IRONSTRONGINSIGHTS™

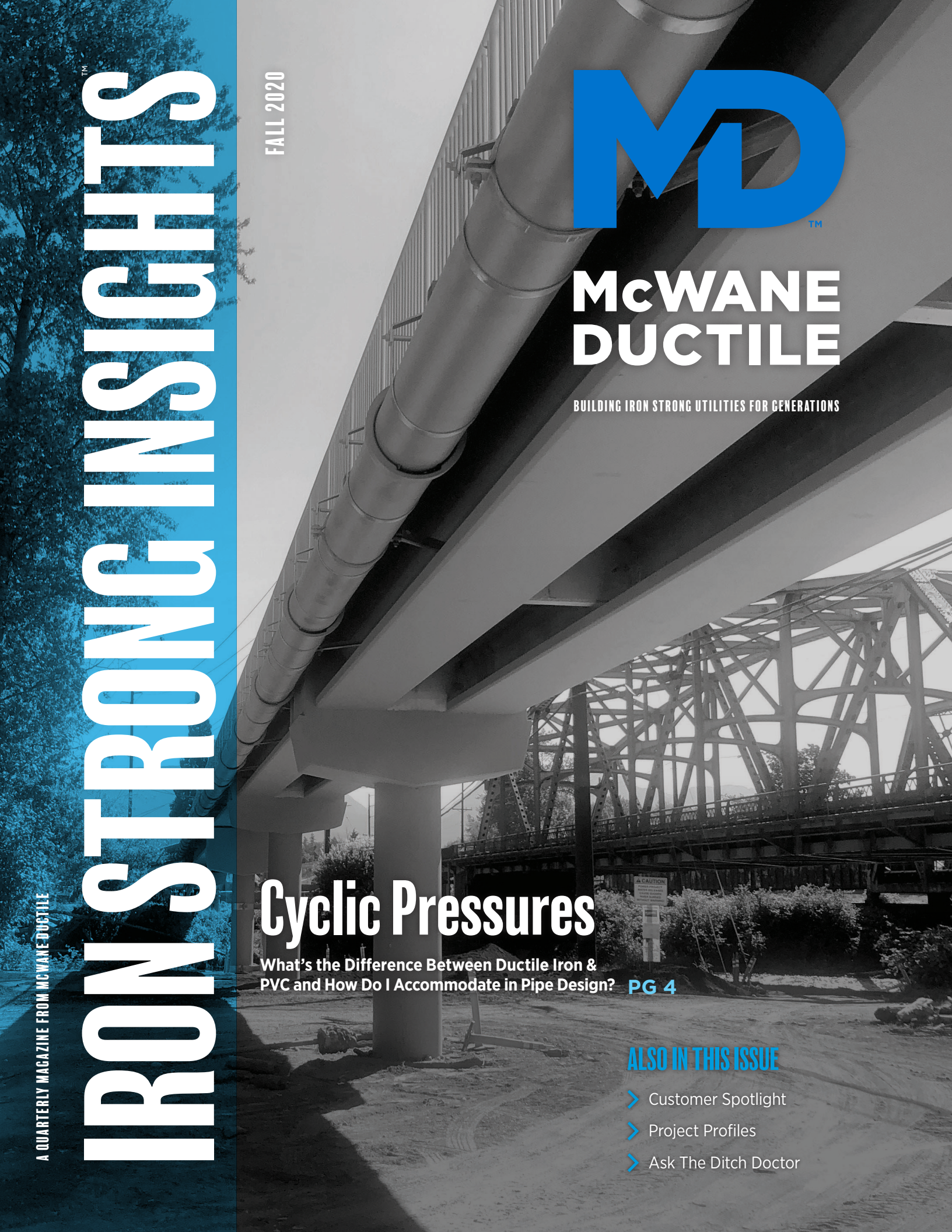
A QUARTERLY MAGAZINE FROM MCWANE DUCTILE

FALL 2020

MD™

McWANE DUCTILE

BUILDING IRON STRONG UTILITIES FOR GENERATIONS



Cyclic Pressures

What's the Difference Between Ductile Iron & PVC and How Do I Accommodate in Pipe Design? PG 4

ALSO IN THIS ISSUE

McWANE DUCTILE

Contact Us: McWaneDuctile.com

Mike Dodge, VP Sales & Marketing
Stuart Liddell, Sales Operations Manager
Andrea Kubik, Marketing Manager

Inside

IRON STRONG INSIGHTS

McWane Ductile has been an industry leader in the manufacture of water distribution and infrastructure products since 1921. With three U.S. foundries, McWane Ductile offers superior service while supplying Ductile iron pipe across North America and beyond, all while maintaining an unwavering commitment to safety and quality. Through continued innovation, it is our goal to meet the customer needs and industry demands of the future in order to Build Iron Strong Utilities for Generations.

CONNECT WITH US ON

Cyclic Pressures

What's the Difference Between Ductile Iron & PVC and How Do I Accommodate in Pipe Design?

PG 4

IN THIS ISSUE

Welcome to Iron Strong Insights™

Dear Readers,

Welcome to the Fall edition of Iron Strong Insights. As we move into a change of season, many of the traditional signs of fall look a bit different. Although more businesses have begun to slowly re-open in some areas, we continue to work through the effects of COVID-19. Football has returned, but with little or no fans in the stadiums. And schools and families continue to manage the challenge of classroom versus virtual learning platforms. It has not been an easy few months, to say the least.

At McWane Ductile-Ohio, we were proud to assist in the remote learning efforts by providing free Wi-Fi service to any students that may need it at a designated location near our plant. This type of community effort and involvement, where we all work together, is essential in helping us endure until we can truly breakthrough this pandemic.

September was National Preparedness Month. Our front-line health care workers, first responders and "hidden responders" of the utility industry have been called upon in so many areas during 2020. Along with COVID-19, the West is experiencing one of the worst wildfire seasons on record. Additionally, the South's coastal states have had to deal with numerous tropical storms and hurricanes, bringing flooding to many regions. In these disasters, a resilient infrastructure of Ductile iron pipe is essential to provide safe drinking water and fire protection when needed most.

Speaking of resilience, a feature article in this edition compares Ductile iron pipe to PVC and each material's ability to resist cyclic pressures. Written by Ken Rickvalsky, Product Engineer, the piece explores the design criteria of each and how cyclic pressures, from surges to normal operating cycles, affect plastic over time.

As the year has continued, most of the in-person events we would typically engage in have been canceled or have gone virtual. McWane Ductile has adapted to this new way of conducting business by offering various virtual learning opportunities to our customers. From mid-April to the end of September, we have provided 54 hours of training to nearly 1,200 attendees. If you or your company are intereseted in these training opportunities, please reach out to your local representative for details.

Although 2020 has not been the kind of year any of us expected, we are making our way through it as best we can. As an essential business, McWane Ductile has been proud and blessed to continue our operations and provide the products and services vital to our nation's infrastructure and efforts towards Building Iron Strong Utilities for Generations.

Stuart Liddell
Sales Operations Manager
Sales Operations Department

CYCLIC PRESSURES

What's the Difference Between Ductile Iron & PVC and How Do I Accommodate in Pipe Design?

By Ken Rickvalsky, ENV SP, NACE CT, McWane Ductile National Product Engineer

This article compares the performance of Ductile iron pipe (DI pipe) to polyvinyl chloride (PVC) pipe against cyclic pressure variations in piping systems. Cyclic loading, or more accurately, cyclic surges, is a phenomenon where pressures in a pipeline frequently vary due to changes in demand, operating conditions, storage tank levels, treatment plants, and pump starts and shutdowns. Surges can also occur during common field operations such as exercising or flushing fire hydrants or valves within the system, which can drastically change flow parameters, causing surges or water hammers.

Business and industry contribute to cyclic surges through their varying activities. The frequency and intensity of these cyclic surges can increase over time given growths in the number of households being served, increases in business and industry operational volumes, and unpredictable changes.

Who possibly has such a crystal ball that can accurately foresee such growth and the changes in usage that may or may not follow linearly?

SURGE PRESSURE — THE RULE OF THUMB

We typically consider transients in pipelines to be more isolated or infrequent events of considerable magnitude. Depending upon the innate flexibility of the pipe material you select, values of 17 psi to 50 psi for each 1-fps increase in velocity have been used as a general design consideration.

The most well-known cause of considerable surges within a pipeline comes from fire flows, where a small diameter pipeline typically operating at or around 300 gpm (3-fps velocity) suddenly needs to deliver 1,800 gpm (18-fps velocity) in a quick demand. Such an increase in flow rate, inducing a 15-fps velocity change, can cause an instantaneous pressure surge of 250 to 750 additional psi within the pipeline, depending upon the pipe material.

The most important consideration in these scenarios is to ensure the selected pipeline material can contain such elevated pressures. It is comforting to know that even the thinnest wall DI pipe can easily handle more than 1,000 psi.

The subject of typical transients is often covered and routinely shows that DI pipe is vastly superior to any other material in its ability to withstand pressure surges. The discussion of cyclic surges, however, is often missed. On the other hand, cyclic surges are generally of lesser magnitude but more frequent, often many times per day.

Figure 1 below shows what most would expect a typical daily water flow/demand/usage/pressure chart to look like, whereas Figure 2 shows actual flow/demand/usage/pressure fluctuations more accurately. Figure 3 shows how and why these fluctuations happen.

These three graphs clearly show what experienced water and wastewater system operators, designers, and managers know: Flows are not consistent and linear, and "typical" only exists in theory.

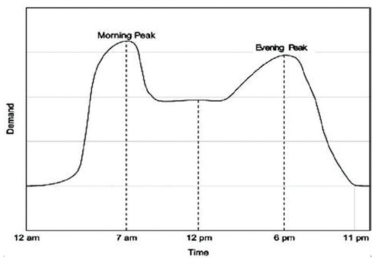


FIGURE 1: Typical Water Demand Variations Source.

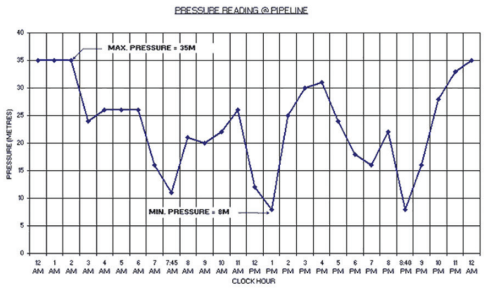


FIGURE 2: Hourly System Pressure Source.

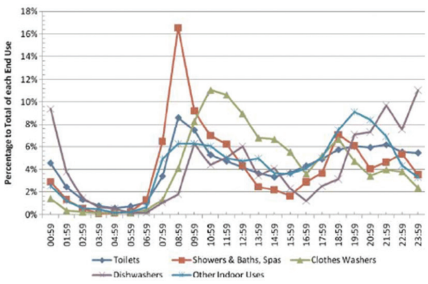


FIGURE 3: Hourly Water Usage by Type.

CYCLIC PRESSURE EFFECT ON MY SYSTEM

How does this affect my system or pipeline, and why is it essential in pipe selection? If you are using DI pipe, it is not important. It does not affect pipe selection, as DI pipe and fittings are not adversely affected over time by cyclic loading, surface scratches or operational temperature changes.

Unlike PVC, DI pipe is not made from a material that has a time-dependent limiting design failure. DI pipe is not designed using a strength regression curve that is predicated on failure after so many hours at static pressure.

The problem with this philosophy is that given the reality of pipeline operations, as shown in Figures 1–3, we know stable static pressures do not exist in the real world of pipelines, especially water distribution pipelines and wastewater force mains.

In 1972, Robert T. Hucks recognized this conflict between actual reality and plastic pipe design as stated in an article published in the AWWA Journal titled "Changes in Strength of Pressurized PVC Pipe with Time." PVC pipe has two "funds," one labeled

"static pressure life" and the other "cyclic pressure life." The pipe appears to draw on these funds independently. However, if either fund is depleted, the pipe fails. Further, when discussing a cyclic test, Hucks states, "It failed after 223,700 cycles, a value typical of pipe performance."

From the prior charts, we can see cycles exceeding 20 to 50 or more per day, resulting in a life expectancy of roughly only 30 years if installed in lab conditions. If the pipe is at all scratched, its life expectancy is dramatically reduced further: "A sample with a 0.005-inch scratch tested to the same cycle pressures failed after 29,000 cycles. A sample with 0.010-inch scratch failed after only 9,600 cycles." Twenty-nine thousand cycles represent just under four years and 9,600 cycles, only 16 months! Hucks concluded with:

"Any method of design upon which an engineer can make his PVC pipe material selection must include (1) the effect of static conditions; (2) the effect of field damage (scratches); and (3) the effect of dynamic properties. It is recommended that (1) A cyclic hydrostatic design basis (CDB) should be established by testing PVC pipe samples. CDB should define the extrapolated hoop stress to which the pipe can be cycled an infinite number of times. Tests show that for PVC 1120, this value is 1,500 psi. (2) A cyclic hydrostatic design stress (CDS) should be calculated by multiplying the CDB test values by a service factor."

A TRUE CASE IN POINT

Erie County, Ohio, is just one well-documented case where premature PVC pipe failures could be connected to damage from inappropriate backfill, among other issues. There is no doubt that surges and cyclic pressure variations were also contributing factors. Figure 4 shows a transient graph that depicts how repeated cyclic pressure surges of less than 60 psi can have catastrophic effects on pipe performance. None of the material vs. backfill issues experienced in this case would have affected DI pipe in any way.

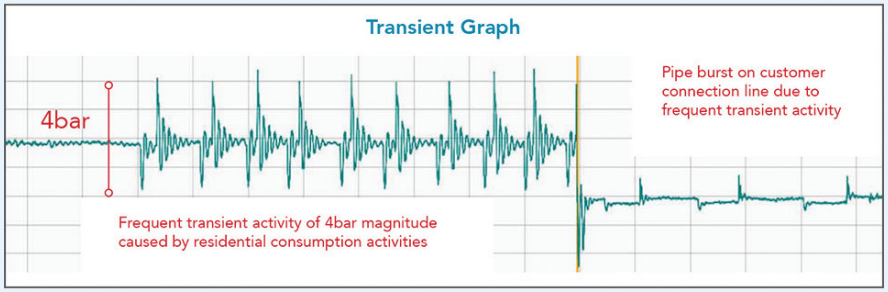


FIGURE 4

If we follow Hucks' recommendations for PVC pipe design and use a cyclic design basis for distribution system piping according to those recommendations, we would have the following results for 8-inch DR 18 using the standard thickness design formula for pressure pipes:

$$t = \frac{P\ D}{2S}$$

where

t = pipe wall thickness

P = Design Pressure (235 rating with a 2:1 SF)

D = Pipe OD

S = Cyclic Design Basis proposed by Hucks of 1500

$$t = \frac{470 \times 9.05}{1500 \times 2} \qquad t = \frac{4253.5}{3000} \qquad t = 1.4178 \text{ inches}$$

to which a tolerance allowance of 0.06 inches is added.

Pipe wall required thickness = 1.4778 inches rounded to 1.48 inches.

This wall thickness would result in an 8-inch PVC pipe with a 6.09 inch inside diameter, which is slightly smaller than a 6-inch diameter PC 350 DI pipe with a 6.38 inch inside diameter, single cement lining included.

Instead of following Hucks' design recommendations and having a pipe wall thick enough to resist these forces like DI pipe, PVC pipe attempts to address the issue by requiring the designer/engineer to recalculate the working pressure, design life, and pressure rating of the pipe to fit.

The example in Appendix B of AWWA C-900 assumes a design life of only 50 years and cyclic surge pressure variations of only 30 psi to justify the usage of a DR 18 PVC pipe with a wall thickness of about one-third as required by Hucks' approach. As we saw in Figures 1–4, cyclic pressure variations often have greater magnitude and frequency than can be reasonably determined before the system being placed into service.

Feel free to have some fun using the Internal Pressure & Materials Comparison Calculator in the McWane Pocket Engineer to see the computed limits of various pipeline materials commonly used in the utility marketplace.

UNDER PRESSURE — DUCTILE DOES THE JOB

So how does Ductile iron pipe resist cyclic pressure surges? Because it is not a thermoplastic, its strength is not affected by time or the repetition of stresses of either large or small magnitude. This requires no more additional design computations, guesstimates or assumptions of unknown parameters.

AWWA standards for manufacturing DI pipe mandate physical tests at ambient room temperature and -40°F. PVC and HDPE ratings are based on the temperature always being 73.4°F, which we all know is rarely the case. Additionally, every single piece of DI pipe is individually tested hydrostatically to a minimum of 500 psi.

The end-user bears the risks of making so many assumptions with PVC, and as was the case in Erie County, Ohio, becomes extremely burdensome on ratepayers if the guesses are wrong. McWane Ductile can help you avoid those problems and construct your pipelines to serve for generations. For more detail on how these factors affect your pipeline design and considerations, contact your local McWane Ductile Representative.

Let's conclude with this often-overlooked thought: Cyclic surges from internal pressure are documented and accepted as "wearing" on certain pipeline materials, weakening them over time, even to the point of failure. So much so that it is a real design consideration for those materials. But why is the same "flexing" effect not counted as a cycle every time a truck on a highway rolls over a buried pipeline? How does the material know what is "bending" it? The load is a load, is a load, correct? Not a problem for Ductile iron but surely a thought to ponder for other materials.

ABOUT THE AUTHOR

Ken Rickvalsky
ENV SP, NACE CT, National Product Engineer

Ken Rickvalsky has spent three decades serving the water and sewer industry. He spent 14 years with Griffin Pipe Products before joining McWane Ductile, where he has spent the past 15 years managing utility design, manufacturing and construction, problem solving and more throughout North America.

McWANE DUCTILE

IRON STRONG

Now, more than ever, strength, resiliency and durability — in our products and our workers — are critical for the water and wastewater infrastructure that supports our society. McWane Ductile iron pipe is American-made, cast in fire and proven under pressure to outperform competitors in nearly every category. When it comes to reliability and certainty during these constantly changing times, which pipeline material will you choose?

McWane Ductile: **Building Iron Strong Utilities for Generations.**

McWaneDuctile.com

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

CUSTOMER SPOTLIGHT

Peace River Manasota Regional Water Supply Authority has been in operation since 1991 and provides drinking water to more than 900,000 people throughout Charlotte, Desoto, Manatee and Sarasota Counties in Florida. The Integrated Loop System Phase 1 Interconnect Project was bid in late 2018 and began in early 2019. Reynolds Construction was the low bidder on the project and partnered with McWane Ductile to supply the Ductile iron pipe. Throughout the project's design and construction, we worked closely with Reynolds Construction, Ardurra Group and members of the authority to ensure they received some of the highest-quality Ductile iron pipe available.

The project consisted of approximately 29,000 linear feet of 24" Ductile iron pipe, which was a mixture of Tyton® Joint and TR Flex® pipe. The pipe was to be laid primarily along US 17 (Desoto County), Washington Loop Road and Three Rivers Road. The potable water transmission main originated at the Desoto County South Booster Pump Station (near the Desoto/Charlotte County line), and then was laid south along US 17. Later, it turned east onto Washington Loop Road and then south again along Three Rivers Road, where it crosses the Shell Creek and continues south to the Shell Creek Water Treatment Facility in Punta Gorda. The authority holds an annual Friends of Peace River barbecue each spring. In the spring of 2019, the event took place around the same time construction began. We displayed our pipe's joint at the barbecue, which was a nice way to kick off the project. It was well attended by local representatives and residents from the various counties that utilize the water the authority provides. Attendees had the opportunity to get an up-close view of a pipe joint being installed, ask questions directly to those involved with the project and sign the commemorative wrap that encased the displayed pipe joint (photo below).

Prior to construction and during the project, McWane representatives held various on-site training days to share product knowledge and helpful installation tips. The Reynolds Construction staff were very pleased with the experience of working so closely with the manufacturer during the installation process. Ardurra Group out of Tampa, Florida, was the engineer of record and worked closely with everyone involved to ensure their client would receive only the highest-quality products available through their specification and submittal process.

Reynolds Construction received its certificate of substantial completion in August of 2020, and the project is scheduled for full completion in September 2020.

This project has been a joint effort with all parties involved working toward the same goal of providing the highest-quality products, engineering and water service to hundreds of thousands of people.

Sales Region: South
Sales Representative: Gary Gula
Project Location: Arcadia, Florida
Project Owner/Utility: Peace River Manasota Regional Water Supply Authority
Project Engineer: Ardurra Group, Inc. (Tampa, FL)
Project Contractor: Reynolds Construction, LLC.

Types of Ductile iron pipe used on the project:

DIAMETER	JOINT	CLASS	FOOTAGE
24"	Tyton®	200	24,763
24"	TR Flex®	200	2,965

DEAR DITCH DOCTOR,
Mary thinks our field beveling should be an angle of 15 degrees. Larry thinks we need 25 degrees. The inspector, Mike, wants an angle of 45 degrees. We can't seem to agree on anything. What angle does the Doctor prescribe?

Thanks,
Nick from Nenana

NICK,
Well, buddy, the real answer is there is no set degree. Bevels are addressed in the M41 manual, which simply states: "For Push On Joint connections, cut ends must be beveled." The main thing is to provide a smooth taper. You did not specify if this is a Push joint or a Mechanical connection. A simple chamfering of the cut end is all that is required for a Mechanical connection. They say a picture is worth a thousand words. My best advice is to check out the McWane Ductile Iron Strong Blog and video on how to chamfer or bevel. Oh, and inviting your friends to watch may resolve your differences in opinion. You can find them at https://mcwaneductile.co/2YDfYFw

Ditch Doctor

DEAR DITCH DOCTOR,
It's time to go fishing, but we gotta install these taps before we go! Can we install 1 ½-inch taps in a 24-inch Pressure Class 250 pipe? Boats are ready and the striped bass are bitin'.

S-O-S,
Simone from Sackets Harbor

NO PROBLEM SIMONE,
The nominal thickness for class 250 Ductile iron pipe is .37 inches. You will have 3 to 4 threads at each tap. You can certainly check my numbers in the AWWA M41 manual if you wish — I suggest you install your taps and go catch a fish.

Ditch Doctor

Learn from the experts!

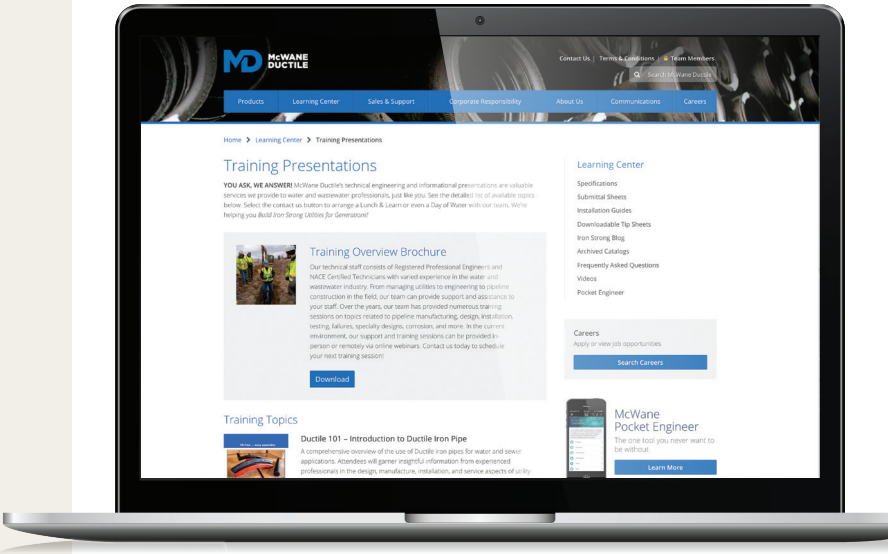
To ensure our water and wastewater infrastructure meets the needs of our nation, McWane Ductile is committed to building iron strong communities. One way we do this is by providing training sessions for water professionals.

- Need Ductile 101?
- How about info on material selection?
- Want to know more on HDD?
- Concerned about corrosion?

Hosted by experts who have years of field, product, and specification knowledge, our presentations are tailored to your needs:

- In-person classroom training
- Job site training
- Online webinars
- One-hour Lunch & Learns
- Day of Water sessions

Visit McWaneDuctile.com/learning-center/presentations/ to learn more or to arrange a session.



PROJECT PROFILES

West

PROJECT PROFILE

McWane Ductile coordinated with the owner, engineer and contractor to provide a restrained joint pipe system to meet the bridge design's rigid requirements. The new 627-foot long and 10-foot wide Sultan Pedestrian and Bicycle Bridge spans the Sultan River and runs parallel to and independent of the vehicle bridge of U.S. 2, which is the gateway to one of two major mountain passes in western Washington. Safe travel for pedestrians and added infrastructure was achieved.

Working in conjunction with WH Pacific Engineers, McWane Ductile line drawings were submitted and approved. To meet specifications, 630 feet of 18-inch TR Flex® boltless restrained joint pipe with Protecto 401 lining was produced and fabricated to determined lengths. ICI, Interwest Construction, took on the task of installing the 18-inch sewer force main, which included both horizontal and vertical bends as well as expansion joints. The pipeline was hung from pipe supports attached to both the concrete girders and the bridge deck.

The project was completed successfully with the combined efforts of all parties involved.

Sales Region: West
Sales Representative: Jason Harrison
Project Location: Sultan, Washington
Project Owner/Utility: City of Sultan
Project Engineer: WH Pacific
Project Contractor: Interwest Construction
Project Distributor: H.B. Jaegar, Division of Iconix Waterworks

Types of Ductile iron pipe used on the project:

DIAMETER	JOINT	CLASS	FOOTAGE
18"	TR Flex®	52	700

The City of Coopersville received a $2.1 million grant from the U.S. Economic Development Administration to make needed upgrades to their water system. These improvements were needed to support the city's expanding dairy processing industry. The project is expected to create 70 jobs and generate $54 million in private investments at the Continental Dairy Facilities and Fairlife Dairy plants. The project will also provide a much-needed upgrade to the infrastructure in northeast Ottawa County. The project was split into four contracts. Dean's Excavating was awarded two of the four contracts. Contract #3 was the largest of the pipe installation, and contract # 1 was the booster station.

Dean Wall founded Dean's Excavating 43 years ago as Dean's Landscape & Excavating by himself and two employees after working for his father in the excavation business since the

7th grade. To Dean's credit, of the two employees that started with him, one retired after spending his entire career with Dean and the other still works there today. Dean graduated from Michigan State with a background in landscaping. Over the years, the business has evolved into mostly excavating work — 80 percent commercial and 20 percent residential, but Dean still enjoys the occasional landscape project. The company currently has 45 to 50 employees and is a family business. Dean's sons Zack and Nate, his daughter Molly, and two grandsons all work alongside their dad/grandfather. His son Corey owns and operates the lowboy trucking business that hauls equipment for Dean's Excavating. The glue that holds everything together is Dean's wife of 47 years, Kristie.

"I remember once being told back when I worked for my dad and will always remember. We are excavators, we dig ditches, but we are professionals. It is the standard I started my business with and still use today," said Dean Wall.

"I remember once being told back when I worked for my dad and will always remember. We are excavators, we dig ditches, but we are professionals. It is the standard I started my business with and still use today," said Dean Wall.

Sales Region: Midwest
Sales Representative: Kevin Christian
Project Location: Coopersville, Michigan
Project Owner/Utility: City of Coopersville
Project Engineer: Prein & Newoff
Project Contractor: Dean's Excavating
Project Distributor: EJ Grand Rapids

Types of Ductile iron pipe used on the project:

DIAMETER	JOINT	CLASS	FOOTAGE
20″	Tyton®	52	3,554
16″	Tyton®	52	4,376
20″	TR Flex®	52	730
16″	TR Flex®	52	500

PROJECT PROFILE

Midwest

South

PROJECT PROFILE

The Town of Decatur's water treatment plant is located northwest of downtown Decatur in the northern portion of the distribution system. The town previously served customers from a second water source in the southern part of the system. However, discontinued use of this second source created a bottleneck in the system where larger water mains to the south were separated from the water plant to the north by smaller diameter water mains. The largest water customers are in an industrial park in the southern portion of the system.

The project consisted of approximately 14,600 LF of Class 350 12-inch DI pipe and was completed in May 2020. The team included Decatur Public Works Director Jerry Harris. It was led by Stantec's Project Engineer/Assistant Project Manager Courtney Branson, Project Manager David Bible, PE, and Resident Project Representative Brad Smith.

A hydraulic study proposed a new 12-inch transmission water main to better hydraulically connect the system. The approximately three miles of fresh 12-inch DI pipe water main would allow the town to maintain high water levels in their tanks in the southern portion of the distribution system. Now completed, the project also provides fire flow capacity to the industrial park, which allowed the town to retire an existing fire protection tank that was nearing the end of its useful life.

The design team had previous experience working in the area and knew shallow bedrock is prevalent. Ductile iron pipe was selected for the project to reduce the probability of long-term maintenance concerns for this vital transmission main. A majority of the project was constructed within TDOT right-of-way; utilizing a product with a longer service life also reduces the probability of future events that would require a maintenance crew to work near busy travel lanes.

One of the project's most significant challenges was coordination among a large team, including the town staff, Stantec's design team and funding and permitting agencies. The project received funding grants and loans from USDA Rural Development and the Tennessee Department of Economic and Community Development. Additionally, permits were obtained from TDEC, TDOT and the USACE for various project aspects. Communication was vital to the project's success. During construction, Barger and Sons communicated conflicts and issues early on, which allowed solutions to be identified and approved by all parties in a timely manner.

Decatur Public Works Director Jerry Harris would like to thank C.R. Barger and Sons personally. "Barger's Crew is one of the best crews we have ever had, and they did a great job!"

Rickey Barger of C.R. Barger & Sons would like to thank the excellent work of his crew and to Rickey's son Chris. Rickey would also like to recognize Buddy Moore and his team to include Seth Moore, Matt Mobley and Brian Jackson.

Sales Region: South
Sales Representative: Josh Baker
Project Location: Decatur, Tennessee
Project Owner/Utility: Decatur Public Works
Project Engineer: Stantec
Project Contractor: C.R. Barger and Sons

Types of Ductile iron pipe used on the project:

DIAMETER	JOINT	CLASS	FOOTAGE
12"	Tyton®	350	15,200
6"	Tyton®	350	600

PROJECT PROFILE

Northeast

Sales Region: Northeast
Sales Representative: Dwayne Shelton
Project Location: Greensboro, North Carolina
Project Owner/Utility: City of Greensboro, NC
Project Engineer: Davis, Martin Powell & Arcadis Engineering
Project Contractor: JR Lynch & Sons

Types of Ductile iron pipe used on the project:

DIAMETER	JOINT	CLASS	FOOTAGE
36″	Tyton®	250	10,684
36″	TR Flex®	250	485
20″	Tyton®	250	181
18″	Tyton®	250	457

The City of Greensboro, North Carolina, has experienced significant growth in the past few years because of a new beltway around the city. With the construction of the I-85/40 highway and the development it brought, the City of Greensboro was required to add a new wastewater treatment plant — the Stewarts Mill Treatment Plant. The city then closed the longstanding Youngs Mill Treatment Plant. The city also plans to upgrade another existing Rock Creek Treatment Plant. This addition should service the new growth in the area for many years to come.

This addition should service new growth in the area for many years to come.

Star Status: McWane Ductile Recognized for Exceptional Workplace Safety

by Marty Kurtz, McWane Ductile Media Specialist

McWane Ductile, a Ductile iron pipe manufacturer with three foundries in the United States, is committed to providing a safe work environment for our employees. We strive to not only comply with the Occupational Health and Safety Administration (OHSA) standards but also to continuously improve and build a strong culture of safety in our facilities.

OSHA created the Voluntary Protection Program (VPP) in 1979 to recognize organizations for their exceptional performance in health and safety. The program consists of the labor, the company's management and the government working together to create a workplace culture that allows employees to be involved in and make decisions about their safety. There are five components to the VPP:

- Management Commitment
- Employee Involvement
- Worksite Analysis
- Hazard Prevention and Control
- Health and Safety Training

The VPP has three levels: Demonstration, Merit and Star. The VPP Demonstration level allows OHSA to test how effective safety practices are at a facility. The Merit level recognizes employers and employees who have achieved good safety and health management systems but must still take a step to reach Star status.

"For us, it's like a badge of honor," said Shain Ridenbaugh, McWane Ductile–Ohio VPP Coordinator. "That status signifies to everybody out there that we are the best of the best."

Star status is awarded to the best of the best. All three McWane Ductile facilities have achieved Star status. "Since the implementation of VPP, we have created a safer work environment here at McWane Ductile–Utah. The VPP has enabled us to have a direct line of communication between management and employees. Through the promotion of the Voluntary Protection Program, we have established a camaraderie that is Iron Strong and will last for generations to come," said Luis Jimenez, McWane Ductile–Utah VPP Coordinator.

McWane Ductile's safety culture allows all employees to have a voice in their safety. This employee-driven program incorporates everyone from the bottom-up instead of being only compliant. At each facility, ideas are established to give employees an additional line of communication with management about safety issues. Since the VPP program was implemented, injuries have decreased. For example, at the Ohio facility, recordable injuries have been reduced by 82 percent since 2009.

"Our ability to have a safe workplace takes the effort and commitment of everyone," said Tom Crawford, VP/GM of McWane Ductile–Ohio. "Management must be committed to providing resources to fix hazards and continuously improve. Our employees are engaged in sharing safety concerns and working safely."

MIKE DODGE, VP SALES & MARKETING

SALES REPRESENTATIVES

EAST SALES TEAM

GENERAL SALES

Craig Spitzer, General Sales Manager
Office: 908-878-0822
craig.spitzer@mcwaneductile.com

Larry Jones, Inside Sales Manager
Office: 908-878-0823
larry.jones@mcwaneductile.com

NEW JERSEY, DELAWARE, NEW YORK CITY

Gary Kurtz, Senior Sales Representative
Cell: 908-235-6001
gary.kurtz@mcwaneductile.com

NEW ENGLAND

Jeff Houser, Senior Sales Representative
Office: 518-275-1780
jeff.houser@mcwaneductile.com

NEW YORK

Mike Palermo, Senior Sales Representative
Office: 585-737-0456
mike.palermo@mcwaneductile.com

CENTRAL & EASTERN PENNSYLVANIA

Bob Hartzel, Senior Sales Representative
Office: 717-571-5683
bob.hartzel@mcwaneductile.com

MARYLAND & WESTERN PENNSYLVANIA

Ben Leonard, Sales Representative
Cell: 908-442-5241
benjamin.leonard@mcwaneductile.com

NORTH CAROLINA

Dwayne Shelton, Senior Sales Representative
Office: 336-682-6187
dwayne.shelton@mcwaneductile.com

VIRGINIA

Todd Soady, Sales Representative
Office: 757-262-6174
todd.soady@mcwaneductile.com

MIDWEST SALES TEAM

GENERAL SALES

Scott Frank, General Sales Manager
Office: 740-622-6651
Cell: 740-202-3094
scott.frank@mcwaneductile.com

Dave Bursh, Inside Sales Manager
Office: 740-291-1064
dave.bursh@mcwaneductile.com

ILLINOIS

Dan Flaig, Senior Sales Representative
Cell: 815-353-4607
dan.flaig@mcwaneductile.com

KENTUCKY, SOUTHERN INDIANA & SOUTHWESTERN OHIO

Scott Frank, General Sales Manager
Office: 740-622-6651
Cell: 740-202-3094
scott.frank@mcwaneductile.com

MICHIGAN, NORTHERN INDIANA & NORTHWESTERN OHIO

Kevin Christian, Sales Representative
Cell: 734-223-5632
kevin.christian@mcwaneductile.com

NEBRASKA, KANSAS, MISSOURI, IOWA, SOUTHERN ILLINOIS & SOUTH DAKOTA

Gunner Christian, Sales Representative
Cell: 913-526-6282
gunner.christian@mcwaneductile.com

CENTRAL & NORTHEAST OHIO & WEST VIRGINIA

Clinton (CJ) Fowler, Sales Representative
Cell: 330-260-9292
clinton.fowler@mcwaneductile.com

WISCONSIN, MINNESOTA, NORTH DAKOTA

Scott Frank, General Sales Manager
Office: 740-622-6651
Cell: 740-202-3094
scott.frank@mcwaneductile.com

CANADA SALES TEAM

GENERAL SALES

Greg Eisnor, General Sales Manager
Office: 905-974-3005
Cell: 902-449-2685
greg.eisnor@canadapipe.com

Greg Principi, National Product Engineer
Office: 905-974-3026
Cell: 289-244-6415

ATLANTIC

Martin Phinney, National Product Engineer
Cell: 506-961-9229
martin.phinney@canadapipe.com

QUEBEC

Marc Giguere, Sales Manager
Cell: 819-740-4242
marc.giguere@canadapipe.com

David Rouleau, Sales Representative
Cell: 413-223-6882
David.rouleau@canadapipe.com

ONTARIO

Ron Siddique, Sales Representative
Cell: 289-244-8714
ron.siddique@canadapipe.com

WESTERN CANADA

Scott Bell, Sales Representative
Cell: 604-499-3825
scott.bell@canadapipe.com

Brent Williamson, Sales Representative
Office: 604-737-1279
Cell: 604-360-0960
brent.williamson@canadapipe.com

TREATMENT PLANT SALES TEAM

GENERAL TREATMENT PLANT SALES

David Smith, General Sales Manager
Cell: 724-316-4093
david.smith@mcwaneductile.com

Cory Humphreys, Technical Services Manager
Office: 740-291-1046
cory.humphreys@mcwaneductile.com

NORTHERN OHIO, PENNSYLVANIA, MICHIGAN, NEW YORK

Matt Drummond, Sales Representative
Cell: 614-917-3821
matt.drummond@mcwaneductile.com

SOUTHERN OHIO, KENTUCKY, INDIANA & WEST VIRGINIA

Darcie Keirns, Sales Representative
Cell: 740-607-9082
darcie.keirns@mcwaneductile.com

IOWA, MISSOURI, KANSAS, WISCONSIN, NEBRASKA, N. DAKOTA, S. DAKOTA & MINNESOTA

Dan Henrie, Sales Representative
Cell: 630-604-7489
dan.henrie@mcwaneductile.com

MID ATLANTIC, SOUTHEAST

Alex Shelton, Sales Representative
Cell: 740-572-2903
alex.shelton@mcwaneductile.com

SOUTH SALES TEAM

GENERAL SALES

Terry Lynch, General Sales Manager
Office: 615-305-0768
terry.lynch@mcwaneductile.com

WESTERN CAROLINA & GEORGIA

Jeremy Gwin, Senior Sales Representative
Office: 205-541-4090
jeremy.gwin@mcwaneductile.com

ARKANSAS, OKLAHOMA & NORTH TEXAS

Dusty Henderson, Senior Sales Representative
Office: 615-418-0741
dustin.henderson@mcwaneductile.com

FLORIDA (Except Panhandle) & EASTERN SOUTH CAROLINA

Gary Gula, Sales Representative
Office: 239-989-6298
gary.gula@mcwaneductile.com

ALABAMA, LOUISIANA, FLORIDA (Panhandle only) & TENNESSEE (Memphis only)

Doug Clark, Sales Representative
Office: 662-341-0205
doug.clark@mcwaneductile.com

TENNESSEE & NORTH GEORGIA

Josh Baker, Sales Representative
Office: 615-975-0806
josh.baker@mcwaneductile.com

TEXAS (Except El Paso)

Scott Rhorick, Sales Representative
Office: 254-317-8455
scott.rhorick@mcwaneductile.com

WEST SALES TEAM

GENERAL SALES

Nick Koncar, General Sales Manager
Office: 801-623-4256
Cell: 801-864-5544
nick.koncar@mcwaneductile.com

Kim Christensen, Inside Sales Manager
Office: 801-623-4254
kim.christensen@mcwaneductile.com

ARIZONA, NEW MEXICO & TEXAS (El Paso only)

Wes Cassiere, Senior Sales Representative
Cell: 480-280-5424
wes.cassiere@mcwaneductile.com

SOUTHERN CALIFORNIA

Carolyn Lopez, Senior Sales Representative
Office: 951-371-1440
Cell: 951-310-6444
carolyn.lopez@mcwaneductile.com

NORTHERN CALIFORNIA & NEVADA

David Bridge, Sales Representative
Cell: 951-520-6416
david.bridge@mcwaneductile.com

UTAH & COLORADO

Aaron Loosli, Sales Representative
Cell: 385-208-7352
aaron.loosli@mcwaneductile.com

WEST WASHINGTON & ALASKA

Jason Harrison, Senior Sales Representative
Cell: 425-681-1394
jason.harrison@mcwaneductile.com

OREGON

Carrie Stephens, Sales Representative
Cell: 503-577-4177
carrie.stephens@mcwaneductile.com

WASHINGTON, IDAHO, WYOMING, MONTANA & HAWAII

Jason Barnes, Sales Representative
Cell: 206-714-8213
jason.barnes@mcwaneductile.com

SALES OPERATIONS

Stuart Liddell, Sales Operations Manager
Office: 352-208-5709
stuart.liddell@mcwaneductile.com

Jeff Henderson, National Account Manager
Cell: 614-404-4909
jeff.henderson@mcwaneductile.com

Jerry Regula, National Product Engineer
Cell: 740-294-7899
jerry.regula@mcwaneductile.com

Ken Rickvalsky, National Product Engineer
Cell: 609-290-7701
ken.rickvalsky@mcwaneductile.com

Roy Mundy, Senior Regional Engineer
Cell: 859-361-8585
Fax: 859-273-4799
roy.mundy@mcwaneductile.com

John Johnson, Regional Engineer
Cell: 951-813-9589
john.johnson@mcwaneductile.com

John Simpson, Regional Engineer
Cell: 865-256-2541
john.simpson@mcwaneductile.com

Andrea Kubik, Marketing Manager
Office: 740-202-7352
andrea.kubik@mcwaneductile.com

Marty Kurtz, Media Specialist
Office: 740-291-1012
marty.kurtz@mcwaneductile.com

We've got the tips you need.

To help you build Iron Strong Utilities, our database of tip sheets is available for easy download. Visit the **Learning Center** at **McWaneDuctile.com** to discover what product literature is available — product information, field guides, checklists and more about Ductile iron pipe.

McWANE DUCTILE
IRON STRONG

McWaneDuctile.com

IRON STRONG INSIGHTS

CONNECT WITH US ON

McWANE DUCTILE
2266 South 6th Street
Coshocton, Ohio 43812

McWANE DUCTILE

[FIRST NAME] [LAST NAME]
[ADDRESS1]
[ADDRESS2]
[CITY], [STATE] [ZIP]