SPRING 2019

MODERN MCWANE

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McWane Ductile

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IRON STRONG

WELCOME TO MODERN McWANE

Dear Readers,

Welcome to the Spring edition of Modern McWane. As with the change of season, McWane Ductile continues to change and evolve as well. We are continuing to add services and content material to better serve our customer needs.

A big part of this change is our Iron Strong blog and an increased focus on our social media presence. You can read more about this in an article by Marketing Specialist Andrea Kubik, and our focus on "Growing Iron Strong."

We have a couple of personnel announcements in this edition from our Canadian region. Mr. Paul Stringer retired earlier this year after 21 years with Canada Pipe, and we all wish him the best as he moves on to new phase. We are also proud to announce a second Product Engineer, Mr. Greg Principi, has joined the staff in Canada as well. You can find out more about Greg in the New Hires section.

We have two good feature articles in this edition as well. Mr. John Simpson, Regional Engineer for McWane Ductile, has an interesting article on the benefits of using ductile iron pipe in sewer applications. There is also a very good Q&A article featuring Mr. Bill Dunnill, General Manager of Consolidated Utility District (CUD) in Tennessee, entitled "Why Use Ductile Iron Pipe?" In the article, he relays to Mr. Roy Mundy, Senior Regional Engineer for McWane Ductile, the reasons CUD chooses ductile iron as their preferred pipe material.

Our Project Profile section has several interesting pipe installations in this edition, including one from the Northeast featuring a project in Pennsylvania. The project was performed for Aqua-PA, where a new 36-inch line crossed under an existing 16-inch cast iron line. The 16-inch line, still in service, was cast in 1886 at Warren Foundry, which was the forerunner of the current McWane Ductile-New Jersey facility.

We have included two new installments of the always popular "Ditch Doctor" series, which provides advice for common questions regarding the design and installation of ductile iron pipe.

As summer approaches, we look forward to seeing you at the AWWA/ACE conference in Denver. Please be sure to stop by booth #2810 to find out more about the ongoing changes and improvements at McWane and our efforts to continue **Building Iron Strong Utilities for Generations** to come.

Stuart Liddell
Sales Operations Manager
Sales Operations Department

McWANE RETIREMENTS AND NEW HIRES

PAUL STRINGER

First, long-time employee Mr. Paul Stringer is retiring after 21 years with Canada Pipe. Paul joined Canada Pipe in January 1998, leaving a career in municipal distribution to join the Canada Pipe team on the wholesale end of the business. Paul began as a sales representative in the Ontario market and then became the regional manager of this territory, a position he occupied until his retirement in December of 2018. Paul's knowledge, experience and wit will be sorely missed by Canada Pipe; however, this is what we work toward, and we wish Paul all the best in his retirement.

GREG PRINCIPI

Also, 2019 has brought the addition of a new employee: a second National Product Engineer, Mr. Greg Principi. Greg went to Queens University in Ontario and decided to leave his career at Dufferin Construction Company to join the Canada Pipe team on January 21, 2019. Greg brings civil construction experience, an engineering degree and a positive attitude. We welcome Greg as the newest member of the Canada Pipe team.

GROWING IRON STRONG

BY EXPANDING OUR DIGITAL COMMUNICATIONS

By Andrea Kubik, McWane Ductile Marketing Specialist

McWane Ductile understands the importance of nurturing customer relationships in the water and wastewater industry. Today's challenge is how best to address the shifts in customer relationship marketing posed by our proactive consumers, and how best to provide solutions and answers to our most-often-asked questions.

The decision-makers who specify ductile iron products for their waterworks projects are well educated and research driven. To meet the demands of an ever-evolving digital world, McWane Ductile has focused on providing improved communication, education and value by expanding our digital media efforts to include YouTube, LinkedIn, Facebook and, most recently, Twitter.

In the spring of 2018, McWane Ductile announced the launch of our Iron Strong Learning Center, a resourceful and interactive tool for water professionals. Found at McWaneDuctile.com, the Learning Center provides blogs that are fueled by real-world utility experiences and include a mix of informative videos and written articles. The blogs are penned and produced in-house by McWane Ductile's knowledgeable staff and advisory contributors, with experience ranging from foundry processes to jobsite installations. McWane Ductile staff host the videos as they cover topics pertaining to ductile iron pipe ranging from:

- Product reviews and comparisons
- Manufacturing and design processes
- Installation instructions and testing tips
- Services and solutions
- Specification and technical topics
- Do's and dont's
- And more

You can easily subscribe to our Iron Strong blog with the click of a button to have fresh updates delivered directly to your inbox. Our videos can also be found on our YouTube channel at Youtube.com/c/McwaneDuctilePipe.

Since launching the Iron Strong Learning Center, we have produced more than 15 quick process demonstration videos and we've covered more than 30 blog topics, with even more blogs coming through the pipeline. Our readership has continued to increase, and the number of subscribers to our YouTube channel has risen quickly over the winter.

Along with strengthening our position in the marketplace, we recognize the importance of engaging with our consumers through social media. This allows for wide-scale interaction that can be collectively resourceful and generative of information that is sometimes hard to obtain. Our intention is to keep our digital communications:

- Relevant
- Engaging
- Educational
- Specific and informative
- Inspiring and even fun

Producing quality ductile iron products, interacting with our end-users and providing value-added solutions to professionals in the water and waste water industry is very important to us. We encourage you to check out our Learning Center and engage with us by following McWane Ductile on YouTube, LinkedIn, Facebook and Twitter.

If there are topics that you would like to learn more about, let us know. We'd be happy to provide another specialized Iron Strong blog. Until then, work hard, work smart and work safe!

DUCTILE IRON PIPE

A SOLID SOLUTION TO SEWER APPLICATIONS

By John Simpson, McWane Ductile Regional Engineer, P.E.

The United States' water and wastewater utilities have become a product of their own success. People have become accustomed to receiving potable water when they turn on their taps and having waste disappear via their pipes. The general public's understanding of this difficult and expensive process required to deliver these services is lacking. For example, did you know according to the 2017 ASCE Infrastructure Report Card there are approximately 800,000 miles of public sewers and 500,000 miles of private property connecting to public sewer lines, and by 2032, it is expected that 56 million more people will connect to centralized treatment plants, rather than private septic systems — a 23 percent increase in demand.

As municipalities across the country require critical repairs and upgrades, water and wastewater customers are often shocked by new charges and fees, and generally unwilling or unable to accept a higher price for services they may have taken for granted. These expectations have left utilities with the challenge of raising funding while maintaining infrastructure and affordability for their customers.

For decades, ductile iron pipe has been used in the transportation of raw and potable water and sewage. It has also been used for plant process piping in wastewater treatment plants. Ductile iron pipe has long been the material standard for water applications but has gained greater acceptance for use in wastewater applications. In determining the type of pipe that should be used in a wastewater system, an engineer or municipality should evaluate the pipe's expected performance and consider factors affecting it. These factors include:

- Strength
- Ease of installation and handling
- Pipe joints and resistance to infiltration/inflow
- Resistance to corrosion from hydrogen sulfide gas and industrial chemicals
- Life expectancy
- Maintenance costs
- Pipe system economics like initial costs and availability

Ductile iron pipe is an extremely strong, durable material and its performance can exceed that of its predecessor, gray cast iron pipe, which has continually served municipalities for more than a century. Most ductile iron gravity sewer installations installed in accordance with good engineering practice should provide a minimum of 50 years with an achievable goal of 100 years without failure. In addition, zero infiltration is achievable with ductile iron pipe because of its pressure-tight joints. These attributes alone make ductile iron pipe a great choice for wastewater applications by ensuring the public's waste collection systems will last for decades with low maintenance costs and thus ensuring lower costs for system upgrades.

Hydrogen sulfide gas (H_2S) sometimes poses a problem in wastewater sewer applications, especially if the pipe has an air space allowing O_2 to combine with H_2S, creating sulfuric acid (H_2SO_4). H_2S is extremely hazardous; therefore, the project designer should provide adequate slope and maintain a minimum scour velocity of two fps in the piping system. This will prevent the wastewater from becoming anaerobic and thus generating H_2S gas. Furthermore, ductile iron pipe typically has a larger inside diameter than other piping materials. This allows for greater design flows and carrying capacities. In larger diameter sewers, for example, ductile iron pipes' larger inside diameter could accommodate several million gallons per day of additional flow.

The designer of a wastewater system should know there are special linings that are recommended for ductile iron pipe that are intended for handling waste such as acids and alkali waste, or in instances where hydrogen sulfides are a problem. Visit McWane Ductile's Iron Strong Blog at McWaneDuctile.com/Blog where you'll find our informative video and blog article titled "What Pipe Linings Are Best for Sewer Applications?" or consult with a manufacturing representative concerning appropriate linings for ductile iron pipe.

Ductile iron pipe is suited for pressure sewer/force main applications because its standard pressure classes provide for high operating pressures with a minimum 100 psi surge allowance within its pipe design. Water hammering, fluid surges or hydraulic transients are a very serious problem for pressure sewers, as pump stations are susceptible to power outages. Outages can cause a sudden stop or increase momentum of the the liquid due to a change in velocity, leading to surge forces that can rupture some other piping materials, especially at the pipe joint.

Ductile iron pipe has a long history highlighting its strength, ease of installation, availability and life expectancy. In today's environment, municipalities face many challenges ranging from tight budgets, system operations and maintenance, aging infrastructure and tighter regulations, in addition to a public that is generally unaware of the time, effort and cost it takes to build and maintain the infrastructure that provides life's necessities such as water and waste disposal. The qualities of ductile iron pipe provide a solid solution to water professionals who are faced with the issue of ensuring a safe and sustainable system while keeping costs in line for the end user. To learn more about the best choice for your wastewater and sewer application, contact a McWane Ductile representative at McWaneDuctile.com.

WHY USE DUCTILE IRON PIPE?

AN INTERVIEW WITH BILL DUNNILL, GENERAL MANAGER, CONSOLIDATED UTILITY DISTRICT, MURFREESBORO, TENNESSEE

By Roy Mundy, Senior Regional Engineer, P.E., ENV, SP

Even in this modern era, we are still concerned with many of the issues that early civilizations faced when providing water to our communities, such as supply and demand, pipeline construction and upkeep, cleanliness, conservation and cost. In the fall of 2018, McWane Ductile's Senior Regional Engineer, Roy Mundy, had the opportunity to interview Consolidated Utility District General Manager Bill Dunnill. The two gentlemen, both with utility management experience, had a candid conversation about Bill's day-to-day challenges, successes and his preferred choice of pipeline material. The following are excerpts from their discussion.

Roy Mundy: Tell us a little bit about yourself. You are obviously an experienced, well-credentialed and well-respected leader in our industry.

Bill Dunnill: I graduated from Bradley University with a B.S. in civil engineering in 1975. I spent over 16 years in the oil and gas industry, where I was responsible for the transportation of crude oil and natural gas. During this tenure, I also served as mayor of a small southern Illinois community, which introduced me to public utilities. This led to my migration to Tennessee and, ultimately, General Manager of Consolidated Utility District, which is the sixth largest public water purveyor in the state.

Mundy: Tell us about the Consolidated Utility District (CUD).

Dunnill: CUD has more than 55,000 active customers and 517 square miles of service territory. Our water plant averages over 10 million gallons per day (MGD) and peaks at 14 MGD.

The customer base consists of 97 percent residential, 2.5 percent commercial and industrial and 0.5 percent wholesale to other utilities.

Our water source is the east fork of the Stones River with an intake at the headwaters of J. Percy Priest Lake.

The current customer growth is just over 2,100 per year, with an ever-increasing percentage of commercial and industrial growth.

Mundy: It is my understanding that CUD has more than 1,300 miles of pipeline? What is the approximate makeup of pipeline materials in your system?

Dunnill: We currently have more than 1,400 miles of pipe, which consists of:

- Less than 1 percent asbestos cement (AC)
- Less than 1 percent cast iron (CI)
- 71 percent polyvinyl chloride (PVC)
- 28 percent ductile iron pipe (DIP)

Mundy: Many water systems across the country are striving to control system demand in order to preserve drinking water, a precious commodity, to the fullest extent possible. Tell us how you have approached this at the Consolidated Utility District.

Dunnill: CUD uses a multi-pronged approach:

1. We have instituted an inclined block rate to encourage customer conservation.
2. We have significantly reduced flushing requirements by eliminating dead ends to improve circulation. This includes employing throttle valves to jump across pressure zones.
3. We've tied continuous consumption notifications from our AMR metering system to our automated dialer in the office to notify customers of potential leaks.
4. We're actively replacing an inferior and aging infrastructure.
5. We have significantly improved our repair practices.
6. We have an extremely aggressive construction inspection program to ensure new installation meets specifications.
7. We have an extremely aggressive leak detection program that employs best practices to quickly locate leaks.
8. Finally, we have done a much better job with material selection, which includes using only ductile iron pipe for all transmission and distribution mains.

Mundy: CUD has a very impressive and comprehensive approach to this issue. Have you seen any results regarding implementation of these measures?

Dunnill: Our unaccounted-for water has dropped significantly. Not only is our Infrastructure Leakage Index one of the lowest in the nation, but our 12-month average water loss also now hovers around 10 percent and will drop even further once we get some of our older infrastructure replaced.

Mundy: One key component in your plan to control system demand is water loss reduction. Coming back to the types of pipeline material in your system, do you monitor the percentage of leaks based on the material of the pipe? Tell us what you've found.

Dunnill: Absolutely! Our experience shows that AC is about 10 times as likely to fail as PVC. Cast iron runs about five times as likely as PVC. Conversely, we have only one fifth the leaks on DIP as PVC, and most of those are caused by physical damage from someone working around the pipe. Hence, CUD now specifies only DIP on all transmission and distribution mains.

Mundy: In your opinion, are there other advantages to using ductile iron pipe beyond what has been mentioned?

Dunnill: Yes. We live in what I call "hard rock" country. Leaks rarely surface. Instead, they follow the trench line until they find a fracture and disappear into the Earth. Acoustic properties of the pipe material become extremely important to locate leaks. The acoustic properties of ductile iron pipe are exceptional and make locating leaks with acoustic listening devices much easier.

Mundy: Have you done any studies on the cost of ductile iron pipe vs. PVC regarding new development projects in your service area?

Dunnill: When we changed our specs in 2014, the cost to the developer was a consideration. We made some concessions in service line materials and even DIP wall thickness. The net increase was about $370 per lot at that time. Although not insignificant, it was miniscule in comparison to the cost of the lot, and the long-term benefit to CUD ratepayers is tremendous.

Mundy: So, in summary, you believe that choosing ductile iron pipe as the pipeline material of choice by CUD has benefitted your customers?

Dunnill: DIP is the only legitimate choice in hard rock country for the long-term benefit of CUD's ratepayers.

Maintaining a stable infrastructure while providing affordability for the end user will continue to be a challenge for water professionals. McWane Ductile would like to thank Bill Dunhill for his time and expertise in providing an open and honest conversation about how CUD successfully addresses these issues daily.

We hope you found this information helpful and informative. If you would like to learn more about the use of ductile iron pipe in your water or wastewater system, contact your local McWane Ductile representative by visiting McWaneDuctile.com.

McWANE DUCTILE PROJECT PROFILES

NORTHEAST

Sales Region: Northeast

Sales Representative: Bob Hartzel

Project Location: Coal Township, Elysburg, Pennsylvania

Project Owner/Utility: Aqua-Pennsylvania-Roaring Creek Division, Shamokin, Pennsylvania

Project Engineer: GHD

Project Contractor: Pioneer Construction Company, INC. Honesdale, Pennsylvania

Types of DIP used on the project:

Diameter	Joint	Class	Footage
36"	Tyton®	52	20,671
36"	TR Flex®	52	1,574

Aqua Pennsylvania (Roaring Creek Division) is replacing 16-inch and 18-inch cast iron pipe with new 36-inch ductile iron pipe. This replacement project of their raw water feed is being done at the Roaring Creek Tract between McWilliams #6 Reservoir and their treatment plant. This project is nestled in Weiser State Forest — Roaring Creek Tract on 10,000 acres owned by the Pennsylvania Department of Conservation and Natural Resources.

Over the years, Aqua has experienced a decreased flow in their 16-inch and 18-inch cast iron raw water lines that feed their Roaring Creek Treatment Plant. The new 36-inch ductile iron pipe will allow the water treatment plant to operate without the necessity of pumping water from a second water source, reducing operational expenses. This treatment plant serves 16,000 customers in Columbia, Northumberland and Schuylkill Counties. This raw water line transports water from their McWilliams #6 reservoir to their treatment plant.

In 1884, Curtis (CQ) McWilliams was one of the incorporators of the Roaring Creek Water Company. The 1.3 billion-gallon reservoir was constructed by McWilliams to provide water to the local coal companies. Descendants of McWilliams eventually acquired ownership and continued a family tradition of supplying high-quality water for more than 100 years. Over the next 30 years, the company changed hands several times, ultimately becoming Aqua Pennsylvania, an Aqua America Company.

During construction, Aqua's contractor was required to lay the new 36-inch ductile iron pipe under the existing 16-inch cast iron pipe several times (pictured on the front cover of this issue). When the 16-inch cast iron pipe was exposed, it was discovered that pipe in service was manufactured by Warren Foundry in 1886. Warren Foundry made its first water pipe in 1856 in Phillipsburg, New Jersey, and is now the current location of McWane Ductile in Phillipsburg, New Jersey.

MIDWEST

Sales Region: Midwest
Sales Representative: Clinton "CJ" Fowler
Project Location: Columbus, Ohio
Project Owner/Utility: City of Columbus
Project Engineer: GDP Group, Columbus
Project Contractor: Complete General Construction Company
Project Distributer: Core & Main

Types of DIP used on the project:

Diameter	Joint	Class	Footage
12"	Tyton®	52	600
24"	Tyton®	250	1,872
24"	TR Flex®	250	1,000

As if replacing pipe in the middle of the road isn't hard enough, imagine adding an off-ramp from a major thoroughfare close to an important urban hospital, plus a very small laydown yard for deliveries. These are some of the challenges experienced by those involved with the Livingston Avenue Project, but with Complete General Construction Company's careful coordination and great work ethic, this project in Columbus, Ohio, continues to march ahead.

Still ongoing, the project is located near German Village, heading east on Livingston Avenue toward Nationwide Children's Hospital. The main mission of the project is to replace an older 16-inch cast iron water main that's placed right down the middle of the road with new 24-iron ductile iron pipe. The new pipeline is being relocated in the right-of-way that runs parallel to Livingston Avenue and will provide water service to the hospital's facilities.

Because of the project's location — with tough, one-way road traffic patterns, an ambulance and fire station nearby and other construction projects happening simultaneously — the laydown yard is very limited in size, with room for only one truckload of materials to be delivered at a time to the jobsite. With more than 40 custom-fabricated pieces, including 18- to 24-inch MJ Coupled Joint pieces and almost 30 fittings, there's potential for things to get confusing. But, with the combined effort from Core & Main and Complete General, the jobsite has continued to flow and work without delays.

With projects large or small, we love to work with our customers before the project start to go over any issues they feel might stand out. With a detailed job such as this, we wanted to make sure that everyone involved had a good game plan going forward with this endeavor, and the following quote explains it all.

"We value our relationship with McWane Ductile. It's very nice to have the manufacturer right here in Ohio and just about an hour away from our Core & Main branch. Their team offered us field support and a pre-project plant visit to go over products, installation procedures, field engineering, etcetera, which enables us keep our customers in the know and complements our local expertise," said Diana Taylor, outside sales representative for Core & Main.

SOUTH

Sales Region: South
Sales Representative: Steve Waryas
Project Location: Frisco, Texas
Project Owner/Utility: City of Frisco
Project Engineer: Kimley-Horn & Associates
Project Contractor: Texas Sterling Construction
Project Distributor: ACT Pipe & Supply

Types of DIP used on the project:

Diameter	Joint	Class	Footage
30"	Tyton®	200	6,540
30"	TR Flex®	200	5,860
24"	Tyton®	200	770
24"	TR Flex®	200	1,570

The City of Frisco, Texas, was looking to the future when they teamed with Kimley-Horn to design a waterline expansion from Main Street to FM 423 to Dallas Parkway in March of 2016. They were also working with Brazos Electric to expand the electrical duct bank in the area, as well as widen the road at the same time.

It all came together in September of 2017 when this $26.6 million-dollar project was awarded to Texas Sterling Construction from Houston, Texas. With more than 60 years of heavy civil work under their belts, Texas Sterling Construction beat out the other five bidders.

The key to keeping this project on track while coordinating logistics was going to take a total team effort from David Shaw and Richard Yaws with ACT Pipe & Supply, the supplier of the McWane Ductile pipe and other appurtenances on the project, Jason Nijim and Donald Dixon with Texas Sterling, Tin Nguyen and Matt Philips with the City of Frisco, as well as the electrical contractor, Larrett Inc., and numerous other product suppliers involved with keeping it running smoothly over the eight-month period.

The job had limited space for materials, so a delivery schedule was devised that broke down materials by stations with approximately four to five loads of 30-inch pipe for each delivery. That also helped ACT to determine what other materials Texas Sterling would need based on what delivery was due to arrive.

It made it easier for the contractor to jump around the project to do certain tie-ins and still have the right pipe on the ground when needed. It also made it easier to for them to add other crews and ship pipe to the area where they would be working.

WEST

Sales Region: West
Sales Representative: Aaron Loosli
Project Location: Parley's Canyon — Salt Lake City, Utah
Project Owner/Utility: Salt Lake City Utilities
Project Engineer: Sunrise Engineering
Project Contractor: Vancon
Project Distributor: Core & Main

Types of DIP used on the project:

Diameter	Joint	Class	Footage
36"	Tyton®	350	1,010
36"	TR Flex®	350	754
Other	Other	350	108

This waterline is part of a system that is used to convey water supply to Salt Lake City, Utah. The water comes from Little Dell Reservoir, feeds into Mountain Dell Reservoir and then into a treatment plant to feed the city. This is part of a line that is coming directly from Little Dell Reservoir to bypass Mountain Dell Reservoir so they can drain the reservoir and make much needed repairs to the dam.

The dam was built in 1925, the year before McWane Ductile – Utah opened. The Salt Lake City area received a lot of snow this year, but the cold temperatures and harsh conditions had no negative effect on the storage or the ability to install the resilient McWane Ductile iron pipe.

CANADA

Sales Region: Canada

Sales Representative: Scott Bell

Project Location: Southern Vancouver Island, British Columbia

Project Owner/Utility: Capital Regional District

Project Engineer: Parsons

Project Contractor: Don Mann Excavating

Types of DIP used on the project:

Diameter	Joint	Class	Footage
10"	MJ/TJ Protecto 401™	PC350	4,000 meters/ 13,000 feet

The CRD Residual Solids Conveyance and Centrate Return Line Project includes construction of a residual solids force main with multiple pump stations along the alignment and a centrate return line. The residual solids force main (RSF) will convey processed wastewater from the McLoughlin Point Wastewater Treatment Plant in Esquimalt, British Columbia, to the Residuals Treatment Facility at the Hartland Landfill in Victoria, British Columbia. The alignment runs through the Township of Esquimalt, the City of Victoria and the District of Saanich, which are all located in southern Vancouver Island, British Columbia.

Don Mann Excavating was selected by the Capital Regional District to build the Residual Solids Conveyance Line. This was through a competitive selection process with Corix Water Products. Construction began in late February and is projected to take approximately 18 months to complete. There will be multiple crews working along the alignment during this time.

IT'S ACE TIME!

The most wonderful time of the year is here, and McWane couldn't be more excited! Join us at the Colorado Convention Center in Denver from June 10–12 for three days of industry fun at ACE19. We'll be in Booth #2810 with a larger, newly designed display sharing the latest info on everything at McWane. Visitors will receive a free carabiner for stopping by, and can enter to win daily prizes and our grand prize. ACE19 is just around the corner, so plan your trip to AWWA's biggest event of the year!

mcwaneductile.com

POCKET ENGINEER
Available for **iOS + Android**
or online at **pe.mcwane.com**

Dear Ditch Doctor,

I have been installing pipe for several years. Wouldn't call myself an expert, but I have a decent understanding of what I'm doing. My old boss had been in the business for decades, and I believe he was a second-generation installer. I just wonder sometimes if there isn't a better way or some validation that I am doing things the best way. Where can I go for help?

Thanks,

Wyatt from Wyoming

Wyatt,

Sounds like the guy who taught you and the guy who educated him were good guys and most likely knew what they were doing. 1983 was an awesome year for music, but technology has changed. There are many new products and techniques that were not around in the mullet days — not that I would know anything about mullets. There are many shows and conferences that are available for you to expand your knowledge, but I have one even better for ya. Contact your local McWane Ductile representative and schedule a Lunch & Learn or Day of Water event.

Scores of industry members, from engineers to installers, are currently taking advantage of services from the McWane Ductile professionals who will provide up-to-date training on numerous subjects at no cost to you. And while you're at it, check out the numerous educational blogs and videos McWane Ductile has produced for water professionals such as yourself. Go to McWaneDuctile.com/blog.

Sincerely,

Ditch Doctor

Dear Ditch Doctor,

We found some old water pipe and don't know what material it is. Clifford tells me to tap the pipe with a metal hammer and he can tell by the "ring." Not certain I trust his hearing due to Clifford's "lack-there-of" when it's time to start working. Also, not sure where this scientific process originated from. How can I tell what kind of pipe this is?

Thanks,

Shane from Shamokin

Shane,

The good news is you have metal pipe — believe it or not, folks continue to find wood pipe in their systems. Clifford is correct as old timers did use the "ring test" to check grey iron. They did that on unlined products that were not installed. And hey, our hearing just isn't what it used to be back in the day we were casting grey iron. The surface of grey iron is relatively smooth compared to ductile iron, which will have a dimple texture. The outside diameter of the grey iron is typically larger than ductile as well.

Another good measuring tool if you have one is to check the metal thickness. Grey iron pipe was much thicker than ductile iron pipe. This may be checked with an ultrasound thickness device without cutting into the existing pipe. These methods are more reliable than the old ring test. Maybe some day we can all sit down and go through Clifford's black and white photos from back in the day…

Sincerely,

Ditch Doctor

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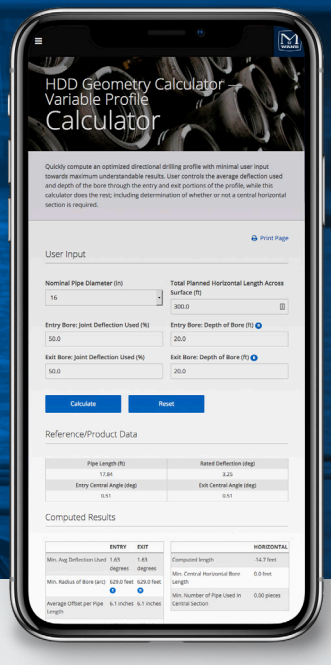

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