has Five primary steps:

**Several References to Time Transit /
Portable Flow Meter**



Step One

Get flow of system from fixed or time transient metering within zones. Surveillance is primarily achieved using the SCADA system at Mountain Water District.

This will identify concern and eliminate search area.

Step Two

Utilize tank drop, trends / history to assess demand on system, and then within the individual zones. The zones and tanks within the zones are delineated. History / trends and demand confirm and quantifies excess flow.

Step Three

Time transient meters are deployed at the tank within suspected zone. Off Demand time is between 11:30pm and 4:00 am. Valves are shut off at far reaches of suspected area and the operators walked her way back toward the time transient meter. It is a process of elimination. Listening to all valves concerned, is a must. Any wrong or set assumption could cost you dearly.

Step four wait for daylight

Step four

Put boots on the ground. Walk the line in question. Listen to all meters, hydrants and valves available. Use listening equipment to pinpoint leak if necessary.

Step Five

Step Four is not yield a surfacing leak or pinpoint. The portable flowmeter, or time transit meter will have to be deployed. You endeavor to cut your search area and half every time you deploy the portable meter. Use listening device when search area is manageable.

The No Win Scenario in the Mountains

The section by Millo Bridge:
Meters might be 150 yards or more away from the main up against the customers house. That was the norm in the zone. Several homes with in the section had been abandoned that also added to our issues.

David Taylor's answer to my dilemma

This method, with pressure conditions in his system, would work for leaks if they were at least 5 gallons per minute. David said he would ground mic the pavement close to the main. Keep in mind, that the mains are typically close to the roads edge because of the very narrow ditch line. At this point you're listening for water coming through the service connection or leak on the main.

Questions or Comments

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Flint Michigan more info

Are there any lessons we can garner from this recent history?

Information from John Monsees with Michigan Rural Water Association, formerly with Flint Michigan.

