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April 2018

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plan helped struggling
water district find
focus, stabilize
operations and
improve service

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Tom Kennedy, General Manager
Rainbow Municipal Water District
Fallbrook, California

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INSIDE:

HYDROEXCAVATION AND
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ON THE COVER: General Manager Tom Kennedy and the Rainbow Municipal Water District are transitioning from a largely agricultural customer base to serve a booming residential population north of San Diego. (Photography by Collin Chappelle)



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


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A WALK AROUND THE FLOOR

Conversations with people across the industry are always the highlight of my annual trip to Indianapolis



FROM THE EDITOR

Luke Laggis

I've met some great people in this industry, and I always appreciate any chance to catch up face-to-face.

I just got back from the Water & Wastewater Equipment, Treatment & Transport (WWETT) Show in Indianapolis, and what stood out wasn't the equipment — although some impressive trucks and technology filled the show floor — or anything about the show itself. It was the people.

I got to see some of the first friends I made in this industry, contractors whose stories I've told, and others who I was lucky enough to meet for the first time.

I was a little disappointed, however, that I didn't meet more utility operators. This magazine revolves around you and the work you do. You are the magazine, so I appreciate any opportunity to talk to you.

The nice thing about the show and meeting people face-to-face is the back-and-forth. I like hearing about the work you're doing, and I also really like hearing what you think of the magazine. The give-and-take brings these pages to life.

In many ways, this magazine is like a monthly trade show. Your monthly attendance is always appreciated. It's an opportunity to find out what's new, learn about the latest equipment and get to know other utility operators. We have technical talks, safety courses, pages full of tools, and networking with the best of your peers from across the industry.

When I walk around trade shows, I see future pages of *Municipal Sewer & Water*. I was happy to see more attention being given to inflow & infiltration solutions at this year's WWETT Show. I talked to several people about everything from manhole inserts to grouting, CIPP lining, gaskets and pipe seals. It's a huge issue; one you're all dealing with to some degree.

We launched *I&I* magazine for that very reason. Most of you will find the latest issue riding along with this month's *MSW*. The magazine addresses I&I head-on. Every story is dedicated to helping you deal with your own I&I issues.

Like *MSW*, this magazine gives you a well-rounded picture of what's going on across the industry, but make no mistake, it is its own magazine. The focus is solely on I&I. We showcase projects from the perspective of both municipalities and contractors. We provide technical insight to help you take a more effective approach to your own issues. And we highlight new tools and methods for specific I&I problems. You all deal with I&I, and now *I&I* can help you do it more effectively.

If we've met, I hope you stay in touch. If we haven't had the chance, please feel free to drop a line and tell me about your utility. Whether I'm at my desk or a show, those are the conversations that help move everything forward.

Enjoy this month's issue. ♦

Comments on this column or about any article in this publication may be directed to editor Luke Laggis, 800-257-7222; editor@mswmag.com.

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DRAIN CLOGGING CULPRITS

Mardi Gras Wreaks Havoc on New Orleans Storm Drains

There are aspects of maintaining water and sewer infrastructure that are largely similar from utility to utility. But every area has certain characteristics that may create unique problems. Something the New Orleans Department of Public Works recently discovered is how problematic the city's massive Mardi Gras season has been for storm drains — 93,000 pounds worth of plastic beads were pulled out of clogged drains earlier this year. mswmag.com/featured

OVERHEARD ONLINE

“In the United States, we're used to having safe and clean water, but people in some countries around the world do not. Water is global, and in communities in developing countries that are struggling, a few dollars can go a long way. It's a lot of bang for the buck.”

— *A Couple of Paddlers Traverse Big Rivers to Help Provide Water for Those in Need* mswmag.com/featured

INDUSTRY INNOVATIONS

Water Tech Incubator Helps Seven Start-Ups

Now in its second year, the Cincinnati-based Pipeline H20 program's goal is to identify and accelerate companies working on technologies that address the world's water challenges. Seven companies, including two from overseas, were selected to be a part of the 2018 class, which got underway in February. In a set of two online exclusives, learn more about Pipeline H20 as well as one of this year's participants — an Australian company using 3-D mapping technology to inspect sewers. mswmag.com/featured



Public Gets a Sewer Lesson Through Utility's Simulator

How to get the public educated on what's going on with the infrastructure beneath their feet? That's a never-ending question for utilities because buy-in from an educated public is an important part of taking on the various challenges utilities face. In this online exclusive, learn more about how the Northeast Ohio Regional Sewer District developed an effective public outreach tool by turning an old shipping container into a walk-through sewer simulator. mswmag.com/featured



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A SENSE OF PURPOSE

Developing a strategic plan helped struggling water district find focus, stabilize operations and improve service

By *Peter Kenter*

California's Rainbow Municipal Water District is a vibrant utility serving residential and agricultural customers an hour's drive north of San Diego. It's a far cry from 2013 when the district almost ceased to exist, a victim of high staff turnover, board instability, a lack of direction, and a hostile takeover attempt by a neighboring agency.

Tom Kennedy, general manager, credits the development of a strategic plan as the center plank of an effort that brought the district back from the brink.

The Rainbow Municipal Water District was established in 1953 to serve unincorporated communities that include Rainbow; Bonsall; Pala; and portions of Vista, Oceanside, and Fallbrook. Like many water districts, it provides only water supplied from outside sources. About 65 percent of water is supplied to agribusinesses, such as plant nurseries and avocado farms. However, the residential population of 20,000 is booming as a thousand new homes are coming to market in 2018 and another 2,500 are in final planning stages.

"That's the biggest transition in the district," Kennedy says. "Where once we were supplying raw water to the groves, it's now shifted to producing potable water for residential users."

However, residential users consume less water than the agricultural customers they replace, while existing agribusinesses are becoming increasingly efficient. That's driving down water sales and putting a strain on district revenue. Whereas 15 years ago the district supplied 35,000 acre-feet of water annually, it now projects sales of fewer than 15,000 acre-feet. Finding efficiencies helps to mitigate rate increases.

The distribution system includes 320 miles of water pipe, 13 water tanks, three reservoirs and 70 pressure regulating stations across a challenging topography ranging from 25 to 200 feet in elevation.

High-Pressure System

"We run a lot of pressure to get the water through the system," Kennedy says. "Much of the system runs at 200 psi, but it reaches 400 psi. When you have eight customers on a mile of transmission main, you have to find ways to mitigate pressure. We have about 1,200 regulators installed just to make sure our water meters don't blow up. High pressure is a mixed blessing because if we experience a leak, we know about it quickly — a pinhole turns into a roar pretty quickly."

About 85 percent of the system is concrete-lined welded steel. There's a little asbestos cement, but new residential developments are serviced with PVC pipe. The largest transmission mains measure 42 inches in diameter, while the smallest measure 4.

Kennedy says the distribution system is in good shape. "We've narrowed down the areas most likely to break by correlating them with higher pressures, age, topography and corrosive soils," he says. "About 80 percent of leaks occur in 20 percent of pipes. Also, the build quality of certain installations isn't where it should have been. Contractors didn't mud the joints, so while the pipe is great, the joints are weak."

A small sewer system transports wastewater from new residential developments to a treatment plant in Oceanside. Much of the system is newer PVC with a small amount of vitrified clay. Pipes





“Our fleet travels half a million miles most years. Efficiency is about managing work orders from our construction crews and marrying them with our wastewater crews, our valve maintenance crews and our customer service people.”

Tom Kennedy

Rainbow Municipal Water District’s Victor Venestra guides the vacuum boom while Chris Hand operates the controls of the district’s Vac-Con combination truck. (Photography by Collin Chappelle)



Chris Hand vacuums debris from a lift station while doing routine maintenance for the Rainbow Municipal Water District.



PROFILE: Rainbow Municipal Water District, Fallbrook, California

YEAR ESTABLISHED:
1953

CUSTOMERS:
20,000 population, 8,000 water connections, 3,000 sewer connections

SERVICE AREA:
80 square miles

DEPARTMENT STAFF:
50

CURRENT INFRASTRUCTURE:
Water — 320 miles; sewer — 62 miles

ANNUAL BUDGET:
\$50 million (2017-18)

ASSOCIATIONS:
American Water Works Association,
Association of California Water
Agencies, California Special Districts
Association

WEBSITE:
www.rainbowmwd.com

“If we were to respect the fight our ratepayers made to prevent the district from being dissolved and to demonstrate that we were capable of being a properly functioning organization, we needed to have a common vision of who we were and identify our common values and what we were doing.”

Tom Kennedy

range from 6 to 18 inches in diameter.

“It’s a newer system. Knock on wood — we’ve seen very few issues,” Kennedy says.

Doing It In-House

In-house crews handle many sewer and water construction and repair jobs, with larger scale work contracted out.

The district owns a Vac-Con combination truck and cleans the sewer system every two years, with extra attention paid to problem areas. Valves are exercised on a two-year schedule. Pump stations and backup generators are inspected and maintained weekly.

The district uses Infor enterprise asset management software that is integrated with GeoViewer by Nobel Systems to coordinate crew activity. The integrated software system delivers asset management, GIS information, vehicle tracking, dig alerts and customer service software into a single app. That provides iPads with near-instantaneous field access to information that includes as-built drawings, aerial photographs and worker-captured images.

“Our fleet travels half a million miles most years,” Kennedy says. “Efficiency is about managing work orders from our construction crews and marrying them with our wastewater crews, our valve maintenance crews and our customer service people. By getting all our people mapped, we can dis-

patch crew members to the nearest service call.”

High Turnover

In 2014, Kennedy became the district’s 45th general manager. “The tenures were always short,” he says. “There was also instability at the board level, and employee turnover had been running as high as 40 percent.”

The Rainbow Municipal Water District was also in the middle of an existential crisis. The district had entered into a joint partnership agreement with a neighboring district to share staff and equipment. The previous Rainbow Municipal Water District general manager had retired, and the manager of the neighboring district had been temporarily overseeing Rainbow operations.

“The other district wanted to formalize a merger, while Rainbow favored the JPA,” Kennedy says. “The other district then applied to the county’s Local Agency Formation Commission to dissolve RMWD and force a consolidation.”

After a 14-month effort, Kennedy and district residents averted the forced merger.

“In part, that issue was the result of decades of political instability and lack of critical focus on the part of RMWD,” he says. “If we were to respect the fight our ratepayers made to prevent the district from being dissolved and to demonstrate that we were capable of being a properly functioning organization, we needed to have a

common vision of who we were and identify our common values and what we were doing.”

Building Consensus

Kennedy wanted the strategic plan to emerge from a consensus of stakeholders, rather than be driven from the top down.

The district contracted an outside facilitator who identified four steps to create the plan: planning to plan, analyzing the situation, setting a strategic direction, and completing and monitoring the plan.

1. Planning to plan

The district identified all stakeholders using the broadest brush possible. These included board members, employees, managers, ratepayer groups and the public. The district also appointed a leadership team made up of management and employees.

2. Analyzing the situation

The process began with a series of questions: What are our strengths? Our weaknesses? What are the most important short- and long-term priorities? What do you want the district to be known for in the community? It also included a SWOT analysis, identifying strengths, weaknesses, opportunities, and threats.

“We interviewed board members individually,”
(continued)

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“The strategic plan isn’t just a document that you file away. It’s a living document that we refer to daily and update annually.”

Tom Kennedy



The Rainbow Municipal Water District staff includes (from left) Operations Manager Darren Milner, HR Manager Karleen Harp, General Manager Tom Kennedy and interim Engineering Manager Michael Powers.



The district adapted the military’s challenge coin system of recognition in order to boost employee morale and engagement.

Kennedy says. “Employees were consulted in randomly selected groups to avoid having them participate with co-workers or people with the same job description.”

Public input was sought at community meetings and open board sessions.

“We wanted to hear everything — even if it was just anecdotal or seemed wacky — on the belief that the best ideas would distill out,” Kennedy says. “We would put all ideas on sticky notes and whiteboards to find commonality. If we weren’t aligned, we would hold further sessions to see if we could clarify the

disagreement, but if those differences couldn’t be ironed out, the view of the board would prevail. We were fortunate to get a pretty good consensus.”

3. Setting a strategic direction

The district defined a concise mission statement that answered three questions: Why are you here? Who do you serve? How do you conduct yourself? The result:

“To provide our customers reliable, high quality water and water reclamation services in a fiscally sustainable manner.”

The leadership team identified six areas of strategic focus that would help set direction: water resources, asset management, workforce development, fiscal responsibility, customer service and communication. Each area offered a goal and some simple annual objectives. For example, under “water resources” in the first strategic plan, published January 2016, the district pursued additional ground-water sources to supplement water purchased from outside.

The district also identified a list of core values and a brief description of how each would be

THE CURRENCY OF EXCELLENCE

The Rainbow Municipal Water District developed its first strategic plan in 2016. It’s also developed a coin program that rewards employee excellence against the values outlined in the plan.

“We’re located next to the Camp Pendleton Marine Corps Base, and some of our employees have been part of the military,” says Tom Kennedy, general manager of the district. “One of our managers who is also a

reservist suggested we establish an excellence coin program of the type used by the military.”

All employees, board members and district volunteers receive the district’s Excellence Coin, which bears the district’s values, focus areas and mission statement. Each month, employees are nominated and awarded coins representing each core value — and a gift card.

“The coins symbolize our shared participation as a group,” Kennedy says. “They’re also a tangible representation and reminder of our focus areas and values.”



The Rainbow Municipal Water District is located in the hills north of San Diego. Well over half the district's water is delivered to agricultural customers, but residential and commercial development is rapidly changing the area.

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4. Completing and monitoring the plan.

The leadership team wrote the final strategic plan with the assistance of the facilitator, keeping it short and easy to read.

"The strategic plan isn't just a document that you file away," Kennedy says. "It's a living document that we refer to daily and update annually."

The district reports to the board on its objectives every quarter. Any new proposals are first filtered through the strategic plan before further consideration.

"If a board member asks us to pursue a certain initiative, we measure that against the strategic plan," Kennedy says. "For example, in making asset management one of our strategic focuses, we choose long-term or permanent solutions that are installed cost-effectively."

The district reassessed the strategic plan in June 2017 and updated some strategic objectives.

"We thought recycled water was going to be a great idea for the district, but our study demonstrated it wasn't going to be cost-effective," Kennedy says. "Each year you need to pivot a little on your objectives."

Not only has the strategic plan given the district a sense of unified purpose, it has given Rainbow a sense of continuity.

"The water distribution system will be here long after we're gone," Kennedy says. "The strategic plan confirms that our job is to be good stewards of that system so that we can hand it to the next generation in good condition." ♦

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THE VALUE OF CORE VALUES

It's not easy to create meaningful company values that resonate with employees, but the benefits make it worth the effort

By Ken Wysocky

We invite readers to offer ideas for this regular column, designed to help municipal and utility managers deal with day-to-day people issues like motivation, team building, recognition and interpersonal relationships. Feel free to share your secrets for building and maintaining a cohesive, productive team. Or ask a question about a specific issue on which you would like advice. Call editor Luke Laggis at 800-257-7222, or email editor@mswmag.com.

In many workplaces, corporate values are little more than words drummed up by executives in a boardroom, then placed on a poster that's hung unceremoniously in a lobby or main hallway. In fact, the very mention of the words corporate values to employees usually is met with indifference or eye rolls.

But not at Neovia Logistics Services, a global third-party logistics outsourcing firm with more than 8,000 employees in more than 20 countries and U.S. operations based in Irving, Texas. About a year ago, the company

“The values have to be authentic in order to resonate with employees. They also must be integrated into the way employees work every day — into the processes and conversations. They need to provide guidance — a true north.”

Shari Chernack

finished a revamp of its core values, then integrated them into virtually all facets of employees' daily work lives, says Shari Chernack, the company's vice president of communications and engagement.

The end result of making corporate values a living and breathing part of employees' jobs? Enhanced employee engagement because they clearly understand company expectations for things such as how to treat each other and customers, as well as what's needed to advance their careers, Chernack says.

“Core values are at the center of everything a company does,” Chernack explains. “They set the mark and aspirations for what companies should be like in terms of how people serve their customers, treat one another and make the place where they spend the majority of their waking hours as strong and

good an environment as possible.

“So there's a lot riding on those values because they provide a way for companies to talk about all those things and aspire to do well at all of them,” she continues. “If you look at lists of the most admired companies and best places to work, they all have strong, well-communicated corporate values ... those values must be true to what a company is and what it's trying to accomplish.”

Input from all levels

To make corporate values meaningful and worthwhile to employees, Neovia Logistics Services officials didn't develop them in the isolated vacuum of a corporate boardroom. Instead, they solicited input from about 300 employees from around the world and from all levels of employment. “We

didn't want the values to come from a boardroom,” she notes. “We wanted to hear about the insights and aspirations of those hundreds of employees who shared their input and stories. In essence, it was a very large series of focus groups.”

Those 300 employees were asked to review a list of 40 common attributes associated with core values and choose the ones that resonated the most — decide which ones were the most important and relevant, given their experiences and what they know about the company. The company evaluated but decided not to choose certain words that have become extremely commonplace in corporate values, such as “integrity,” Chernack points out.

After that, management analyzed all the input and emerged with clear themes, which were further refined and sharpened into five final core values: customer commitment, fairness, outcomes (to focus on results), teamwork and safety.

“The values have to be authentic in order to resonate with employees,” Chernack explains. “They also must be integrated into the way employees work every day — into the processes and conversations. They need to provide guidance — a true north.

“Without all that, they're really almost separate from what the company is doing and they become meaningless words hanging on a wall,” she adds. “It's great to post your core values on a wall, but the challenge is making sure they're more than just that — words on a wall.”

Front and center

How does Neovia Logistics Services ensure that doesn't happen? For starters, they're highly visible and prominent in employees' daily work lives. Values are included in regular team meetings with employees. “A lot of meetings start with discussions of core values,” she says. “They're also embedded in our leadership competencies, so if someone wants to be a leader, they're evaluated by how they live those values.”

Moreover, the company's core values are integrated into other talent-related processes, such as assessment and performance management. “We also make sure our recruiters are knowledgeable about our values so that they include them as criteria when assessing the strengths of job candidates,” Chernack adds.

In addition, the company reinforces core values by recognizing and honoring employees who demonstrate them. “If an employee team does something really incredible, for example, we'll post an article in our communication channels,” she notes. “Furthermore, our chief executive officer recognizes (values-based) outcomes at our quarterly global town hall meetings. We do everything we can to make sure our values are lived and breathed by all employees.”



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The company also stresses that when it comes to articulating and promoting the company's values, everyone — from the chief executive officer and operations leaders to plant supervisors and line workers — is responsible. "That's why it's important to choose core values that aren't so pie in the sky that no one knows what they mean," she says.

Assessing effectiveness

How can companies determine if their values need a makeover? Chernack suggests using tools such as engagement surveys, 360-degree feedback surveys and performance reviews. In short, there's a wealth of data that companies can obtain fairly easily through their annual measures of engagement and performance. "There may be (more overt) signals, but sometimes employee data can be the canary in the coal mine that indicates problems that may not be readily visible to management," she says.

Neovia Logistics Services launched its new set of values in March 2017. To generate interest among employees, a team created a "guerrilla-style" video that showed workers from around the world talking about what the core values mean to them. Managers also received conversation starters to initiate discussions about values at meetings, she says.

Post-launch surveys indicate employees have embraced the new core values. One month after the launch, the company conducted two surveys: One to judge employee awareness of the values and another to see how they align with employees' personal values. Both surveys yielded results that were more than 90 percent favorable, Chernack says.

In addition, the company's regular engagement surveys now ask employees about how well they feel the company demonstrates each of the five values. The bottom line: Companies should periodically survey employees to measure how well its values serve them and the company. "It's all part of regularly assessing the health of your organization," Chernack says. And making sure that values are more than just words on a wall. ♦



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Kingsport distribution crew handles hilly topography and multiple pressure zones while establishing operational excellence

By David Steinkraus

Kingsport is a city of hills and ridges. Nestled in the Appalachian Mountains of eastern Tennessee, it's also a place where people want to live on the high ground. And that is the challenge for the city's water distribution system.

"We had one customer who moved here from a northern state and complained about low water pressure," says Chad Austin, P.E., manager of the distribution and collections systems for the city, on the

PUSHING IT TO THE TOP

Kingsport water quality control specialist Tony Bishop grabs a water sample during routine hydrant flushing to check the chlorine level. (Photography by Martin Cherry)

Tennessee-Virginia border. “I pulled his meter, turned around, and said, ‘Boy this is a beautiful view.’ He said, ‘Yes, that’s why I love it here.’ And I said, ‘Well, that’s why you have low water pressure.’”

Over the years, the city has addressed those pressure problems with a series of booster pumps. Proof of how well the system has done can be found in its awards. In 2016, the distribution system

earned an Operational Excellence Award from the American Water Works Association.

The team members running the city’s filtration plant are award winners in their own right. In 2017, they earned a ninth consecutive Directors Award from the Partnership for Safe Water.

Piping issues

When designing for distribution on the tops

of ridges, the goal is to reach a pressure of 45 to 50 psi. The Kingsport system includes about 20 percent galvanized pipe, which fell out of favor with utilities because of corrosion issues. Another 20 percent of the pipe is cast iron, laid in 1929 when the system was started.

“We did a master plan a few years ago to identify areas where that pipe needs replacing,” Austin says. “We based our work on what our field staff found and also on issues reported by our customers. We try to take care of those in as timely a manner as possible. If there is a water-quality or flow issue, we move on those right away.”

Although the team has discussed the advantage of having alternate paths to feed water through the system, that’s not possible because of the topography. Elevation at the filtration plant is 1,286 feet, and the highest point in the system is 2,020 feet. “That’s why we have so many pressure zones,” Austin says.

The system’s 15 zones include a main pressure zone with five water tanks to serve the central city. Six main pumping stations are outside the city limits. In some cases, water must pass through three or four main stations to reach the far ends of the system.



PROFILE: Water Distribution System, Kingsport, Tennessee

BUILT:
1929

POPULATION SERVED:
102,000

SERVICE AREA:
120 square miles

EMPLOYEES:
77 (water distribution and wastewater collection)

SOURCE WATER:
South Fork of the Holston River

SYSTEM STORAGE:
19 million gallons

DISTRIBUTION:
847 miles of water mains

ANNUAL BUDGET:
\$4.4 million (distribution operations)

WEBSITE:
www.kingsporttn.gov

“We had one customer who moved here from a northern state and complained about low water pressure. I pulled his meter, turned around, and said, ‘Boy this is a beautiful view.’ He said, ‘Yes, that’s why I love it here.’ And I said, ‘Well, that’s why you have low water pressure.’”

Chad Austin

Team approach

If a larger line has problems, the city has seven maintenance crews available, but Austin could not recall any major problems. There are enough interconnections to keep outages manageable. A big outage affects 200 to 300 people. With digital maps available on the technicians’ tablets, they can see where all the valves are and figure out which need to be closed to isolate a break and keep the size of an outage down.

Along with its main pumps, the system has 21 booster pumps. Main pump stations vary from 7.5 to 350 hp; most are in the 40 to 50 hp range. Booster pumps are typically 3 to 5 hp. In Austin’s 17 years with the utility, technicians have replaced about half of the booster pumps. Each time a station was replaced, engineers adjusted the design and, in some cases, the location to equalize the pressure through the zone.

Only two tanks are elevated to create head pressure. The rest are standpipes on the ridges; some of those also have booster pumps to supply water to buildings along the ridge. Tanks were sited to take advantage of gravity. There have been discussions about new tanks, but no one wants to give up land for them. Instead, the water team looks for operational efficiencies to eliminate the need for new tanks.

“Pressure is low along the ridges and high in the valleys,” Austin says. “One of the other challenges came in the late 1980s and early 1990s when we took over some smaller utilities and combined all the operations under one organization.”

Detecting leaks

One strategy for managing pressure is a continual search for leaks. When the city switched to an automated meter-reading system in 2008 and 2009, it also installed about 4,500 leak detectors. “So they’re sitting out there on services and turn on between 2 and 3 a.m.,” Austin says. “They listen for the sound of a leak. When the technician who’s reading meters drives through the area, the leak detector information downloads to his iPad along with the meter readings.

“A lot of our leaks don’t necessarily come up to the ground because we have a lot of karst geology.

(continued)



Distribution Specialist Jason Brooks (foreground) and utilities location specialist Russell Watterson work to find a leak in a waterline.



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A Kingsport Water Service worker connects a valve on a new AVK water meter.

We've had several 6- and 8-inch lines break all the way through and not a drop of water came to the surface. We had to spot the pressure drop and then go look for them." In one case, the customers having problems were more than a mile from the break.

Two employees survey for leaks in areas that have not been checked recently. "That helps us define some leaks that otherwise we wouldn't have known about," Austin says. "And it helps us be proactive because in other places, citizens have been very upset about the size of water losses they pay for."

Preventing contamination

The city also implemented a cross-contamination program before Austin arrived, and in 2009, it won an award from the Tennessee Backflow Prevention Association.

Every customer is surveyed to determine what is present — swimming pools, water softeners, irrigation lines and other features — and how great a cross-contamination risk each presents.

(continued)

TECHNOLOGY IN THE FIELD

Since 2014, water distribution technicians in Kingsport, Tennessee, have used iPad tablets to help manage the system. Before that, digital maps were available through the city's GIS but were not accessible to technicians in the field.

"We manage all our work through iPads," says Chad Austin, P.E., who manages the water distribution system. "If something is broken, a technician does a request that is tagged with the name of that asset. In the office, we can use that information to do reports and look at, for example, how often we have fixed a section of line."

If a line is breaking often, it is moved up on the replacement schedule. Technicians are not limited to looking at waterlines. They can also see sewer and stormwater lines on iPad maps. It helps them understand the whole system so they can operate it better, Austin says. Also on the iPads are lists of what equipment is designated for a job, which people are assigned, their hours, and a material list.

Repair crew leaders carry the iPads and go out with technicians who read meters so they can see, for example, where service has been turned off. "I can open the software and see the status of any request," Austin says. The Cartegraph operations management system on the iPads and office computers links to the city's GIS system. Changes made to a map in one system are automatically updated on the other.

A few valves in the Kingsport system can be controlled from an iPad, but most are still manual. Also linked to the iPads are some pressure-reducing and flow-sensing equipment. Kingsport is working on an improvement plan from the Partnership for Safe Water. For the phases that require good recordkeeping and data analysis, the iPads will be helpful.



The Kingsport crew excavates a leaking waterline to make a repair.



A water meter vault is lifted from a boom truck to be set in place at a new construction site.

Kingsport is home to industries that include a paper mill, military ammunition plant and chemical plant. If there is a risk, technicians check to ensure that backflow preventers are installed.

The initiative started a couple of decades ago after an incident involving a trucking company that had a wash bay with a sump. The hose used to wash the trucks was lying in the sump one day when a waterline broke, and some of the oily, soapy wash water was sucked into the lines. Backflow preventers are tested annually. At the same time, a technician does another survey to find out whether anything has changed. New customers are surveyed when the tap is installed.

Looking for new customers

Kingsport has extra capacity in its filtration plant and has a tool to attract industries. The chemical plant is just downstream of the water system intake on the South Fork of the Holston River. Founded in 1920, the chemical plant makes products found in paint, adhesives, textiles, sports-drink bottles, pharmaceuticals, medical devices and other goods. The chemical plant has its own water intake for production processes and fire control, but potable water for employees comes from the city. The chemical plant accounts for about 15 percent of the system's average daily production of 15 mgd.

"We want industries, especially if they use a lot of water," Austin says. "With our system spread out the way it is, we can't put a plant anywhere because we simply could not push enough water into some of those pressure zones. But there are good spots where a company would do well in proximity to our larger lines."

The technical staff is a mix of ages and experience. About 30 years ago, the city hired a number of people, and in the past few years, several of them have retired. Austin's section, which includes water and sewer, has 77 people. More than 20 have been with the city for 20 years or more. The same number have been on the team for fewer than five years.

The Kingsport team has a good handle on its system, but that isn't enough. They're working on data collection and analysis as part of the Partnership for Safe Water program. It will help Kingsport better handle all those ups and downs.



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	Bulldog	Cleaning grease, roots, deposits, etc.	8" - 24"	50 to 120	2,000 - 2,900	17 lbs.	7	6	1" - 1 1/4"
	Rotodril	Cleaning blocked pipes, frozen pipes, heavy debris	2" - 14"	13 to 80	2,000 - 4,000	0.25 lbs. to 1.5 lbs.	1	6	1/2" - 1"
	Grenade	Flushing heavy debris	6" - 12"	40 to 80	2,000 - 3,600	11 lbs.		10	1"
	Chisel 60.100L	Penetrating clogs, root masses, frozen pipes	6" - 16"	50 to 80	2,000 - 3,600	6 lbs.	4	6	1"
	10.125TR Chain Scraper	Root removal, hard grease, hard deposits	5" - 12"	14 to 80	2,000 - 3,600	6 lbs.		6	1"
	10.200R Rotating Chain Scraper	Removal of root masses, clogs, hard deposits	8" - 16"	50 to 80	2,000 - 3,600	78 lbs.		6	1"
	10.400R Rotating Chain Scraper	Removal of root masses, clogs, hard deposits	16" - 32"	80 to 120	2,000 - 3,600	105 lbs.		6	1"
	14.200 Milling Cutter	Removal of concrete & mineral deposits, dropped liners	8"	80 to 120	2,000 - 2,200	70 lbs.		6	1" - 1 1/4"
	Bulldozer 50.100G	Flushing debris from large pipe	16" - 40"	40 to 80	2,000 - 3,600	57 lbs.	1	8	1"
General PIPE CLEANERS General Pipe Cleaners 1101 Thompson Ave. McKees Rocks, PA 15136 800-245-6200 412-771-6300 www.drainbrain.com info@drainbrain.com	Chisel Point Nozzle	Penetrating, breaking up debris	4" - 10"	12	2,500	4 oz.	4	6	1/2"
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	HAMMERHEAD™	High performance sewer cleaning or storm water cleaning	6" - 12"	5 to 80	400 - 4,000	4 lbs.		4	1/2" - 3/4" - 1"
	Multi-Global Nozzle™	Sewer and pipe cleaning for penetration	2" and Up	4 to 170	400 - 4,000	2 lbs.	4	6	1/2" - 3/4" - 1" - 1 1/4"
	JAWS®	High performance sewer and pipe cleaning heavy debris	6" - 30"	30 to 265	400 - 4,000	7 lbs.		5	1/2" - 3/4" - 1" - 1 1/4"
	IceBear Penetrating Nozzle™	Sewer and pipe cleaning penetrating nozzle	1" and Up	4 to 170	400 - 4,000	1 - 3 lbs.	3		1/4" - 1/2" - 3/4" - 1" - 1 1/4" - 1 1/2"
	C-RAY 200™	Bottom cleaning for sewer and pipe	12" - 36"	30 to 265	400 - 4,000	22 lbs.	1	6	1/2"
	C-RAY 400™	Bottom cleaning for sewer and pipe	15" and Up	40 to 350	400 - 4,000	42 lbs.	1	8	3/4" - 1" - 1 1/4" - 1 1/2"
	BL Swiper™ (large)	Ventura effect type nozzle to clean with water in the line and sucks the water down	15" and Up	40 to 265	400 - 4,000	13 lbs.		39	
	Spinner Nozzles (No rebuilds)	Grease and other obstructions	4" and Up	14 to 350	400 - 4,000	3 - 15 lbs.	2		1/2" - 3/4" - 1" - 1 1/4" - 1 1/2"
	Goblin Grease Eater™	Grease nozzle sewer lines or storm lines	6" and Up	40 to 350	400 - 4,000	12 lbs.	1	10	3/4" - 1" - 1 1/4" - 1 1/2"
	NATAB	Penetration with sewer and pipe cleaning	4" - 12"	5 to 50	400 - 4,000	3 lbs.	1	4	1/2" - 3/4"
	BL Swiper™ (Small)	Helps reduce blown toilets with 1/2" and 3/4" units	4" - 12"	10 to 80	400 - 4,000	2 lbs.		4	1/2" - 3/4"
	MONRO-JET™	Hydro-Excavation	2" - 8"	3 to 20	2,000 - 36,000	2 lbs.	1		1/2"
	ORCA™	Two truck operation at either end of the pipe	15" - 60"	40 to 350	400 - 4,000	15 lbs.		8	3/4" - 1" - 1 1/4" - 1 1/2"
	Missile Nozzle	Heavy duty cleaning with optional front jet	6" - 36"	40 to 265	400 - 4,000	10 lbs.	4	6	3/4" - 1" - 1 1/4" - 1 1/2"
	Golden Nozzle	Recycled water use with our same tube system technology	6" - 36"	40 to 265	400 - 4,000	6 lbs.	1	6	3/4" - 1" - 1 1/4" - 1 1/2"
	C-RAY 800™	Dual truck operation for double the flow for large pipes	36" - 96"	120 to 350	400 - 4,000	50 lbs.		8	3/4" - 1" - 1 1/4" - 1 1/2"

MANUFACTURER	NAME OF NOZZLE	APPLICATION	PIPE DIAMETER	FLOW RATE (GPM)	MAX OPERATING PRESSURE (PSI)	WEIGHT	NUMBER OF AVAILABLE FRONT JETS	NUMBER OF AVAILABLE REAR JETS	HOSE SIZE / CONNECTING THREAD
Sewer Equipment 1590 Dutch Rd. Dixon, IL 61021 888-477-7611 (f) 815-284-0453 www.sewerequipment.com sales@sewerequipment.com See ad page 11	Mini Missile	General Cleaning	3" - 12"	18 to 80	0 - 4,000	5 lbs.	1	3	1/2" - 3/4" - 1"
	Weisel	General Cleaning	3" - 15"	18 to 80	0 - 4,000	2 lbs.	1	8	1/2" - 3/4" - 1"
	Dual Degree	General Cleaning	4" - 18"	18 to 80	0 - 4,000	5		8	1/2" - 3/4" - 1"
	Tri-Star	Penetrating	3" - 24"	18 to 80	0 - 4,000	3	4	6	1/2" - 3/4" - 1"
	Avanti	Penetration - Rotational	3" - 24"	18 to 80	0 - 4,000	4		6	1/2" - 3/4" - 1"
	RDS	Heavy Cleaning	3" - 28"	18 to 150	0 - 4,000	4		6	1/2" - 3/4" - 1" - 1 1/4"
	Mega 3, 5 & 6	Flushing	12" - 120"	18 to 80	0 - 4,000	35		6/7/11	1/2" - 3/4" - 1"
	HW	Flushing	4" - 18"	18 to 55	0 - 4,000	3		8	1/2" - 3/4" - 1"
	Combi	Cutting	4" - 18"	18 to 80	0 - 4,000	6	3	6	1/2" - 3/4" - 1"
	Patriot 1	Root & Grease Cutting	4" - 20"	40 to 80	0 - 3,000	25		5	3/4" - 1"
 SewerProShop LLC 1061 Triad Ct., Ste. 1 Marietta, GA 30062 877-864-9394 470-592-1715 (f) 770-984-2802 www.sewerproshop.com info@sewerproshop.com See ad page 38	General Nozzle	All-around sewer cleaning, prevent. Maint.	4" - 16"	18 to 80	2000 to 4000	1.5 - 9 lbs.	1	8	1/2" - 1"
	Power Pull Nozzle	Mud, Sand, Silt	4" - 12"	18 to 80	2000 to 4000	1.5 - 9 lbs.		8	1/2" - 1 1/4"
	Spear Nozzle	Penetrating Clogs, Root Masses, Frozen Pipe	8" - 24"	50 to 80	2000 to 4000	6.2 lbs.	4	6	3/4" - 1 1/4"
	Emperor Nozzle	Flushing heavy debris from large lines	12" - 32"	80 to 120	2000 to 2500	19.8 lbs.		12	1" - 1 1/4"
	Penetrator Nozzle	Flushing heavy debris in lines with off-set	6" - 16"	50 to 80	2000 to 4000	15.4 lbs.	1	8	3/4" - 1 1/4"
	Stealth Nozzle	Flushing heavy debris	8" - 24"	60 to 80	2000 to 4000	17.6 lbs.		8	3/4" - 1 1/4"
	Raptor Nozzle	Penetrating Clogs, Roots/Grease Masses, Frozen Pipes	4" - 24"	18 to 80	2000 to 4000	2.4 - 5.5 lbs.	3	3 (1/2") 6 (1")	1/2" - 1"
	Big Foot Nozzle	Flushing debris from the floor of large pipes	16" - 48"	40 to 120	2000 to 3600	33 - 56 lbs.		6 to 14	1" - 1 1/4"
	Twister Nozzle	Cleaning grease, roots, mineral deposits	8" - 24"	50 to 120	2000 to 3600	15.4 lbs.	5	4	1" - 1 1/4"
	Milling Cutter	Removal of concrete, tuberculation, failed lines	4" - 20"	60 to 120	2000 to 2500	18 - 44 lbs.	4	4	1" - 1 1/4"
 USB-USA LLC 7565 Owl Creek Dr. Douglasville, GA 30134 844-285-5770 www.usb-usa.com usb-usa@ic@gmail.com See ad page 41	Primus	Grease, Crusts, Light Roots	4" - 24"	18 to 120	2000 - 4,000	2.6, 7.0, 8.3, 20.1	1	3, 4, 5, 6	1/2" - 3/4" - 1" - 1 1/4"
	Rocket 3D	Sand, Silt, Large Debris	4" - 24"	12 to 120	2,000 - 4,000	.6, 2.6, 4.85, 11.4, 44	1	6, 8, 10, 12	1/2" - 3/4" - 1" - 1 1/4" - 1 1/2"
	Pipe Wolf	Total Blockages from Roots, Grease & Other Organic Matter	4" - 24"	14 to 120	2,000 - 4,000	2.4, 5.7, 11.9		6	1/2" - 3/4" - 1" - 1 1/4"
	Bagger Max	Sand, Silt, Solids, Sludge & Other Heavy Debris	18" - 96"	50 to 120	2,000 - 3,000	33, 53, 66, 114.5	5	6, 8, 10, 12	3/4" - 1" - 1 1/4" - 1 1/2"
	Chisel	Total Blockages from Roots, Grease, etc.	2" - 15"	8 to 120	2,000 - 4,000	.22, .33, .66, 1.54	4		1/4" - 3/8" - 1/2" - 3/4" - 1" - 1 1/4"
	Forward Spray	Total Blockages from Roots, Grease & Other Obstructions	2" - 15"	8 to 80	2,000 - 4,000	.22, .44, .66, 1.54, 3.7	4	6, 5, 6, 8	1/4" - 3/8" - 1/2" - 3/4" - 1"
	Triple J	Mud, Sand, Silt - Everyday Cleaning	4" - 48"	60 to 120	2,000	4.8, 12.1, 17.6, 23.1, 44		12, 15	1" - 1 1/4"
	FD 2	Half-Open or Complete Open Drains - Mud, Sand, Silt	4" - 12"	14 to 120	2,000 - 4,000	2.6, 4, 8.3, 14.3		6, 8	1/2" - 3/4" - 1" - 1 1/4"
	3D Extreme	Mud, Sand, Silt	6" - 15"	40 to 120	2,000 - 3,000	9.4	1	8	3/4" - 1" - 1 1/4"
	3D Cleaning	Everyday Cleaning - Sand, Mud, Silt, Grease	4" - 15"	14	2,000 - 4,000	.6, 12.1, 17.6, 23.1	1	6/8/10/12	1/2" - 3/4" - 1" - 1 1/4"

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American Jetter 6908 Pine Grove Rd., Knoxville TN, 37914 866-944-3569 • 865-524-4647 • (f) 865-247-5101 www.americanjetter.com • andy@americanjetter.com See ad page 53	Aqua Mole, StoneAge, Warthog
MTech 7401 First Pl., Cleveland, OH 44146 800-362-0240 • 440-646-0996 • (f) 440-646-9953 www.mtechcompany.com • sales@mtechcompany.com See ad page 53	Warthog, Phantom Grenade, Advanced Workhorse, StoneAge, UEMSI, Spider Root Cutter
 Water Cannon Inc. 4300 W Lake Mary Blvd., Units 1010-424, Lake Mary, FL 32746 800-333-9274 • (f) 888-928-9274 www.watercannon.com • sales@watercannon.com See ad page 53	Aqua-Nozzle, Arzino, Canin, Carnia, Fara, Isonzo, Raut, Natisone, Piave, Rotor Spin, Tremol, Turbo Avian

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7 WAYS TO COMMIT TO WORKPLACE SAFETY

Creating a culture of safety shows employees and customers that they are your true priority

By Amanda Clark

Safety is paramount. Whether your role is behind a desk or in the field, it's critical to do everything in your power to keep employees protected from accident and injury.

The best way to do this is to make safety a part of your culture. In other words, safety shouldn't be its own department, separate from your other endeavors. It should be woven into everything your company touches. It should be something all of your employees are aware of.

How can you turn your workplace into one with a culture focused on safety? Here are a few guidelines.

1. Tie safety to service

The primary mission of your utility is to serve customers in the most effective way possible, and that means keeping rates low and quality high. Workplace injuries can compromise both of these goals: They lead to waste, drive up prices, and can impair the quality of services you offer. Remind everyone on your team that safety is a boon to the customers as much as the employees.

Ask for insights and opinions from your team, and listen to what they tell you. Creating a culture of safety will require their buy-in.

2. Make it an investment

In keeping with the previous point, remember that safety is an investment — something that can reduce waste and increase efficiency over time. As such, it may be worthwhile to put some money into safety on the front end by bringing in safety instructors or replacing unsafe equipment with something more secure. These safety investments will pay for themselves over time.

3. Make good use of technology

You might be amazed by the number of online training courses you can find to school your employees in safety standards at a minimal cost. Make sure you use online resources to your full advantage. Additionally, there are a variety of programs that can track safety initiatives and will help

guide you to becoming efficient and effective in this area. Don't try to go at safety alone — use whatever enhanced resources are available to you to make the process easier overall. There could even be added perks offered by your insurance company if you implement some of these tools in your utility.

4. Solicit feedback from your team

Do the members of your team have specific safety concerns or parts of the job that worry them? You won't know unless you ask them. Ask for insights and opinions from your team, and listen to what they tell you. Creating a culture of safety will require their buy-in. Moreover, you are likely to create renewed loyalty and appreciation when your employees realize that you have their best interests at heart.

5. Pay attention to industry standards

Look at how the best utilities and companies handle safety efforts. Engage in research, and think about asking for mentorship pertaining to best practices and techniques. Take notes from them, and implement strategies that seem to get good results.

6. Seek help from a consultant

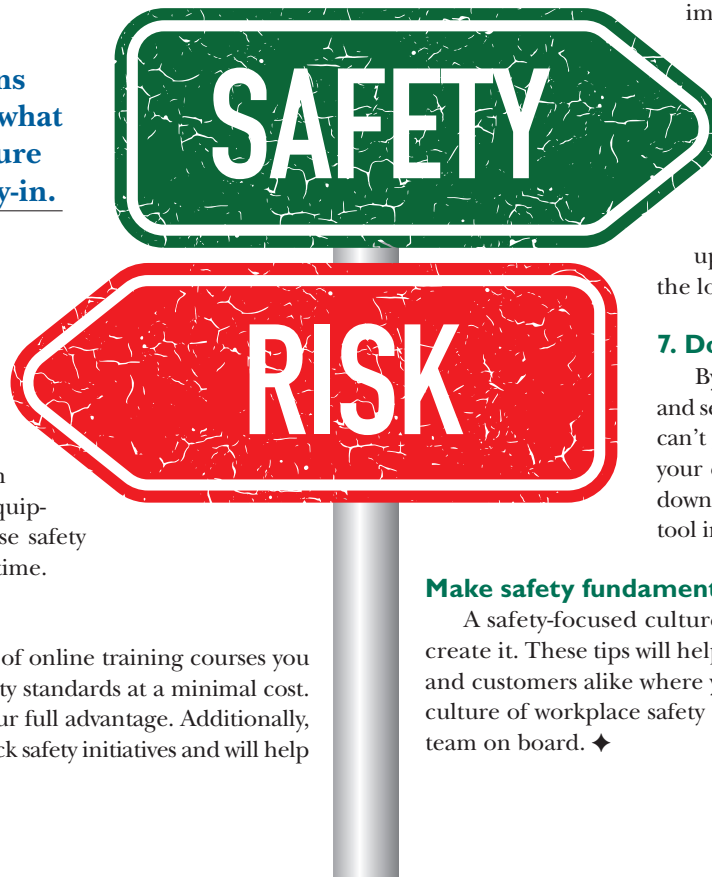
Again, it's an investment — but bringing in a safety expert can be a really smart one if you have serious concerns about workplace accidents. Yes, there is an upfront cost, but the benefits can pay off in the long run.

7. Do right by your employees

By thinking of your team members as a family and seeking what's in their best interests, you really can't go wrong. Plus, this sort of involvement with your employees rarely goes unnoticed. Doubling down on safe work conditions can be a powerful tool in employee retention and overall morale.

Make safety fundamental

A safety-focused culture doesn't happen on its own; you have to create it. These tips will help you do just that and show your employees and customers alike where your true priorities fall. Start building your culture of workplace safety today, and be sure to get everyone on your team on board. ♦





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MAXIMIZING INSPECTION DATA

Asset management system ties old and new together in a comprehensive web-based platform

By Luke Laggis

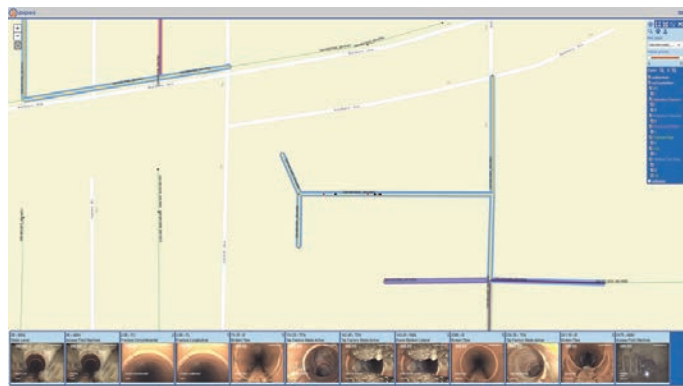
Proper asset management is a critical element of good system management. Understanding what's in the ground, its condition, and where it lies makes planning more efficient and effective and maintenance easier.

The right system can improve your operations, as well as your system. *Municipal Sewer & Water* recently spoke with Cori Criss of ITpipes about the latest version of its platform, ITpipes Web.

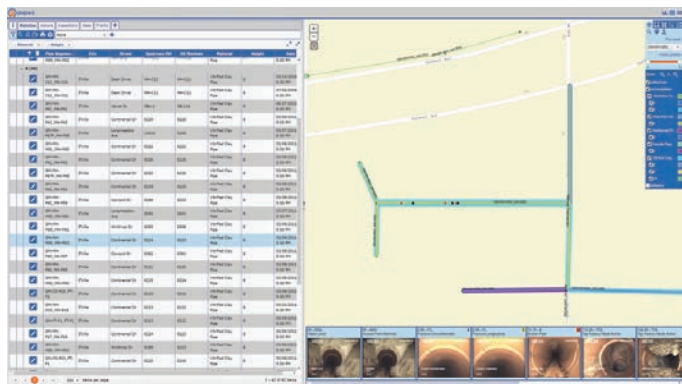
MSW: What was the philosophy behind the development of ITpipes Web?

Criss: Our goal was to improve inspection access for users anytime, anywhere, on any device and provide powerful, proactive pipeline system management with mapping collaboration.

That sounds cliché, but ITpipes has always been a second-generation software buyer's product, so most ITpipes users already had some



The instant map collaboration with ITpipes Web simplifies planning and prioritization. When a project is ready to go, a user can export or share all associated inspection info on the assets to a URL or flash drive.



other inspection software that wasn't working with their business processes. With ITpipes, we make a highly configurable platform that has exceptional behind-the-scenes support and service.

MSW: Can you give me an overview of the system's capabilities?

Criss: With the ITpipes Web browser-based application, setup for users and inspection access are much faster. Once initial on-premise, local hosting, or ITpipes Cloud managed hosting is set up, clients can access their inspections easily on any device with a web browser.

The Sync tool in ITpipes Web manages incoming inspections and outgoing work assignments with integration to asset management and other systems. Sync gives the options to move GIS attribute data, scheduling details,

inspection condition assessment information, and all related media such as snapshots, videos, stitched imagery 360 files, Panoramio files, etc. All efforts for data management can be done via an internet connection.

ITpipes Web has unparalleled reporting features with instant map collaboration. Planning and prioritizing has never been simpler. When a project is ready to go, a user can export or share all associated inspection info on the assets to a URL or flash drive. This feature simplifies the process and saves time.

SmartTabs can be used for a variety of functions. From an engineering standpoint, simply viewing in a list and on the map shows which lines are planned for rehab, repair, or still need an action plan defined. Visualizing

defects plotted onto a pipeline with color-coding based on severity simplifies determining what structural plan is necessary for a specific pipe or set of pipes. This also helps with reviewing downstream pipes. And, if a project is for a specific area, engineers can easily review all pipes below the upcoming infrastructure project by just highlighting the area on the map.

From a field standpoint, users can easily determine their location and nearby assets. With that information, reviewing inspections for nearby assets can be done in seconds on a smartphone or tablet. Smooth, streaming video is viewed easily on smartphones over a broadband connection.

“With ITpipes Web, it takes seconds for a user to see a report of all lines that have a specific severity ranking. This means that before they even start their review of inspections, they have narrowed down the list of assets to review.”

Cori Criss

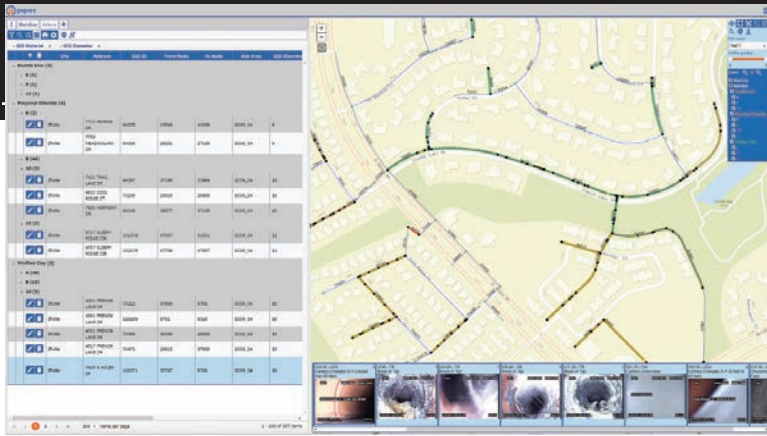
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APPLICATION:
Understanding what's in the ground, its condition, and where it lies makes planning more efficient and effective and maintenance easier

BENEFITS:
Proper asset management



SmartTabs in ITpipes Web can be used for a variety of functions. Viewing in a list and on the map shows which lines are planned for rehab, repair, or still need an action plan defined. Visualizing defects plotted onto a pipeline with color-coding based on severity simplifies determining what structural plan is necessary for a specific pipe or set of pipes.

MSW: What differentiates ITpipes Web from other versions of ITpipes, and how is it different from the competition?

Criss: ITpipes works with all inspection hardware types and is manufacturer neutral. If you are doing CCTV/video, 360 video, acoustic, inclination, laser, sonar, etc., the platform can be configured to hold all that different condition assessment data. This means all your pipeline system information is in a single system. When it comes to manufacturers, we have hundreds of clients using CUES, RapidView, R.S. Technical Services, Aries Industries, Cobra (Trio Vision) and EnviroSight/iPEK equipment daily. With the computer hardware, we avoid proprietary hardware setups such as hardware overlays by using a software overlay setup and avoiding special video encoding boards, even offering software-based H.264/MPEG 4 recording.

Our support and service is unparalleled. Our support team and development team work closely together and are primarily based out of the same office. The clients that we've upgraded from other systems are blown away by the knowledge and responsiveness of our team. Our existing clients are just as happy with our online and telephone options for support with the new knowledge base offering updated articles weekly.

Powerful reporting allows for unlimited, drill-down filtering. The fact that it ties instantly to maps is essential in pointing out competitive differences. Sharing single inspections or inspections as projects is also key. The time required to do this has gone from months to minutes or hours, which is huge.

MSW: What are the advantages of a web-based platform?

Criss: From an administrative standpoint, a web-based platform simplifies hosting (if not hosted on-premise), enables clients to easily scale licensing as it needs to be changed, and expedites deployment to new users. From a user standpoint, access to inspections is streamlined as users can log on to any device

with a web browser, anywhere, anytime; users no longer need to go to their desk and log in or find a dongle from another user.

Many utilities can't wait weeks or months for expensive or time-intensive deployments. With ITpipes Web, deployment is on one server or our ITpipes Cloud. Connection to GIS maps takes minutes, and users are up and going in hours versus weeks or months. The most time-consuming implementation piece is often cleaning up legacy inspections from the client's older software.

(continued)



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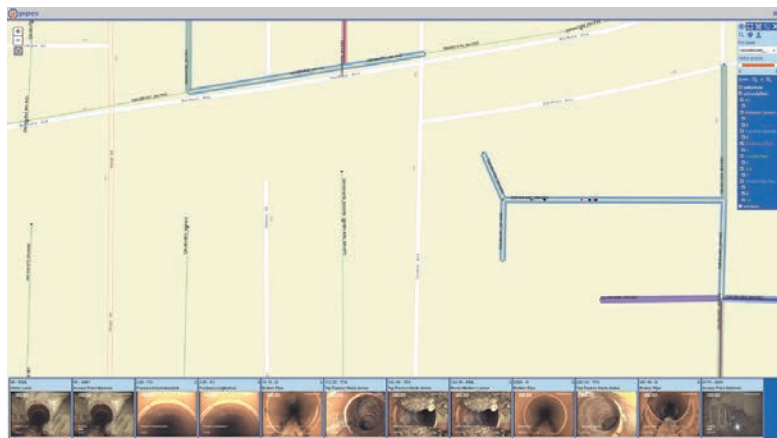
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With ITpipes Web “software as a service,” clients now have the flexibility to eliminate or minimize not only a capital expenditure, but also decrease ongoing needs for personnel to perform maintenance and support, network monitoring, management tools, and more.

Clients historically often made large capital expenditures to get up and running, and the technology they bought immediately began to age. With ITpipes Web, clients always have the latest release, as well as the ability to try before they buy.

With ITpipes Web, either ITpipes or a utility information technology administrator installs any updates once on a server and they are applied for all users immediately.

From a client perspective, going with SaaS ensures your vendor is going to be responsive, as they now have an ongoing commitment to your utility.

MSW: What are some of the specific capabilities that can improve operations for a typical utility?

Criss: The first is sharing: To share an inspection, a user can simply send a hyperlink — this takes seconds — and the receiving user sees comprehensive inspection details right in their web browser. There is no install setup or admin time required. ITpipes gives access to any approved user. And because this is browser based, this means it can be used from a phone, tablet or PC.

Reporting/project planning: It could take weeks for a utility to organize a project, rehab or repair. With ITpipes Web, it takes seconds for a user to see a report of all lines that have a specific severity ranking. This means that before they even start their review of inspections, they have narrowed down the list of assets to review. Then every line reviewed gets a pipe plan, such as repair, rehab, replace or retelevise. The lines that have a status for repair or rehab can then be compared on screen or refined. The report has a matching map and the comprehensive inspection info all in one place. This is displayed beside and “behind” the list, so a user can drill down for detail at any time. When the list is ready, a couple clicks can create a hard drive or a URL with all the inspection information in an easy-to-use viewer. The bidders receive the viewer via a hyperlink URL and can view the pipes that need rehabbing, seeing all the comprehensive inspection details on screen, and appropriately respond.

Deliverables: Utilities can get contractor submittals on a consistent basis. Often a utility waited until the end of a contractor’s project to receive all inspections. That meant the utility then had thousands of linear feet to review at one time and approve so the contractor could close out the project. With ITpipes Web and Sync, contractors using ITpipes or other software can be set up to sync info into ITpipes Web. Quality reviews can be done regularly and consistently. And the contractor information is included as soon as the inspection is done, so if any planning or prioritizing is happen-

ing now, the inspections are already available.

MSW: How is information coordinated with GIS applications?

Criss: ITpipes Web works with any Esri web map. Setup takes minutes and ties the Esri account or URL into ITpipes Web, so the map collaboration is constant.

A user selects an area on the map and can see related inspections, then selects a report to see pipes that have specific criteria, and the map highlights those lines immediately.

Users can even plot individual defects or observations to easily determine pipe repair or rehab needs.

Even above-ground projects are improved with the GIS mapping integration. For example, on a street repair project, a user can select the streets to be repaired on the map and immediately visualize any problems in the pipes below ground.

MSW: How will this help utilities prioritize and make decisions?

Criss: ITpipes works with any ranking system, and many clients configure ITpipes to have a unique prioritization system they prefer.

Prioritizing can be done either in SmartTabs with unlimited filtering and grouping or on the map with location-based filtering. Color-coding and grouping of pipes by priority level shows immediately which pipes need maintenance or structural work.

Prioritization is immediately visible with color-coding on the map. So, for example, all pipes with an overall pipeline ranking of 100 can display in red and the SmartTab matches, showing pipe asset information such as material, length, review status, or other details. The user can then categorize all those assets to see with color-coding the pipes with the 100-plus ranking and pipes that have an expected failure date within the next five years. Based on that, a user can select those same assets with a single click and begin review, assign work, and put the asset details into a spreadsheet software or export into an ITpipes viewer for sharing all the condition assessment details with other users online.

MSW: Walk me through the setup for a typical utility.

Criss: ITpipes Web is generally set up via an ITpipes implementer. Our project manager works with the salesperson and client to confirm all details of the clients’ business process and ensures ITpipes will fit into that smoothly.

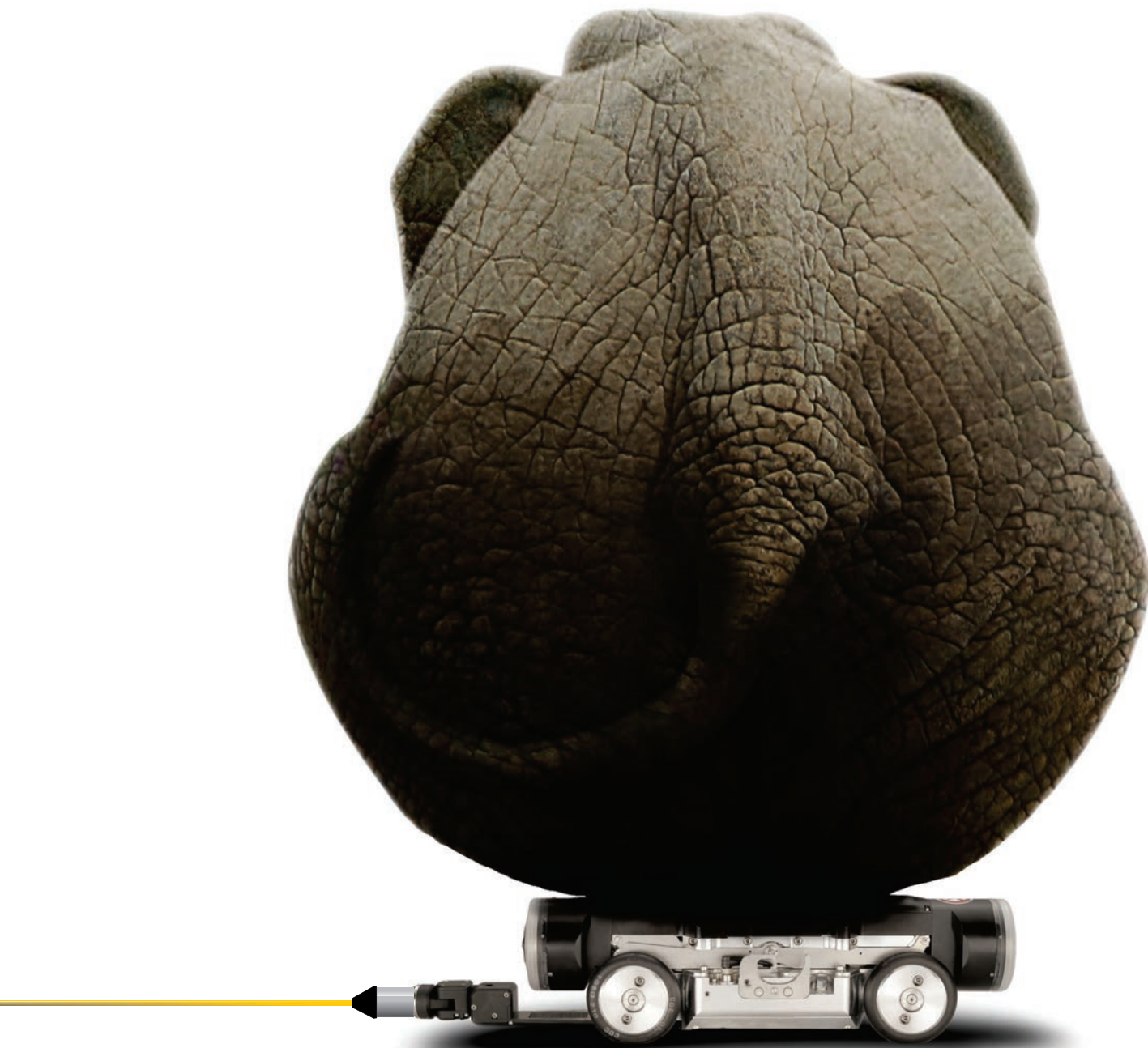
Once we have the details of the planned implementation, we then look at legacy inspections. Clients often have multiple databases, inspections on different hard drives or media, and separate inspection projects from different sources. We combine all those into one and review sample reports with the client. This confirms the client will not only get the reports they want eventually, but can also start using ITpipes for decision-making immediately with their old inspections.

MSW: What sort of technical support is provided?

Criss: ITpipes pioneered implementing inspection software versus just selling a software. This is key as clients are up and using ITpipes utility-wide from the beginning. Our project managers ensure initial implementation is organized, stakeholders are kept informed, and the project progresses quickly.

We provide remote support via telephone and online remote control. This is critical for field users if problems arise in urgent or environmentally sensitive situations. If you have a highway blocked off for traffic control or residents coming up to you, ITpipes provides answers quickly.

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Collection
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THE INDUSTRY'S MANUAL

NASSCO releases updated Manual of Practice — your guide to collections systems

By the executive director

Originally launched nearly 25 years ago, NASSCO's Manual of Practice is a useful guide designed to provide contractors, system owners and engineers with practical information on all aspects of a collections system. It is also extremely useful for young professionals and laborers entering the industry.

After several months of industry expert evaluation and comprehensive peer review, the manual will be available this summer in an updated format to better address topics in asset management, inspection, risk management, flow monitoring, pipe failure prevention, sustainable pipeline systems, bidding, and specifications, as well as repair, rehabilitation, and replacement methods using trenchless technologies.

The updated Manual of Practice will include a detailed explanation pertaining to the growing need to properly manage collections systems, providing a solid guideline to help clearly communicate to a variety of

audiences the importance of proper asset management.

Chapter 1 provides information regarding the need to effectively manage collections systems and the approach toward making pipe systems sustainable. Chapter 2 of the updated manual focuses on condition assessment and provides detail on all visual inspection technologies, as well as alternative technologies (nonvisual). The chapter also provides brief explanations of the Pipeline Assessment Certification Program, Manhole Assessment Certification Program and Lateral Assessment Certification Program, as well as methodologies for condition grading.

Rehabilitation, repair and replacement alternatives are addressed in Chapter 3 of the updated manual, which provides information on all trenchless technologies available to address failing systems.

Please check www.nassco.org for the release of the updated manual. ♦

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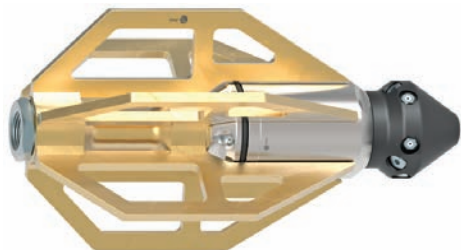
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HYDROEXCAVATION AND INDUSTRIAL JET/VAC SERVICES

By Craig Mandli



Vac-Tron Equipment CS 1270



Enz USA golden jet Bulldog



Ditch Witch Air Saber



Hi-Vac X-Vac X-13



Hurco Technologies hydroexcavation vacuums

HAZARDOUS TRUCK/TRAILER

Vac-Tron Equipment CS 1270

The **CS 1270** trailer vac from **Vac-Tron Equipment** comes standard with a 1,200-gallon debris tank and 580 or 1,000 cfm. It is also available with a hydraulic-operated opening and locking rear door, wet/dry filtration cyclone, 30 feet of 3-inch suction hose and tool, and a 27 or 37 hp Kohler gas engine. Options include a 24 hp Kohler diesel engine and reverse pressure. It is ideal for drill slurry cleanup, as well as other projects that call for slurry removal. With the optional reverse pressure, the user can collect the slurry, transport it, and off-load it into another container or simply open the rear door and dump the material quickly. **888-822-8766; www.vactron.com.**

HYDROEXCAVATION EQUIPMENT AND SUPPLIES

Ditch Witch Air Saber

Rated for operation at 250 psi, the **Ditch Witch Air Saber** empowers operators to dig faster and more efficiently on a variety of utility installation projects. Its innovative design increases airflow for users while maintaining safe operation. A spring-lock, quick-connection system prevents the air hose from inadvertent separation, supporting project safety, while the body is constructed from nonconductive material, also improving operator safety. The ergonomic, full-hand squeeze trigger is comfortable and easy to use. It is compatible with the FXT Air series along with other air excavator models on the market. **800-654-6481; www.ditchwitch.com.**

Enz USA golden jet Bulldog

The **golden jet Bulldog** rotating nozzle from **Enz USA** was designed for operation with both recycled water and freshwater. An integrated oil-free braking system results in a low wear-and-tear operation and in controlled numbers of rotation. It makes for easy cleaning of root intrusions, grease, solids and heavy debris. It is available in 1/2- through 1 1/4-inch connecting threads and can be used to clean pipe diameters ranging from 1/2 to 36 inches, depending on the nozzle and skid specification. **877-369-8721; www.enzusainc.com.**

Hi-Vac X-Vac X-13

The **X-Vac X-13** hydroexcavator from **Hi-Vac** has a 27-inch Hg, high-capacity vacuum system; a 10 gpm at 2,500 psi triplex water pump; a top-loading, 360-degree boom; polygraphite, rust-free water tanks; a power transfer with OMSI heavy-duty transfer case design; and a noise-deadening, heat-retaining enclosure that surrounds both the water system and the vacuum system. It can carry up to 23,000 pounds, and it can transport and dump debris on site. **800-752-2400; www.hi-vac.com.**

Hurco Technologies hydroexcavation vacuums

The 250- and 550-gallon hydroexcavation vacuums from **Hurco Technologies** use quality components to provide maximum performance in a compact trailer or skid. They are ideal for smaller jobs to avoid needing to pull large vacuum units from other projects and for accessing delicate terrains or tight areas, such as golf courses and parks. The fully opening hydraulically powered door allows for easy cleaning, and the fixed-angle tank eliminates numerous maintenance and wear issues that arise with hydraulic-lift tanks. **800-888-1436; www.hurcotech.com.**



Hydra-Flex Ripsaw



NozzTeq MONRO-JET



McLaughlin Vermeer ECO75



Presvac Systems Hydrovac



Ramvac by Sewer Equipment HX-12

Hydra-Flex Ripsaw

The **Ripsaw** rotating turbo nozzle from **Hydra-Flex** blasts a 0-degree water stream at up to 3,200 psi while rotating at a high speed to provide an 18-degree cone of coverage. Its cone-shaped flow pattern is ideal for potholing applications. The heavy-duty, high-impact nozzles are constructed with stainless steel housings and tungsten carbide wear surfaces to withstand harsh environments and provide long life. Repair kits are available for extended life and lower operating costs. Select from traditional coating (blue) or upgrade to the heavy-duty coating (green), a formulation designed for use in extreme environments. Greater impingement allows users to complete jobs faster or use a smaller nozzle size while getting the same impact as nozzles with higher flow rates. **952-808-3640; www.hydraflexinc.com.**

McLaughlin Vermeer ECO75

The **McLaughlin** midrange **Vermeer ECO75** truck-mounted vacuum excavator has a three-stage cyclonic filtration system, allowing for both wet and dry excavation, as well as a cam-over full-open external hydraulic door. It offers fuel economy and low operating costs. By utilizing a 74 hp DEUTZ auxiliary engine to power the vacuum excavator, contractors see reduced fuel consumption compared to running the vacuum excavator off a 270 hp PTO-driven truck engine. The excavator is available with a 500-, 800- or 1,200-gallon spoils tank. Contractors can customize the system with an optional 5-inch boom, a sewer jetter or air compressor. **800-435-9340; www.mclaughlinunderground.com.**

NozzTeq MONRO-JET

The **MONRO-JET** hydroexcavation nozzle from **NozzTeq** combines the power of a solid-stream pencil jet with the large coverage of a fan jet. Its circular water jet motion generates tremendous power at modest gallons per

minute rates, allowing the operator to move faster whether hydroexcavating, surface cleaning or cleaning sewer lines. It can be used for other types of surface cleaning such as concrete, steel, castings and large surface areas including line removal from runways. It can be modified for internal pipe cleaning of sewers and pipes of all types. An orbital design increases performance at a lower gallons per minute rate and pressures as high as 36,250 psi. **866-620-5915; www.nozzteq.com.**

Presvac Systems Hydrovac

The versatile **Presvac Systems Hydrovac** is designed for cold weather operation with optional full compliance with DOT specifications for collection or transportation of hazardous materials. The high-vacuum blower allows extraction of all types of soils, gravel, rock, clay, water and silt material, with knockout features in the debris tank minimizing carryover. Modular filtration configured to blower size provides blower protection and minimal maintenance. It comes with a heavy-duty, 8-inch boom that extends up to 25 feet, with six-way hydraulic power and wireless controls for all boom functions, soft-start water pump, vacuum breaker and truck engine speed. **800-387-7763; www.presvac.com.**

Ramvac by Sewer Equipment HX-12

The **HX-12** hydroexcavator from **Ramvac by Sewer Equipment** has a 12-yard debris tank and a temperature-controlled environmental chamber that contains the entire water system, including water tanks. A directional discharge system allows the operator to off-load debris back into the excavation site when finished, without the mess of dumping the tank. This system also allows operators to blow any obstructions out of the dig hose. It

(continued)



Rival Hydrovac T7



Schwing America VX115 vacuum excavator



Soil Surgeon hydroexcavating tool



StoneAge HXR-300 Rotary Hydro-X



Super Products Mud Dog 1200

includes a long-range wireless remote, NEMA 4 electrical system, a 900,000 Btu water boiler and a three-stage cyclonic filtration system. The standard 4,400 cfm blower delivers fuel economy. It is available with a RamAir air excavation system touting a 185 cfm at 150 psi air compressor for when the operator can't risk adding water to the problem area. **877-735-4640; www.ram-vac.com.**

Rival Hydrovac T7

The **T7** from **Rival Hydrovac** is a road-legal, cost-effective unit engineered to work primarily in urban settings. It offers a 7-cubic-yard debris body, 800 gallons of freshwater storage, and hoist and "pressure off" off-loading capabilities, allowing it to pressure loads into other vessels, vehicles, or tanks in minutes. Its RAPTORLOCK dump door system allows the door to hold a seal under vacuum or pressure without the use of manual wing nuts. It includes a Robuschi USA ROBOX enclosed blower system with quiet operation and 2,650 cfm at full vacuum. It comes with a 12-volt boiler system, 14 gpm water system and full winterization features. Its 6-inch boom offers full rotation and is extendable to 20 feet. An Aarcomm Systems remote system controls the boom, water, and vacuum, and it displays real-time truck weight. A full safety package includes a safety railing atop the truck, engineered D-ring tie-offs, and boom cradle sensors to prevent driving with the boom deployed. **403-550-7997; www.rivalhydrovac.com.**

Schwing America VX115 vacuum excavator

The **VX115** vacuum excavator from **Schwing America** is an all-in-one unit with air and water systems onboard. Roll-off vacuum boxes can be changed out on site while work continues. It offers 115 feet of horizontal and 110 feet of vertical reach, which allows more than 1 acre to be covered from one setup. It is based on a proven four-section, 39-meter roll-and-fold

boom. The VE115 vacuum extension can connect to any vacuum excavator with a minimum 5,000 SCFM positive-displacement blower. High-pressure water and air connections are on the rear of the chassis with plumbing to the boom tip. **888-724-9464; www.schwing.com.**

Soil Surgeon hydroexcavating tool

The **Soil Surgeon** hydroexcavating tool fits any sewer combination truck equipped with a telescoping 6- or 8-inch boom. The tool has a 1-inch water connection. The operator controls water pressure and power-through truck controls. It has a 6-foot Tuff Tube with handles to guide the unit down for potholing or side to side for trenching. Six jets boring inward cut the soil, while six boring outward bring the tube down. **949-363-1401; www.soilurgeoninc.com.**

StoneAge HXR-300 Rotary Hydro-X

The **HXR-300 Rotary Hydro-X** nozzle from **StoneAge** uses an angled rotating jet pattern that's designed to decrease jet dwell time and reduce undercutting for effective work around utilities. Users can save labor hours and heavy-equipment costs, all while avoiding the risk of damage to buried utilities. It is fully rebuildable, allowing the operator to reduce cost of ownership by extending the life of the tool with minimal, low-cost maintenance. There are three jetting options available for a variety of applications: higher flow for harder surfaces, intermediate flow for general use, and lower flow for water savings. It handles pressures up to 5,000 psi and flow rates from 3.5 to 10 gpm. **866-795-1586; www.stoneagetools.com.**

Super Products Mud Dog 1200

The **Mud Dog 1200** 12-yard-debris-capacity hydroexcavator from **Super Products** has a rear-mounted boom capable of a 19- to 27-foot reach,



Supervac Atlas



Suttner America turbo nozzles

335-degree rotation, 45-degree upward and 25-degree downward pivot. This range of boom motion allows crews to achieve greater work area access and deeper digging without halting production to reposition the trunk. Easy-to-use ejector plate unloading technology provides fast, thorough and safe debris removal. A tilt-unloading feature ensures liquids in the debris tank are cleared quickly and efficiently, even when unloading in an up-slope/nose-down position. Options include the Acculevel load-sensor system for precise debris tank level measurement. **800-837-9711; www.superproductsllc.com.**

Supervac Atlas

At 31 1/2 feet, the **Atlas** hydroexcavation trailer from **Supervac** offers the compact versatility of a regular vacuum truck, with a high payload capacity of 49,400 pounds. It is easy to maneuver with its tight turning radius and solves road weight limit issues. It comes equipped with a flashing arrow and LED working light, full-opening rear door, protection arm and LED light, a hydraulic door lock, 3,600-gallon carbon-steel debris tank and baffle, and a catwalk access ladder and handrail. Its six side-mounted and evenly distributed plastic water tanks (three on each side) have a total capacity of 1,500 gallons. It runs off the chassis engine of the tractor being used to haul the trailer. The unit's top-loading boom offers 320-degree rotation, extension of 25 feet, an 8-inch flex hose, top access door and protection elbow. **866-839-5702; www.supervac.co.**

Suttner America turbo nozzles

Turbo nozzles from **Suttner America** are available with 1/2-inch inlets. Made of high-quality, durable brass, they can withstand harsh hydroexcavation environments. The inlet eliminates the need for additional fittings and decreases the possibility of leaking. Stainless steel turbo nozzles provide improved materials (tungsten carbide seat and PEEK rotor), which



Tornado Global Hydrovacs F4 ECOLITE



Transway Systems Terra-Vex HV38

extend life. They are available with flow ratings up to 40 gpm and pressure ratings up to 8,700 psi. Repair kits and protective covers are available. **800-831-0660; www.suttner.com.**

Tornado Global Hydrovacs F4 ECOLITE

The **F4 ECOLITE** from **Tornado Global Hydrovacs** has a 12-cubic-yard mud tank and holds 1,400 gallons of freshwater. This unit is over 7,000 pounds lighter than the company's older models and offers nearly triple the payload. The boom has a 342-degree rotation and a 26-foot reach. The **F3 ECOLITE** is a 10-cubic-yard, 1,200-gallon water tandem-axle unit that also more than doubles older payload capacities. With an 8-inch boom and a 3,800 cfm blower, although smaller, it's still robust and powerful. **877-340-8141; www.tornadotrucks.com.**

Transway Systems Terra-Vex HV38

The **Transway Systems Terra-Vex HV38** has a 12-yard debris tank with onboard scales, which allows a driver to load the tank worry-free. It includes a large debris tank for those light loads, saving time and money, complete with a 26-foot-by-8-inch telescopic boom. It has a simple one-touch-operated hydraulic half-door with a 3,800 cfm at 27 inches Hg hydraulically driven blower. Water pressure is achieved with a hydraulically driven triplex pump, delivering 10 gpm at 3,600 psi from a 1,000-gallon HDPE baffled water tank. The water is heated with a 420,000 Btu diesel-fired burner for cold weather operation. **800-263-4508; www.transwaysystems.com.**

(continued)



For equipment directories visit www.mswmag.com/equipment



Vacall - Gradall Industries
AllExcavate cold weather package



Westtech Vac Systems Wolf



Vector ParaDIGM



Guzzler CL dense phase off-load option

Vacall - Gradall Industries AllExcavate cold weather package

Vacall - Gradall Industries offers a step-in compartment on its AllExcavate hydroexcavators to provide operators with warmth and protection from inclement weather. The standard heated compartment is roomy, with enough space for an operator to change out of wet and muddy boots and clothing. The compartment has floor drainage, racks to hang dry clothing and another rack to store the high-pressure hand gun and extensions. Even larger compartments with extra room are available. Along with new LED lighting, the cold weather package includes extra insulation, heated cabinets for the hose reel and water pumps, and boilers that can heat water for more effective hydroexcavation in frozen ground. **330-339-2211; www.vacall.com.**

Vector ParaDIGM

The **ParaDIGM** vacuum excavator from **Vector** is designed for utility, municipal and contractor customers involved in the installation, maintenance and repair of underground water, sewer, gas, electric and telecommunications lines. This compact, multiuse truck can dig holes with water or air; vacuum, contain, and dispose of drill mud; power pneumatic, hydraulic, or electrical tools; and provide transport and storage of replacement parts, equipment, and tools. The truck's Park-n-Dig design minimizes the time between arriving on the job site and excavation, including the ability to dig up to 6 feet in depth without additional pipe and hose. Its air compressor powers utility tools such as jackhammers and tampers that may be used on the job. The truck offers substantial storage space for these tools, including a long-handle toolbox. It can also tow up to 20,000 pounds. **800-627-3171; www.vactor.com.**

Westtech Vac Systems Wolf

The **Wolf** noncode hydrovac truck from **Westtech Vac Systems** is ideal for oil and gas customers working in extreme conditions. The debris body is positioned on the optimal spot of the chassis to ensure the payload is pro-

portionately distributed across all axles simultaneously, maximizing legal payload for customers and improving operational efficiency. The side-mounted water tanks reduce the weight by more than 40 percent, lowering the overall cost of the truck. The 1,500-gallon capacity ensures ample water storage capacity for large or remote jobs. A top-mounted, no-touch water fill system is easily accessible from the passenger side of the vehicle. The debris body is lifted using a telescoping, dual-acting hydraulic cylinder capable of 36,000 pounds of force. When fully extended, the debris body exceeds a 45-degree dump angle for fast and efficient off-loading. To help the off-loading process, a heavy-duty, hydraulically powered tank vibrator is mounted to the belly of the debris body. **780-955-3030; www.westtechvac.com.**

INDUSTRIAL VACUUM TRUCKS

Guzzler CL dense phase off-load option

The dense phase off-load option for the **Guzzler CL** industrial vacuum loader is ideal for off-loading powders into large silos. Designed to increase value by recovering valuable resources for reuse, the truck features a high-pressure 14.5 psi direct drive cyclo-blower rotary pump with up to 750 cfm of free-air displacement. The system pneumatically conveys material through a 4-inch hose up to 125 feet vertically. The rear of the dense-phase, off-load configuration has a transfer cone with six fluidizing nozzles that fluff material into the airstream for improved material conveyance. The industrial vacuum system operates effectively in remote or inaccessible locations more than 1,000 feet away. It provides accessibility to all internal chambers, with a low air-to-cloth ratio. It is also available with a high-pressure, low airflow vane pump pressure off-load system that is ideal for the vacuum loading of liquids, sludges and thicker materials. **800-627-3171; www.guzzler.com.**



Vac-Con industrial vacuum loader



GapVax MC Series



J. Hvidtved Larsen US RECYcler 208

Vac-Con industrial vacuum loader

The industrial vacuum loader from **Vac-Con** can produce airflows from 4,700 to 6,100 cfm and vacuum as high as 28 inches Hg, depending on the application. It has a 16-cubic-yard debris body capable of vacuuming wet or dry materials. Dual cyclonic bag houses make cleaning and decontamination easy. Filtration is provided by 26 pleated star bags with a final filter capable of HEPA filtration. When vacuuming fine materials, an optional air cannon blasts the filter cartridges to maintain the proper air-to-cloth ratio for optimum conveyance. The air cannon, coupled with the automatic material return system, will efficiently return fines from the bag houses to the debris body. Options include hydroexcavation package. **904-284-4200; www.vac-con.com.**

JET/VAC COMBINATION TRUCKS/TRAILERS

GapVax MC Series

The **MC Series** combination jet/vac from **GapVax** is a wet-only vacuum truck. The debris body ranges from 5 to 12 cubic yards, with a stainless steel version available. The stainless steel water tank can hold up to 2,000 gallons. Vacuum pump options range from 3,500 to 5,000 cfm with up to 27 inches Hg. The unit comes with an 8-foot, front-mounted telescopic boom, reaching 26 feet with a 180-degree rotation. The standard water pump is rated at 80 gpm at 2,000 psi. **888-442-7829; www.gapvax.com.**

J. Hvidtved Larsen US RECYcler 208

The **RECYcler 208** from **J. Hvidtved Larsen US** provides users with increased flexibility and greater area of use by means of a movable partition and by allowing the user to turn off the recycling system when not needed. The compact, powerful unit increases efficiency and production while letting the user get into tight spaces. The system is fully automatic, which enables the user to reduce fuel consumption on a daily basis. It is

mounted on a Kenworth T880 chassis and comes with an 8-cubic-yard tank, a jetting capacity of 54 gpm at 2,320 psi, a CVS VacuStar 1300 vacuum pump, and an URACA P3-15 jetting pump. **312-705-3818; www.hvidtved.com.** ♦

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**MUNICIPAL
SEWER
WATER**

Product Spotlight

Seal transitions and simplify bypass applications

By Craig Mandli

Making a tight seal between two pipes of different diameters can be difficult. That is especially true when those pipes carry fluid that flows at a high speed or may be carrying foreign objects. Multi-Flex Annular Seals from Petersen Products are designed specifically for those situations.

Petersen Products Multi-Flex Annular Seals simply slip over the end of a pipe, creating a seal between an inner bypass pipe and the outer main pipeline. According to Phil Lundman, Petersen Products CEO, the versatile product is a fit for many different applications.

"The Petersen Annular Seal can be quickly manufactured for most size, pressure, temperature and chemical requirements," he says. "The Annular Seal can be used really in any industry that requires a seal between two pipe diameters."

Multi-Flex Annular Seals are designed to be very flexible, be easy to install, and offer many inflation connection options. They are ideal for bypassing a pipeline during repairs on a variety of small to large temporary pipeline connections.

"Customers find the Petersen Annular Seal much easier to install because it is very flexible and lightweight while customizable for almost any project requirement," Lundman says. "It is manufactured from a durable ballistic



nylon-reinforced polyurethane material designed to maintain durability for long periods."

To inflate the seal, it includes an easy-to-access, 1/4-inch NPT port. Using a common air compressor, a technician inflates the seal to a maximum of 25 psi when supported on the outside and inside diameters of the two pipes being joined, creating a watertight, leak-proof barrier.

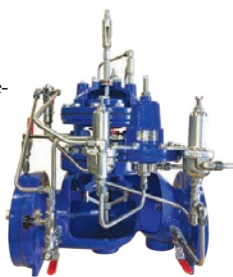
"The product has been on the market for roughly five years after several years of product development," Lundman says. "It's been very well-received in the industry."

As an example of the product's durability, he points to a case where the Annular Seal was employed in the repair of an oil rig tension leg nearly 100 feet below the surface of the Gulf of Mexico. The seal held up to the corrosive saltwater, allowing the technicians to make the necessary repairs.

"Most users of our inflatable seals will not have nearly so much at stake: They won't be contending with 96 feet of saltwater, and the continued performance of an oil platform won't be at risk," Lundman says. "But they will still be used in important, high-pressure situations, and it's good to know the technology has been proven to work well, even when the challenges are extreme." **800-926-1926; www.petersenproducts.com.**

Singer Pressure Management Valve

Singer's 106/206 PGM-2PR-630-SM Pressure Management Valve with integral backup hydraulically manages pressure to reduce water loss, save money and prevent unwanted pressure spikes that contribute to permanent pipe failure. Built on the Singer 106-PGM or 206-PGM main valve, a simple field retrofit is possible using the paddle-style orifice plate. The pressure-reducing pilots independently adjust to suit the optimal downstream pressure. The valve requires no electrical power or independent flow signal, as it takes its signal from the orifice plate installed on the valve inlet. It is available in sizes from 4 to 12 inches with a minimum pressure at the valve inlet of 29 psi. **888-764-7858; www.singervalue.com.**



Milwaukee Rubber Products Kanaflex KanaBoom

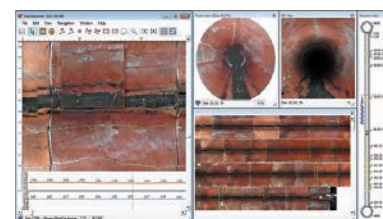
Kanaflex KanaBoom Lite, distributed by Milwaukee Rubber Products, is a medium-duty wet and dry material handling vacuum hose with a static

dissipative polyurethane liner. It is usable in temperatures ranging from 40 degrees below zero to 140 degrees F and is ideal for industrial vacuum equipment, roof vacuuming, dry fertilizer and petroleum coke. It has a flexible, abrasion-resistant polyurethane liner; rigid PVC helix; and smooth bore with a PVC corrugated outside diameter with static dissipating materials. It is lightweight and flexible in sub-zero temperatures. Its abrasive-resistant polyurethane tube that provides an increased life span, prevents material buildup, and provides quiet operation. **800-325-3730; www.milwaukeeerubber.com.**



WinCan ScanExplorer software module

ScanExplorer is a new add-on module for WinCan's VX inspection reporting and management software. It navigates scans for rapid review, measures and annotates defects, and



generates reports at the click of a button. Additional data captured during side scanning, such as inclination and temperature, can be plotted alongside the scan. The module allows users to view side-scans as virtually rendered environments and can do a virtual pan and tilt of the screen. It can also present laser profile data to help visualize pipe ovality and geometric features. **877-626-8386; www.wincan.com.**

Andax Xtreme Shell pipe flange containment system

The Xtreme Shell from Andax is a rigid, two-piece shell designed to fully encapsulate a leaking flange, valve, manifold, or leak point. It diverts the leak via a drain port and discharge line to a secure containment system, allowing for performance of any required maintenance when convenient. It is simple and quick to install, reusable, usable for both indoor and outdoor purposes, UV resistant, and impact resistant to minus 20 degrees F. It handles fluid temperatures up to 200 degrees F. It is compatible with oil, petrochemicals, paint, organic fluids and many other liquids. Leak monitoring can be added for remote locations and can be managed online or on a smartphone. **800-999-1358; www.andax.com.**



CK Power Commercial Portable generator sets

The line of diesel and NG/LP Commercial Portable generator sets from CK Power have a range of 10 to 45 kW. The diesel fueled units meet Tier 4 Final EPA- and California Air Resources Board- certified requirements, and the NG/LP fueled units meet wellhead and pipeline EPA-certified requirements. They come standard with multiple voltage configurations, sound enclosures and custom-configurable power distribution to meet application needs. **855-257-6937; www.ckpower.com.**



Endress+Hauser Field Xpert SMT70 tablet PC

The Field Xpert SMT70 from Endress+Hauser is a rugged tablet PC for commissioning and maintenance staff to manage field instruments and document work progress. It comes installed with DeviceCare configuration software and library, and the tablet supports HART, PROFIBUS DP/PA, FOUNDATION Fieldbus, Modbus, CDI, and Endress+Hauser service interfaces. It can connect to field instrumentation devices directly via a USB or Bluetooth wireless modem, a gateway, remote I/O, or multiplexer to a bus system with one-click connectivity. It comes with an 11.6-inch Multitouch HD display, a 5-megapixel autofocus camera, a 2-megapixel front-facing camera, and up to 256 GB storage. **888-363-7377; www.us.endress.com/smt70.**



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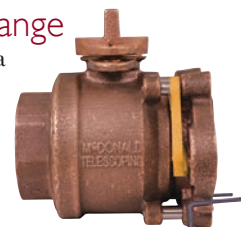
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With a retractable flange that allows for an extra 1/4 inch of room, A.Y. McDonald's Telescoping Meter Flange makes meter installation and replacement easy. Available in 2-inch straight and angle FNPT by flange ball valves, this product also contains two EPDM O-rings that seal the flange to the valve body and four 304 stainless steel shoulder screws that contribute to the robust design. **800-292-2737; www.aymcdonald.com.**



Water Cannon Inc. – MWBE wet sandblasting kit

The wet sandblasting kit from Water Cannon Inc. – MWBE is designed to remove unwanted surface contamination such as rust, scale, loose paint, barnacles and debris. The sand and high-pressure water work together using venturi siphon technology to more safely clean metals, concrete and other similar surfaces. The kit quick-connects to the end of a commercial pressure washer wand and works on 3,000 up to 6,000 psi systems. It automatically draws sand through a 26-foot reinforced, lightweight feed hose using an engineered self-venting pickup tube. The venturi siphon technology eliminates the need for an air-feed system or other heavy and bulky equipment. **800-333-9274; www.watercannon.com.**



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Looking for a new job? Water District Jobs, an online job board, lists dozens of career opportunities in the water and wastewater industry, from water operators to general managers. New openings are posted every day. Visit <http://www.WaterDistrictJobs.com>. (M04)

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Core & Main announces organization changes

Core & Main announced organizational changes to enhance customer value and accelerate company growth. Steve LeClair is the new CEO of the stand-alone entity, formerly HD Supply Waterworks. He will oversee the waterworks and fire protection businesses with over 246 branch locations and 3,000 associates across the country.

In other changes, Jack Schaller has been named president of the waterworks business; Brad Cowles was appointed chief operating officer of Core & Main and president of the fire protection business; and Laura Schneider was promoted to chief human resources officer, with additional responsibility for marketing, communication, and Total Rewards. Mark Witkowski, vice president and chief financial officer, will assume increased responsibility for the information technology department; and Mark Whittenburg, general counsel and secretary, will assume all legal, contractual, and compliance responsibilities.

Felling Trailers names new sales manager

Felling Trailers announced Nathan Uphus as its new sales manager. He joined the company in June of 1999 and progressed through various production and sales positions. Most recently, he was a territory manager in Tennessee, where he helped expand the dealer network in the Southeast. As sales manager, he will relocate back to Minnesota to take an active part in day-to-day operations at the company's Sauk Centre headquarters.



Nathan Uphus

Vanair announces new inside sales and customer service manager

Vanair announced William Lieske as its new inside sales and customer service manager. He comes to Vanair with 17 years' experience in providing customer support for an international inside sales department. Lieske will supervise the company's inside sales and customer service division.



William Lieske

Valley Industries acquires Comet USA

Valley Industries, based in Paynesville, Minnesota, announced it has acquired Comet USA, a distributor of industrial high-pressure plunger pumps and accessories. Comet USA, based in Burnsville, will now be known as Comet Industrial Pump Division.

VersaFlex and Raven Lining Systems merge

VersaFlex and Raven Lining Systems announced that the two companies merged effective Jan. 1, 2018. The new company plans to expand and build on the combined expertise in polyurea, polyurethane, epoxy and cementitious technologies. ♦

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If You Indirectly Purchased Ductile Iron Pipe Fittings between January 11, 2008, and December 31, 2013, You Could Be Affected by a Proposed Class Action Settlement

Please read the entire Notice carefully, as this Settlement may affect your rights.

What Is This Lawsuit About?

Plaintiffs – indirect purchasers of Ductile Iron Pipe Fittings (“DIPF”) between January 11, 2008 and December 31, 2013 – filed a class action lawsuit against Defendants – McWane, Inc., SIGMA Corporation, and Star Pipe Products, Ltd. – claiming that they paid more for DIPF and Domestic DIPF sold by Defendants than they should have because of Defendants’ alleged violations of federal and state antitrust laws and state consumer protection laws. In a class action, one or more persons or entities brings a lawsuit on behalf of everyone harmed in the same way by Defendants’ conduct. An *indirect purchase* is a purchase of DIPF from someone other than the Defendants, such as a distributor or other middleman. Purchases of DIPF made *directly* from one or more of the Defendants are not part of this lawsuit. A more complete description of the claims alleged in the lawsuit can be found at www.DIPFIndirectSettlement.com.

Why Is There A Proposed Settlement With McWane?

Plaintiffs and McWane agreed to the Settlement to avoid the cost and risk of a trial. McWane has denied all liability and wrongdoing in this case and has asserted various defenses to Plaintiffs’ claims. The Court has not decided in favor of the Plaintiffs or McWane.

What Does The Settlement Provide and How Do I Get A Payment?

Under the Settlement, McWane has agreed to pay \$1,425,000 in cash into a Settlement Fund (the “McWane Settlement Fund”). Plaintiffs and class counsel think the McWane Settlement is an excellent result for the members of the class. Plaintiffs have already settled with SIGMA and Star for a combined total of \$2,646,250, and those settlements have been approved by the Court. If the McWane Settlement is also approved by the Court, the settlements will total \$4,071,250, and the DIPF indirect purchaser litigation will be over.

If you are a class member and do not exclude yourself from the McWane Settlement, you may be eligible to receive a payment from the McWane Settlement Fund. To participate in the McWane Settlement, you must submit a valid claim form, available at www.DIPFIndirectSettlement.com. Be sure to sign the claim form and mail it no later than June 27, 2018 to DIPF Indirect Purchaser Antitrust Litigation, c/o GCG, P.O. Box 10251, Dublin, OH 43017-5751. If the Court approves the Settlement, payments from the McWane Settlement Fund will be distributed to class members who submit valid and timely claims. If you have already submitted a valid Claim Form in connection with the SIGMA and Star settlements you do not have to submit another one to receive a payment from the McWane Settlement Fund.

Am I A Class Member?

The Settlement Class includes all persons or entities that reside or have a place of business in the States of Arizona, Arkansas, California, District of Columbia, Florida, Hawaii, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Mississippi, Montana, Nebraska, Nevada, New Hampshire, New Mexico, New York, North Carolina, North Dakota, Oregon, South Carolina, South Dakota, Tennessee, Utah, Vermont, West Virginia, and Wisconsin (the “Settlement Class States”) who or that purchased DIPF indirectly from any Defendant at any time from January 11, 2008, through June 30, 2011 or who or that purchased Domestic DIPF indirectly from McWane or SIGMA at any time from September 17, 2009, through December 31, 2013. Excluded from the Settlement Class are Defendants and their parents, subsidiaries and affiliates, whether or not named as a Defendant in this Action, federal governmental entities, and instrumentalities of the federal government.

“Domestic DIPF” means DIPF that is produced by McWane in the United States and is used in pressurized water and wastewater projects in the United States with domestic-only preferences or specifications. McWane Domestic DIPF was also sold by SIGMA.

Can I Exclude Myself?

If you want to keep the right to sue McWane about the legal issues in this case, then you must exclude yourself from the McWane Settlement Class. **If you exclude yourself from the McWane Settlement Class, you will not get any payment from the McWane Settlement Fund.** To exclude yourself, you must send a letter saying that you want to be excluded. Important instructions about how to exclude yourself can be obtained from www.DIPFIndirectSettlement.com. **Your letter must be postmarked by May 29, 2018.**

How Do I Object?

You may object to any aspect of the McWane Settlement if you are a class member and have not excluded yourself. If you are in either the McWane, SIGMA or Star Settlement Class, you can object to the requests for attorneys’ fees, reimbursement of expenses and service awards for the class representatives (see below). To object, you must send a letter to the Court. Instructions about how to object may be obtained from www.DIPFIndirectSettlement.com. **Your letter must be received by May 23, 2018.**

What If I Do Nothing?

If you do nothing, you will remain in the McWane Settlement Class, your claims against McWane will be extinguished, and you will **not** receive a payment from the Settlement Fund. **To receive a payment, you must send in a valid and timely Claim Form.**

Who Represents Me?

The Court has appointed Joseph C. Kohn of Kohn Swift & Graf, P.C.; Robert S. Kitchenoff of Weinstein Kitchenoff & Asher LLC; and David Kovel of Kirby McInerney, LLP (“Class Counsel”) to represent the Settlement Class for purposes of the McWane Settlement. If you want to be represented by your own lawyer concerning the McWane Settlement, you may hire one at your own expense.

How Will The Lawyers Be Paid?

The lawyers for the indirect purchasers will ask the Court to approve an award of attorneys’ fees of up to 1/3 (33.33%) of the total SIGMA, Star, and McWane Settlement Funds of \$4,071,250. The lawyers have not previously asked the Court to approve an award of attorneys’ fees. The lawyers will also ask the Court for reimbursement of expenses incurred in the prosecution of the lawsuit. The lawyers will also seek service awards in the amount of \$15,000 for each of the eight class representatives. All awards of attorneys’ fees, reimbursement of expenses, and service awards will be paid from the total Settlement Fund after the Court approves them. The request for attorneys’ fees, reimbursement of expenses, and service awards will be available for viewing on the website below once it is filed with the Court.

When Will The Judge Decide?

The Court will hold a fairness hearing at 9:30 a.m. on June 13, 2018, at the United States District Court for the District of New Jersey, 402 East State Street, Trenton, NJ 08608. If there are objections, the Court will consider them at this time. You may appear at the hearing, but you are not required to do so. The hearing may be moved to a different date or time without notice. You should check the Settlement Website below for updates.

This Notice is only a summary. For more information visit www.DIPFIndirectSettlement.com

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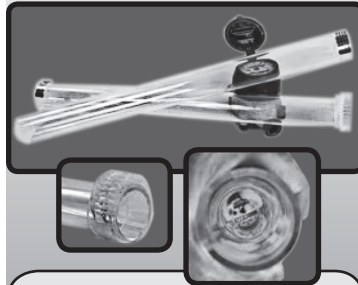
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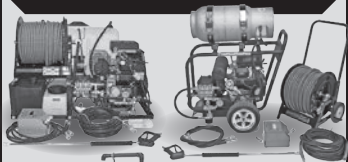
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PEOPLE/AWARDS

A \$200,000 Fund for Lake Michigan grant will support a **Kenosha County (Wisconsin) Parks** wetland restoration project that is set to begin this summer. The Petrifying Springs Park Wetland Restoration is designed to better manage stormwater with the creation of tree islands and shallow wetlands.

Tracy Jones, manager of the Georgetown County (South Carolina) Stormwater Division, was named the county's Manager of the Year for 2017.

The **Pioneer Valley Planning Commission**, which serves Hampden and Hampshire counties in Massachusetts, received a \$50,000 grant from the Baker-Polito administration to help meet the Environmental Protection Agency's stormwater permitting requirements.

Christopher B. Burke Engineering in Illinois promoted three long-serving employees to new roles as assistant department heads: **Bryan Welch** and **Lee Fell** are now assistant department heads of the Civil Design Department, and **Ilene Dailey** is now assistant department head of the Drainage Department.

St. Louis Park's Carpenter Park Stormwater Improvement Project won the Minnesota Erosion Control Association's 2018 Environmental Excellence Award. The project involved installing a large concrete vault below the park's surface to collect stormwater from a 42-acre watershed.

Park Ridge's Prospect Park received an Outstanding Facility and Park Award from the Illinois Park and Recreation Association. The 11-acre park's features include a stormwater detention area.

Bay County (Florida) is receiving RESTORE Act money from the BP Deepwater Horizon oil spill settlement. One of its projects is a \$360,000 project to update the county's 20-year-old stormwater master plan.

Kalmia Gardens of Coker College (South Carolina) received a \$77,500 grant through Duke Energy's Water Resources Fund. The grant will fund a project to reduce the pollution load entering Black Creek in Hartsville by implementing a regenerative stormwater conveyance system.

LEARNING OPPORTUNITIES

Kansas

The American Water Works Association is offering an Effective Utility Management seminar on May 7-8 in Kansas City, Kansas. Visit www.awwa.org.

Virginia

The American Society of Civil Engineers is offering a Young Member Leadership Symposium on Aug. 3-5 in Reston, Virginia. Visit www.asce.org.

Washington

The AWWA is offering an Effective Utility Management seminar on April 9-10 in Bellevue, Washington. Visit www.awwa.org. ♦

CALENDAR

April 2-4

Construction Research Congress, presented by the American Society of Civil Engineers and the Construction Research Council, Intercontinental New Orleans Hotel. Visit www.asce.org.

April 19-21

American Society of Civil Engineers Structures Congress, Fort Worth Convention Center, Fort Worth, Texas. Visit www.structurescongress.org.

April 22-24

American Society of Civil Engineers Surveying and Geomatics Conference, Cal Poly Pomona university, Pomona, California. Visit www.surveyingconference.org.

April 22-25

American Water Resources Association Spring Specialty Conference: GIS and Water Resources, Rosen Centre Hotel, Orlando, Florida. Visit www.awra.org.

May 6-9

American Public Works Association North American Snow Conference, Indianapolis. Visit www.apwa.net.

May 22-24

National Utility Contractors Association Washington Summit, Holiday Inn Capitol, Washington, D.C. Visit www.nuca.com.

June 3-7

American Society of Civil Engineers World Environmental and Water Resources Congress, Hyatt Regency Minneapolis. Visit www.asce.org.

June 11-14

AWWA Annual Conference & Exposition, Mandalay Bay Convention Center, Las Vegas. Visit www.awwa.org.

July 9-11

American Water Resources Association Summer Specialty Conference: Managing Transboundary Groundwater, Worthington Renaissance Fort Worth Hotel, Fort Worth, Texas. Visit www.awra.org.

July 10-12

National Association of Flood and Stormwater Management Agencies Annual Meeting, hotel TBA, Santa Fe, New Mexico. Visit www.nafsma.org.

July 29-Aug. 1

American Society of Agricultural and Biological Engineers Annual International Meeting, Cobo Center, Detroit. Visit www.asabe.org.

Aug. 12-16

StormCon, Hyatt Regency Denver at Colorado Convention Center, Denver. Visit www.stormcon.com.

Aug. 26-29

American Public Works Association Public Works Expo: PWX, Kansas City Convention Center, Kansas City, Missouri. Visit www.apwa.net.

Sept. 17-19

National Rural Water Association WaterPro Conference, Fort Worth, Texas. Visit www.nrwa.org.

Oct. 12-15

American Society of Civil Engineers 2018 Convention, Hyatt Regency Denver at Colorado Convention Center. Visit www.asce.org.

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