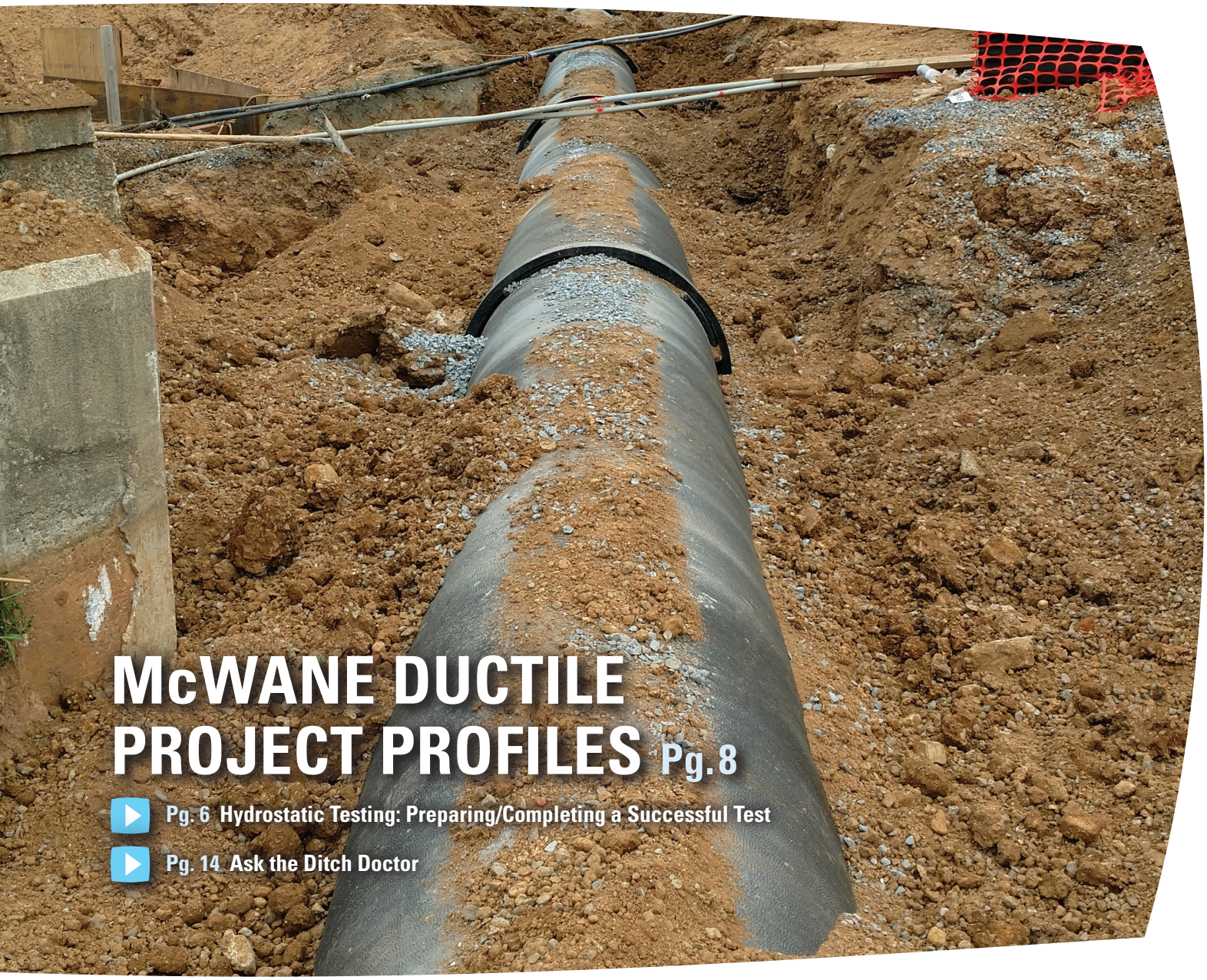
WINTER 2019

MODERN MCWANE



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WELCOME TO MODERN McWANE

Dear Readers,

Welcome to the Winter edition of Modern McWane. We hope that all of you had a wonderful and relaxing holiday season with your family and friends. Spending time together in celebration is what matters most this time of year and helps create the special memories and experiences that are passed down from generation to generation.

Ringing in the new year is the time when we reflect on the year that passed and plan for the year ahead. Most of you are probably busy now preparing for and participating in planning meetings where the performance of the prior year will be reviewed and the goals for the upcoming year will be set. It is also a time of year where we recognize friends and coworkers who have retired and welcome new staff members to our team.

From McWane Ductile, we introduce two new personnel who have joined our Sales and Marketing teams. Josh Baker joins the South team as a sales sepresentative covering Tennessee and parts of Georgia. Andrea Kubik joins the sales operations department as a marketing specialist, bringing 25 years of experience to this position. You can learn more about Josh and Andrea on page 3.

In this issue, we have a two interesting feature articles. Bert Weiss, recently retired from the City of Hayward, California, provides a unique recounting of a bad day that could have been disastrous if not for the material choice that had been made for that installation. Jerry Regula, Product Engineer for McWane Ductile, offers a thorough practice and procedure writeup on how to best prepare and execute a successful hydrostatic pressure test.

As always, we have included Ditch Doctor segments written in a fun, yet informative manner for our readers' enjoyment. The Project Profiles section offers highlights from several key projects across the United States where McWane Ductile and our valued partners worked to ensure those utilities experience the value of making an Iron Strong material choice to benefit the generations of customers that follow.

Speaking of local choice, the American Chemistry Council and the PVC pipe industry are continuing their lobbying efforts to restrict what you choose to put into your utility system. Efforts have once again been initiated within state governments and federal agencies that would require utilities to include PVC in all project specifications. This type of legislation would impinge on the knowledge and experience of water industry professionals to select the construction materials best suited for a project. This would also force them to choose cheaper and less durable materials in their place. If you would like more information on how to combat these efforts, please reach out to your local McWane representative listed in the back of this publication.

Finally, as we begin 2019, we want to thank our readers and customers for their suggestions and support over the past year. Engagement with you, our customers, is what Modern McWane is all about. Here's to hoping that we all have a great 2019.

Stuart Liddell
Sales Operations Manager
Sales Operations Department

McWANE NEW HIRES & PROMOTIONS

JOSH BAKER

Josh Baker is a 2005 graduate from Trevecca Nazarene University with a B.A. in Business Administration. Prior to McWane, Josh spent the past year in the hydrant and valve industry with American AVK. There, he was responsible for sales in Tennessee, Kentucky, Indiana, and Michigan. Prior to that, Josh spent six years in the inland barge manufacturing industry with Trinity Industries. Josh currently resides in middle-Tennessee with his wife Stacy and their three children, Mackenzie, Grant, and Bella. Mackenzie is enrolled in her first year at the University of Tennessee where she is studying law. Grant is in his eigth grade year and plays basketball and baseball. Bella is in the second grade and enjoys horseback riding and playing the piano. Josh and his family enjoy life on their family farm and spending time outdoors. They all look forward to their new journey with McWane.

ANDREA KUBIK

McWane Ductile welcomes Andrea Kubik as our new Marketing Specialist. Andrea received her B.A. in Visual Communications from Ohio Dominican University in Columbus, Ohio. From her previous roles, Andrea brings nearly 25 years of experience in marketing, communications, public relations, and project management. She and her two sons, Joe and Luke, live in Newark, Ohio. They enjoy spending time outdoors, camping, Jeeping, playing golf, and staying active.

THE 18-INCH TRANSMISSION MAIN STORY

BY: BERT WEISS, CITY OF HAYWARD, CA

The transmission main shown in the photos is in a large open field that is being developed. In the process of doing the rough earthwork, the D8 dozer with its five-foot-long ripper tooth was plowing the area so that scrappers could eventually move in and recontour the property. One late morning, I got word that the earthmoving contactor hit our transmission main. My stomach turned because it is one of two feeds that supplies water all the way up the hills of Hayward in a series of 250-foot lifts (elevation gains). The thing that bothered me the most about the news was that our map books showed the line to be an 18-inch welded steel pipe. Welded steel pipe is a very good pipe material, but in the water world, it's not a

pipe that is readily available at a municipal supply yard or neighboring agency. The advantage to the welded steel pipe is that if the hole is small (dime size), you could easily weld on an outlet to make a simple repair. The disadvantage is if the hole is large, it would likely require either a superior, but very time-consuming, full penetration butt-weld to splice in a section of pipe or an inferior set of butt straps that can also be used to splice in a section. The second option would never be tolerated in most of the industries that use steel pipe, and it would require a hand hole to be added so that someone could attempt to mortar coat the interior of the pipe in the repair area.

> I got word that the pipe was ductile iron, which made replacing it a much more feasible task.

The worst thing about repairing the welded steel pipe is that process is time consuming and prone to missing a spot, which means you suddenly have a corroded hole leak in 4 to 15 years — and then the repair process starts again. Plus, the repair time would take days, unless you expedited the process at a cost of five times the expense.

Because the pipe was hit by a dozer, I knew the hole wouldn't be small and would most certainly have a significant area around the hole/tear that is deformed, meaning the mortar lining would be shot for some distance to either side with a segment needing to be cut and welded. The pipe was exposed quickly because the line had about 135 psi, helping clear a portion of the pipe, and the developer had the earthmoving equipment on site. The field was a mess, but at least the pipe was exposed. I was about to start the miserable task of finding pipe when I got word that the pipe was ductile iron, which made replacing it a much more feasible task. I asked my folks in the field to absolutely confirm that this was the case. They confirmed it, and I almost started doing cartwheels.

This news meant that I now had a fighting chance to find a piece of ductile, the solid sleeves and mega lug kits that I needed laying around that day. I immediately called my beloved acquaintance, Scott Silverthorn, Municipal Supply sales guy extraordinaire, and asked him to find the parts I needed. While he didn't have the materials in his yard, it took him less than half an hour to locate the materials at another Bay Area water agency.

Within hours, the materials were being picked up from across the bay and delivered to me. In the irony of ironies, the pipe and fittings came from my former employer, North Coast County Water District!

When I arrived on site, I noted the damaged section of pipe. Ductile iron is wonderful because it is generally tougher than Superman's knee cap, but if it yields, it does so in a very localized area. The areas to the immediate upstream and downstream portion of the damage were perfectly intact. The mortar lining was even remarkably intact in the areas immediately adjacent to the damaged section. In fact, if I had a repair clamp, I could have easily thrown that around the pipe and had a legitimate fix. Because I had the pipe, I could just as easily do a full repair in very short order with nothing more than a couple of gas-powered saws, ratchet wrenches, open-end wrenches, and minimal skill sets. If you can read a tape measure, make a cut with the saw, and tighten bolts, you can make a 100 percent perfectly legitimate 100-year repair on the pipe.

Once the materials arrived on site, my team completed the entire repair in three hours — start to finish. If this were a polyethylene pipe, it would have drawn itself down and necked down to some strange OD for a very large section of the pipe, and the repair couldn't have been done in this amount of time. If this were a C900 pipe, the pipe would have shattered, and instead of having a hole in the pipe that already released enough water to be a bummer, it would have been a full break and drained a significant part, if not all, of my 4-million-gallon reservoir that the transmission main feeds into. The damage to the construction site would have been catastrophic as the high-pressure water would become a massive hydro excavator. If it were a bar-wrapped cylinder pipe, I would have had to order custom transition coupling that would cost me days and many thousands of dollars in shipping and expedited fees alone, and then take 10-plus hours to repair the fragile pipe.

> Once the materials arrived on site, my team completed the entire repair in three hours — start to finish.

The bottom line is that the ductile pipe made this bad news story turn into a minimalistic bump in the road in the water world of Hayward!

HYDROSTATIC TESTING
PREPARING/COMPLETING A SUCCESSFUL TEST

BY: JERRY REGULA, PRODUCT ENGINEER (MD)

PICTURE THIS: Much time, effort, and care have been expended installing a water line. Crews have worked through inclement weather. Unexpected rock was found, which slowed progress but did not stop installation of the pipe. Crews have worked long hours to meet deadlines and are anticipating the end of the project. But wait, we have not pressurized the line. All eyes are on that gauge in hopes of validating the work was successfully completed. The design engineer and owner anticipate news of a tight line, ready to serve hundreds or thousands of customers or provide water to a new facility where a multitude of neighbors may find employment. The following article is a blue print, which, if followed, will lead to a successful hydrostatic testing of a water line.

DESIGN

Hydro testing a new water line essentially begins during the design phase. Understanding testing factors during design will enable the water professional to prepare for obstacles that may arise during the testing process. Dinesh Paliwal said, "Problem-solving is essential to engineering. Engineers are constantly on the lookout for a better way to do things." Test requirements are set by considering the following: Flow/volume demands, size and length of pipe, total overall difference from the low to highest elevations, and changes in elevation or "high spots." The hydrostatic test parameters must be clearly defined during the design phase and stated in the project specifications. Guidelines set forth in the AWWA M41 Manual and the ANSI/AWWA C600 Standard are as follows: "Test pressure shall be 1.25 times the operating pressure. Duration of the test is two hours. Special consideration must also be given when multiple piping products are used."

A test pressure of 300 psi will be detrimental to weak materials, such as PVC rated at 125 psi, which also does not have a safety factor of 2 and surge allowance of 100 psi included in the design, compared to the stronger ductile iron that does. Any material not designed for the specific pressures should not be used and should be isolated from any section of a line to be tested at higher pressures.

EDUCATION

Complimentary on-site training services are provided upon request by McWane Ductile product engineers or sales representatives to ensure installation crews are empowered with the knowledge to complete the process. Engineering professionals often include on-site training by the manufacturer in the project specification to ensure training is completed. Utility installation professionals in the gas, electric, and cathodic protection industries are required to obtain a specific certification prior to working in the field. Similar required training will set a positive tone before the first bucket of dirt is moved.

There is also a benefit to documented standards compared to word-of-mouth training. How many times in your life have you encountered a situation such as this one: A newlywed wants to cook Thanksgiving dinner. Her husband does not understand why she is cooking a 5-pound turkey in a 10-pound pot. The bride responds, "That's the way mom did it." The husband then asks his favorite mother-in-law the same question and receives the same response, "That's the way my mom did it." The husband then presents the question to grandma. Her response, "That was the only pot I had!" We may chuckle a little, but this happens all too frequently in the field. There is a better solution, which is to base training from documented resources such as the M41 Manual or the ANSI/AWWA C600 Installation Guide for Ductile-Iron Mains and Their Appurtenances.

INSTALLATION

Attention to detail is of the utmost importance. Critical items include, but are not limited to:

- Cleaning the bells, spigots, and gaskets.
- Proper lubrication of gaskets and spigots.
- Use of approved accessories.
- Mechanical Joint installation should include gasket lubrication, straight alignment, and specified bolt torque.
- Proper alignment of joints during the homing process — "Straight is great!"
- Deflection of joints — after the pipe is homed.

Anyone who has searched for a leak will attest to the importance of proper installation. There is an extremely good chance that the most common installation, regardless of the pipe material, is improper tightening/torque of MJ bolts. It is no mistake that the installation section came after the education section of this article.

TESTING

ANSI/AWWA C600-10 Installation Guide for Ductile-Iron Mains and Their Appurtenances.

HYDROSTATIC TESTING

WARNING: The testing methods described in this section are for water-pressure testing only. These procedures should not be applied for air-pressure testing because of the serious safety hazards involved with compressed air. Also, pipelines intended for buried service should generally be tested with the backfill in place.

Slow fill of the line will enhance the probability of removing all air from the conduit. Fill the line at the lowest possible location while providing an air release at the highest location. Multiple air release locations may be provided because of the contour of the line.

Practice patience — allowing all the air to vent and adequate time for any water absorption in the cement lining are beneficial. The test pump is to be connected at the lowest point of the line — same as the "fill" location. The pump must be primed to remove all air prior to engagement with the line. The pressure gauge is to be connected to the pipe at the lowest location. Reminder — connect the gauge to the pipe, not the pump. The pump should be isolated from the line during the actual test period. All head pressure will thus be included in the reading on the gauge. It is important to isolate the new line for pressure testing as well as allowing the new line to be properly chlorinated and bacteria tested prior to connection with a service line.

ALLOW FOR MOVEMENT

Waterlines move when pressurized. Installers may, at times, have a misconception that water lines do not move because of earth loads of six to eight feet, for example. Another way to look at and understand this is to complete a simple Thrust Restraint calculation using the McWane Ductile Pocket Engineer at pe.mcwane.com. Restraint required for a capped 16-inch diameter pipe at an 8-foot depth of cover and 150 psi design pressure with a type I trench is 280 feet with polyethylene encasement and 196 feet bare — no polyethylene encasement because of the pipe's ability to move based on a variation in friction. As previously stated, a water line moves like an accordion when pressures are increased/decreased. The trench type specified for the project is intended to balance the external forces involved but will not eliminate movement. Therefore, the number of times a line is exercised may vary.

WATER TEMPERATURE

Water temperature is not typically a huge factor during hydrostatic testing but must be considered at times. Internal pressure will decrease as water temperatures decrease — to the point when the fluid begins to freeze, which then creates a substantial issue. Alternatively, pressure will rise as water temperature increases. If a water line installed in the winter is filled with city water at 60 degrees Fahrenheit and the ground temperature is 32 degrees Fahrenheit, the water will cool and the pressure will drop. Conversely, the internal pressure may increase for an above-ground line installed during summer months filled with 60 degrees Fahrenheit water and ambient temperature of 90 degrees. This is especially true if the line is exposed to direct sunlight. An additional example is when the installation is aquatic. Lake, river, or sea temperatures vary because of depth and should be considered accordingly.

PRESSURE VERSUS MAKE-UP WATER

Previous discussions have addressed numerous factors affecting water pressure. The "Testing Allowance" in the ANSI/AWWA C600 Standard was developed with all the items affecting pressure in mind. A common mistake is for installers to chase a leak for extended periods of time, only to find the line will eventually pass the hydrostatic test without changing any parts of the water line. Considering the allowable make-up, water may alleviate this issue. Table 4-A" found in section five of the ANSI/AWWA C600 Standard is used to identify the amount of make-up water used (per hour) to increase the pressure back to the starting point of the test. The same information may also be obtained in seconds via the McWane Ductile Pocket Engineer: found at pe.mcwane.com. Simply plug in the size, length, and pressure for the test and the answer is calculated for you.

MCWANE DUCTILE TOOLS

McWane Ductile offers a variety of tools to assist with hydrostatic testing.

The Pocket Engineer (pe.mcwane.com) brings a wealth of information through state-of-the art calculators used by water professionals at all levels.

The McWane Ductile Double Bump protocol is an excellent diagnostic process written for operators to differentiate a leak from trapped air. Three hydro tests are conducted with each of the same time intervals. The pressure is increased during each test. The make-up water is measured and documented after each test. Ensure the pump is primed before the valve is opened to the water line. The water supply container must be marked at the water level to assist with calculating the make-up water. A "known value" container such as a quart jar or incremented gallon bucket may be used to refill the original supply source. The amount of make-up water is documented and compared from all three tests. If the amount of make-up water remains the same or slightly improves, the result is an indication of trapped air. If there is a substantial increase in the amount of make-up water as the pressure is increased, the result is an indication a leak is present. On-site technical services are also provided at no charge by highly qualified product engineers who have decades of field experience.

TESTING WITH AIR

Let's be perfectly clear: An air test is absolutely not the same as a hydro test. Note the statement from the ANSI AWWA C600-10 Installation Guide for Ductile Iron Mains and Appurtenances:

HYDROSTATIC TESTING

WARNING: The testing methods described in this section are for water-pressure testing only. These procedures should not be applied for air-pressure testing because of the serious safety hazards involved with compressed air. Also, pipelines intended for buried service should generally be tested with the backfill in place.

We recommend using hydrostatic test procedures for all water lines if possible. The dangers of compressed air cannot be over emphasized. Think about it, you have installed a water line — test with water. If, as a last resort, testing with air is the only option, there are items of concern. Two to four psi is all that is required for an air test. The dial on the gauge must be in one psi increments. A pressure relief valve is to be set at five psi max to prevent over pressurizing. An example to compare water and air: fill one balloon with water and the second with air. Pop both balloons. The water balloon will simply fall to the ground while pieces from the air balloon may travel several feet when popped. Yes, a ductile iron cap is heavier than a balloon, which ultimately means it will do more damage when it lands. Work smart, work hard, and work safe!

CONCLUSION

There is a great deal of thought, preparation, and attention to detail involved with hydrostatic testing. Keep in mind there are documented procedures and knowledgeable McWane Ductile professionals available to assist with training. Together, we are **Building Iron Strong Utilities for Generations!**

McWANE DUCTILE PROJECT PROFILES

NORTHEAST

Sales Region: Northeast
Sales Representative: Benjamin Leonard
Project Location: Treasure Lake, PA
Project Owner/Utility: Aqua PA – Sharon Division
Project Engineer: Entech Engineers
Project Contractor: JS BOVA, Wilson Excavating
Project Distributor: Sold Direct

Types of DIP used on the project:

Diameter	Joint	Class	Footage
8"	Tyton®	52	18,120

Treasure Lake is an 11-square-mile area in Sandy Township, Pennsylvania, that has approximately 3,800 residents. Aqua PA has taken great strides to improve the infrastructure in the western part of the state, with Treasure Lake being a one of those focused areas. James Willard said, "The Treasure Lake system has the most leaks in any of our water infrastructure areas." Along with stopping the leaks, Aqua was focused on health and safety when designing this infrastructure rehab project.

Designated pipelines will be rerouted to not pose any threat to the four dams that make up the two bodies of water. When the Treasure Lake water infrastructure system was first put in 40 years ago, it was not meant to handle fire suppression. One of the goals of this project is to be able to have the flow to handle fires without having to draw from the lake.

Aqua spent $2 million on the Treasure Lake wastewater system in Clearfield County, including $891,000 for repairs to its collection system, manholes, and the replacement of 30,000 feet of pipe in 2017. The Treasure Lake infrastructure improvement project is a 10-year project, with replacing and adding not only water mains, but also pump stations, tanks, and water treatment tanks. There will be new water transmission lines pulling from new sources of water and improvements made to the treatment of water. The majority of the ductile iron pipe will take three years to replace, but that is only around the perimeter of the two lakes. Several other side street water main replacements will happen over a 10-year period, with sizes ranging from 6 to 12 inches of ductile iron pipe. The ductile iron pipe will be replacing mostly PVC and some A/C pipe that has seen significant breaks over the last few years, which prompted this infrastructure overhaul. During the course of the project, approximately 100,000 feet of waterline will be replaced.

MIDWEST

Sales Region: Midwest
Sales Representative: Jon Melloan
Project Location: Shelby County, KY
Project Owner/Utility: Louisville Water Company
Project Engineer: HDR Engineers
Project Contractor: Smith Contractors

Types of DIP used on the project:

Diameter	Joint	Class	Footage
24"	TR Flex®	250	52,000

Louisville Water Company has excess water capacity, and for the past several years, has been forming agreements with other municipalities in the region to provide water. As part of its recent expansion, they bid a 24-inch transmission main to Shelby County. On September 13, 2017, Louisville Water Co. opened competitive bids for a 24-inch ductile iron pipe water transmission main. With a bid of $12,680,000, Smith Contractors located in Lawrenceburg, Kentucky, was the low bidder and awarded the project.

"The Shelbyville pipeline is a key part of our regionalization strategy. The project meets a need for additional water in Shelby County, both for current use and to plan for growth. For Louisville Water, we have an abundant water supply and excess capacity at our treatment plants, so partnering with neighboring communities is a win for us all," noted Kelley Dearing Smith, Vice President, Communications and Marketing at Louisville Water Company.

This pipeline project runs parallel to I-64 and has numerous road and stream bores. Two of these bores go under I-64 and have 24-inch TR Flex® pipe pulled through a 42-inch steel casing pipe. This project required 52,000 ft. of 24-inch pressure class 250 TR Flex® pipe and numerous 24-inch TR Flex® fittings. Louisville Water Co. required the entire project to be wrapped with V-Bio® poly-wrap. Using V-Bio® will add many years of service life to the ductile iron pipe.

Smith Contractors has been a very loyal McWane Ductile partner since the late 1980s, and we have completed many projects together. "We have had a great working relationship with McWane Ductile for many, many years, and they always provided us great service," said Joe Smith, Vice President at Smith Contractors.

SOUTH

Sales Region: South
Sales Representative: Brian Richard
Project Location: Cumming, Forsyth County, GA
Project Owner/Utility: Forsyth County Water and Sewer
Project Engineer: Black & Veatch
Project Contractor: Legacy Water Group

Types of DIP used on the project:

Diameter	Joint	Class	Footage
36"	Tyton®	200	13,800
36"	TR Flex®	200	4,000
24"	TR Flex®	200	200
12"	Tyton®	350	3,500

Forsyth County is one of the fastest growing counties in Georgia and possibly the nation. Small residential subdivisions are springing up in all quadrants as the county becomes a northern "bedroom community" to metro Atlanta industries. Highway 400 dissects the county and is a main artery into downtown Atlanta.

With this amount of growth, the demand for more water becomes a critical problem for a water purveyor and the reason why Forsyth County Water and Sewer Department began a phased upgrade to their water infrastructure.

Legacy Water Group was involved with several of these Forsyth County projects recently, where they installed 36-inch McWane Ductile iron pipe. Two crews operated simultaneously in different locations for most of the construction period, making supply of 36-inch ductile a challenge for the manufacturing team in Coshocton, Ohio. As always, communication was vital to supply two crews with enough pipe to avoid delays in construction and not overwhelm the job site with material.

Corrosion is a main concern for the county, as it has experienced deterioration to aging pipe in its system. Fortunately, advances in technology have produced several viable alternatives. For these projects, the county specified zinc exterior coating to all pipe and V-Bio® poly-wrap to be used for extra protection in trouble areas. These elements required more scheduling coordination, as the zinc had to be applied in the factory and then poly-wrapped at the job site.

The foremen and office personnel of Legacy cooperated with the McWane Ductile team resulting in a seamless job and all parties, including those at the county, were satisfied with the results. The pipelines will supply potable water to areas just outside of the city limits of Cumming, Georgia, where population growth is now occurring and will most likely continue.

We hope Legacy Water Group will be successful in landing future projects in Forsyth County. The factory team and field team for McWane Ductile will do their best to support Legacy's efforts before and after any future bids.

WEST

Sales Region: West
Sales Representative: Aaron Loosli
Project Location: Manitou Springs, Colorado
Project Owner/Utility: Colorado Springs Utilities
Project Engineer: Design Build
Project Distributor: Colorado Springs Winwater

Types of DIP used on the project:

Diameter	Joint	Class	Footage
30"	TR Flex®	350	9,712
24"	TR Flex®	250	390

McWane Ductile recently worked on concurrent projects in Manitou Springs, Colorado: the Westside Avenue Action Plan (WAAP) and the 30-inch Raw Waterline Replacement Project with Colorado Springs Utilities. Both involved installing 30-inch TR Flex® ductile iron pipe to replace failing sections of old steel pipelines that were installed at the height of the Great Depression.

When the pipelines were first installed in 1934, a headline in a local newspaper dated Sunday, April 15 read, "You'll Be Drinking North Slope Water in 3 Weeks, Realizing a 40-Year Dream." Another headline stated, "Snows of Pikes Peak Send Pure Water to Colorado Springs via Big Pipeline." The installation of this new line continues to deliver water from the north slope of Pikes Peak that began almost 85 years ago.

The pipeline carries water from the Pikes Peaks reservoirs to the Mesa Water Treatment Plant.

These two 30-inch lines travel through Manitou Springs, which is the gateway city to one of the most famous mountains in the world — Pikes Peak. At 14,115 feet, it is the most visited peak in North America.

David Yoder of Colorado Springs Winwater compliments the McWane Ductile team, stating, "Everything is good and delivering 10.6 million gallons per day through the two lines. Your service was crucial to my ability to deliver and be the hero many times over. The team is proud that with all the extra effort, long hours, and more rock removal than expected, the big 30-inch design-build job was a huge success."

Back when the original lines were first installed, the project provided much needed jobs to the community. McWane Ductile is proud to be a part of building America by supplying the material to expand and improve the infrastructure we so desperately rely on. McWane Ductile was honored to partner with Colorado Springs Winwater and Wildcat Construction on this historic project — Building Iron Strong Communities for Generations.

TREATMENT PLANT

Sales Region: Treatment Plant
Sales Representative: Alex Shelton
Project Location: Charlotte, NC
Project Owner/Utility: Charlotte Water
Project Engineer: Hazen and Sawyer
Project Contractor: Ulliman Schutte

Types of DIP used on the project:

Diameter	Joint	Class	Footage
4"	Tyton Joint®	CL51	882
8"	Tyton Joint®	CL51	810
12"	Tyton Joint®	CL51	540
16"	Tyton Joint®	CL51	90
4"	TR Flex®	CL51	1764
6"	TR Flex®	CL51	1872
8"	TR Flex®	CL51	720
10"	TR Flex®	CL51	522
12"	TR Flex®	CL51	360
24"	TR Flex®	CL51	270
30"	TR Flex®	CL51	324
36"	TR Flex®	CL51	936

Irwin Creek WWTP Rehabilitation Phase 2

The Irwin Creek Wastewater Treatment Plant is one of five Wastewater Treatment Plants that currently operate in Charlotte, North Carolina. Alongside Irwin Creek, you will find the Sugar Creek, McAlpine Creek, Mallard Creek, and McDowell Creek Wastewater Treatment Plants helping to protect and serve the Charlotte area.

The original Irwin Creek Wastewater Treatment Plant was built in 1927 at the same time as the Sugar Creek Wastewater Treatment Plant, which were originally built as twin plants. Once open, they had a treatment capacity of six million gallons per day and an average flow of about half that amount. At the time, these plants were considered modern marvels and were featured in a 1928 edition of *Public Works Magazine*.

Irwin Creek, which celebrated its 90th anniversary last year, is currently undergoing Phase 2 of an upgrade/rehab. Ulliman Schutte is the general contractor and has been tasked with replacing and upgrading significant portions of the aging infrastructure. The Phase 2 upgrades will increase the sustainability of the plant by increasing capacity to support proposed development in West Charlotte.

Ulliman Schutte is responsible for the installation of high-efficiency air blowers as well as completing major primary treatment, aeration, secondary treatment, and process pump upgrades. Ulliman Schutte will replace much of the process flow piping and add phosphorus treatment for better filtration of the plant effluent.

McWane Ductile is proud to partner with Ulliman Schutte and appreciates the opportunity to be part of the history surrounding the Irwin Creek Wastewater Treatment Plant.

Dear Ditch Doctor,

We installed 500 feet of 30-inch pipe through a casing then discovered we cut a gasket at 140 feet. How do I repair this joint without pulling the pipe from the casing?

Sincerely,
Larry from Gary

Dear Larry,

Discovering an installation error during the hydrostatic test is definitely a bad day. Realizing the owner is not about to listen to the "I think it will work" repair theory will make the bad day a really long, bad day. A good question would be why the joints were not double-checked prior to entering the casing.

McWane Ductile qualified personnel would be happy to provide a job-start installation training for your crew in the future. As for the repair, follow the owner's prescription and pull the pipe and repair, and for the love of Pete, check those joints! Remember, happy owner, happy life — well, you know what I mean.

Sincerely,
The Ditch Doctor

Dear Ditch Doctor,

Buzz says he has been installing external bell harness restraints for decades. He can install those restraints just as fast as the new boltless restraints. How do I convince Buzz to get with the times?

Sincerely,
Chuck from Chignik

Dear Chuck,

Grandpa used to plow the fields with a team of horses. Then came the tractor. Now there are GPS-controlled tractors that are extremely efficient and save an extraordinary amount of time.

New boltless restraint systems are far more superior in effectiveness while greatly reducing installation time. Time is money. Unless, of course, Buzz wants to extend your current installation into the next decade. Just curious...does Buzz have a cell phone?

Sincerely,
The Ditch Doctor

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MIKE DODGE, VP SALES & MARKETING

EAST SALES TEAM

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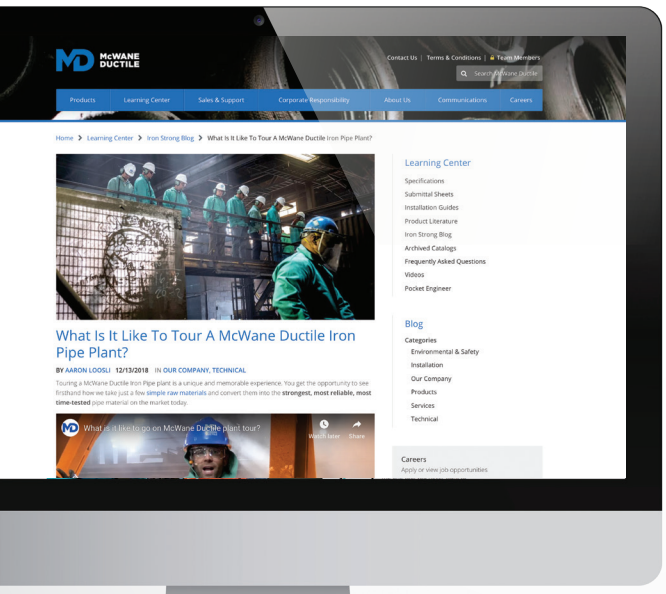

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