February/March 2013

intra

Newsletter of the Trinity River Authority of Texas

TRA's Wolf Creek Park: open for business

East Texas pine trees and sites with views of Lake Livingston are plentiful at TRA's Wolf Creek Park. Special thanks to Marc Torres for sending in this photo.

The Trinity River Authority's Wolf Creek Park recreation facility opened its doors for the 2013 camping season on March 1. This year, the park has seen more first-time visitors than ever in the park's history this early in the season. In fact, approximately 60 percent of Spring Break visitors were first-timers. So far, campers have enjoyed plenty of fishing, boating and munching on snowcones during the early days of the season.

They've also been busy sharing their enthusiasm for the park on its Facebook page, as seen from the sampling of comments below:

- I cannot wait for March 1st!
- Can't wait to come back…planning to come weekend after next!!!!
- Haven't been to this park in well over 12 years. Planning on bringing back memories in a few weekends.
- So excited for camping next week.
- I am so ready. My family and I will be there next weekend.
- Will be there in a couple of weeks! Cannot wait!
- HOLY COW! We gotta come get season passes!
- Good Morning! See you this weekend! Yippee!
- Looking forward to this weekend!

Wolf Creek Park is a 110-acre camping facility on the western shore of Lake Livingston. The park has 46 campsites for RVs requiring full hookups and 57 sites with water and electricity. All sites include picnic tables, fire rings and grills.

Park visitors have access to a boat ramp and fishing pier, three restroom/shower facilities, a group pavilion, playground equipment and a marina store. For more information, visit www.facebook.com/TRAwolfcreekpark.

Congratulations to Bobby Staples, who hooked the first catch of the camping season from the bulkhead at Wolf Creek Park.

Cowboys Stadium, CRWS on-site stormwater storage basin share impressive stats

No one would deny that Cowboys Stadium is a massive, imposing structure. It's the most expensive sports venue ever built and one of the largest domed sports structures in the world.

For the Trinity River Authority, equally impressive is the on-site stormwater storage basin currently under construction at TRA's Central Regional Wastewater System. In fact, a side-by-side scaled comparison of the two, as seen to the right, reveals that they have almost identical geographic footprints.

Designed to help CRWS manage high influent flows during heavy rain events, the basin project remains on schedule and within budget as of press time for completion in the fall of this year – sources are unclear whether Cowboys Stadium could say the same just a few months before its scheduled opening.

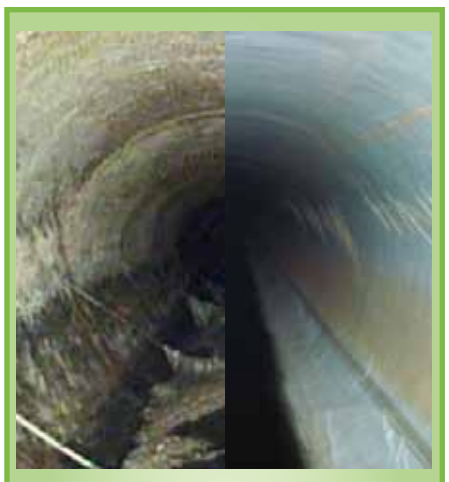
Cowboys Stadium Fun Facts

- Covers 73 acres/3 million square feet.
- Overall length: 900 feet.
- Cost to build: $1.15 billion.
- Two monumental arches soar 292 feet above the playing field – each weighs 3,255 tons and spans a quarter-mile in length.
- Contains more than 14,000 tons of structural steel.

CRWS OSSB Fun Facts

- Maximum capacity: 160 million gallons, with a two-foot freeboard.
- Overall length: 1,060 feet
- Cost to build: Nearly $42 million.
- The separating wall between the east and west basin is 700 feet long, 20 feet high and supported by 76 36-inch battered shafts.
- Employs 40,000 cubic yards of concrete.

When viewed side-by-side, the CRWS OSSB and Arlington's Cowboys Stadium share near-identical geographic footprints.



On the cover: Crews have now completed several sections of one of the largest cured-in-place pipe rehabilitation projects in history. Full story p. 2.

Inside:

See more stories online in Current News.

First section of innovative pipeline rehabilitation complete

The Trinity River Authority, in partnership with an outside contractor, recently completed the first 1,800-foot section of one of the largest cured-in-place pipe rehabilitation projects in history. Designed as the first of nine section rehabilitations totaling more than 17,000 linear feet of the Central Regional Wastewater System's Elm Fork Interceptor, the rehabilitation of this 96-inch diameter unlined reinforced concrete pipe, originally installed in 1984, solves tremendous issues related to hydrogen sulfide erosion and related wall-strength loss in the concrete. Each section essentially will be restored to its original condition, with the addition of corrosion-resistance features.

The section of the CRWS interceptor system with the highest flows, the Elm Fork Interceptor System serves all or parts of Addison, Dallas, Irving, Coppell, Farmers Branch and Carrollton.

TRA's 2004 Infiltration and Inflow assessment for CRWS recommended careful evaluation of the original Elm Fork pipelines to check for structural weaknesses. Then, in 2008, TRA approved a condition assessment and preliminary design report for the rehabilitation or replacement of Segment 1-A of the Elm Fork Interceptor, which was identified as a critical area of concern.

The condition assessment tool employed laser measurement of the loss of the concrete pipe wall, plus sonar measurements of sediments accumulated in the pipeline. A specialized, remotely operated vehicle also provided high-resolution, 3-D laser imagery. This comprehensive assessment determined that, with current erosion and degradation, the pipe had a remaining useful life of only three to seven years.

Because of two parallel large-diameter pipes that could accommodate wastewater flows from the damaged pipe section, the CIPP method was ideal. This method allows for the rehabilitation of an underground pipeline with minimal digging – instead creating a jointless pipe-within-a-pipe.

"The CIPP method is best for pipelines that need significant rehabilitation but don't necessarily need additional capacity," said Bart Hines, Northern Region engineering services manager. "It was a smart way to get essentially a new section of pipeline with minimal disruption to traffic and service activities."

Construction crews faced several challenges associated with the project, much of which lay in an environmentally sensitive area containing wetlands, an active flood plain and two public use areas including a golf course, a recreation area with sports fields and a trail system required to be in service at all times.

The Trinity River itself presented an additional challenge – all sites involved in the construction effort are subject to periodic flooding from the river's Elm Fork. It was critical that no floodwaters enter the pipeline at any time during the project, so crews developed a real-time weather monitoring tool that allowed them to react more quickly to flood events and adjust processes accordingly.

Though TRA gained access to most areas on a 24-hour basis, the public use areas only offered a three-month window for construction – between December 2012 and February 2013. If TRA and its partners couldn't complete the work within this window, they would have to wait until the following year. Pipeline cleaning in recreational areas also was limited to nighttime and with extensive odor-control measures in place.

As of press time, the CIPP project had used more than three million total pounds of unfilled polyester resin, and crews had completed approximately 14,000 linear feet of the entire rehabilitation project.

Crews also employed sound attenuation barriers to keep noise levels in the area below 65 decibels, and in an effort to ensure minimal public disturbance, crew members monitored odor and noise levels several times each week.

Crews first excavated an existing manhole and positioned liner installation equipment over the excavation site. After the pipe was cleaned and inspected, crew members filled the new liner with resin in a process called the "wet out." A blue dye mixed with the resin before pumping allowed crews to make sure the liner was fully saturated before installation. At the same time, the liner was pushed through the pipe, attached to an H-frame tower and inverted on itself, creating a pocket that crews could pump water into.

Once contractors inserted the liner into the pipe, they injected water into the liner so that it expanded and filled the pipe in a several-day process called "the push." Following expansion, the team heated the resin-filled liner with hot water, causing it to harden, or cure, into a new, tight-fitting, jointless, corrosion-resistant pipe within the old one. A technician using a hand-held saw then cut open the ends of the liner.

At press time, the project had used more than three million total pounds of unfilled polyester resin, and crews had moved forward to other sections, completing approximately 14,000 linear feet of the entire rehabilitation project.

A detailed video of the CIPP process is available on the TRA website at www.trinityra.org.

Lake Livingston holding steady amid drought conditions

At press time, the level of Lake Livingston stood at normal pool elevation of 131 feet above mean sea level, or 100 percent of capacity. Continued spring rains may help keep the level at or near normal throughout the spring and into the summer months.

According to the Texas Water Development Board, combined storage capacity of all Texas reservoirs is at 66.4 percent.

Those who want to stay apprised of the water level in Lake Livingston can visit TRA's website at www.trinityra.org – information on lake level and discharge from the dam is updated in real time on the home page.

The same discharge and lake level information is also available on Twitter – @LivingstonDam. Twitter followers may also sign up for tweets to be sent directly to their cell phones as text messages.

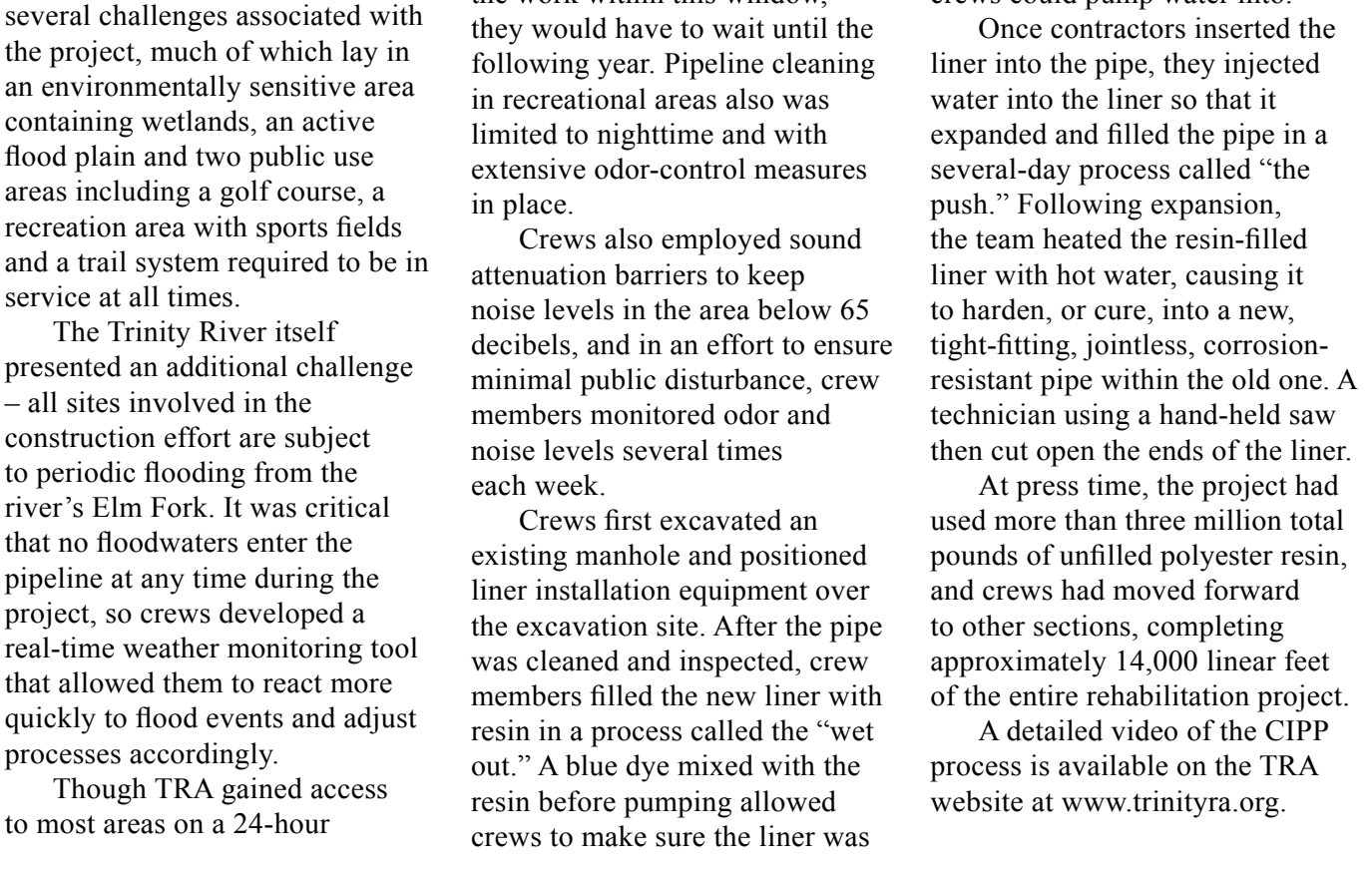


Photo courtesy of Jerard Neal.

Panel discussion examines gender diversity in water industry

On behalf of the Texas section of the American Water Works Association, the Trinity River Authority recently hosted a group discussion centered on the future of gender and cultural diversity in the water industry.

Panel members included Fiona Allen, P.E., Northern Region manager; Cynthia Belvin, Northern Region technical resources manager; Julie Hunt, P.E., Northern Region operations manager; Alison Mackey, chief financial officer; and Karen Stafford-Brown, Northern Region engineering services manager. Each of these women holds a key position of responsibility within TRA. In a water industry where women are under-represented, this is an example of TRA's commitment to diversity. The panel also reflects the wide variety of backgrounds needed in the water industry.

Introduced by Ron Tamada, TRA Northern Region manager of engineering services and chairman of the TAWWA diversity committee, and moderated by committee co-chairwoman Meg Arnold, the discussion examined everything from group members' mentors to generational differences in the workplace and variations in communication styles.

Below is a selection of brief excerpts from the discussion. The entire discussion is available on the TRA website at www.trinityra.org.

Who or what influenced you toward a career in the water industry?

Cynthia Belvin: I actually graduated with a degree in geology and had a whole different view…I had decided to go back and work on an MBA, but I needed a job. There happened to be a laboratory manager job at the wastewater treatment plant for the city of Wichita Falls, which is how I ended up [in the industry].

Alison Mackey: Well, being in the finance area in college, I really just ended up here sheerly by luck. [This industry] really did interest me a lot, so I'm glad I've had the opportunity to work in the area.

Are there any jobs in the water industry more suited for men or women?

Fiona Allen, P.E.: Well, we had a saying years ago, "There's a reason it's called a manhole – because no woman would be dumb enough to go down in one."… Actually, no, I think the opportunities are not only on the scientific side but also on the technical side – whether it be you're an operator, whether you want to be a maintenance worker, whether you want to be an engineer, an accountant who makes sure the bills get paid, or in customer service, there are so many different avenues in the water industry, for both men and women … I think anybody can do anything within the industry.

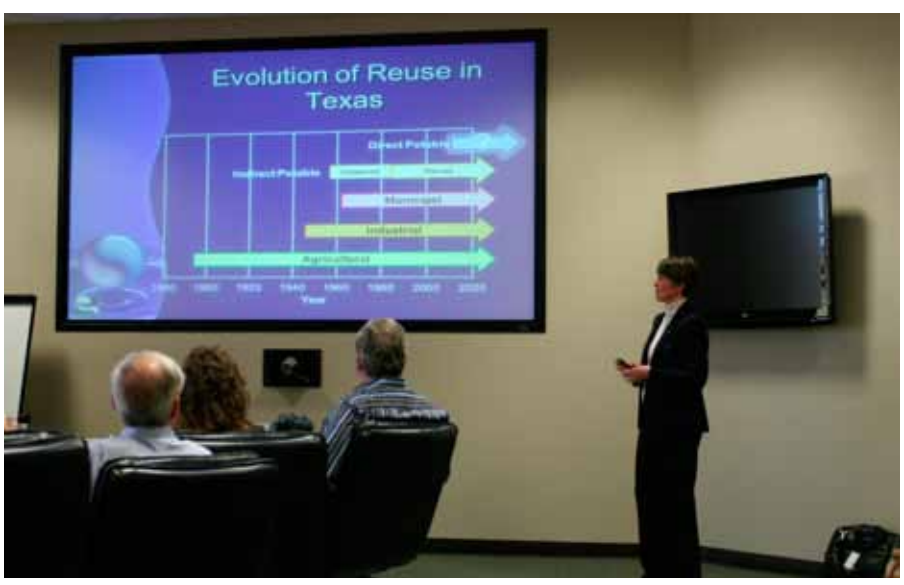
Karen Stafford-Brown: One thing I saw with our internship program when I met the group at a Texas Water function is there was a mix of high-school age girls and boys that were all in the program and were really enjoying what they were doing.

Cynthia Belvin: I have found over the years that there are a lot more women moving to the field … The field is very dynamic and it is growing, as far as technology, equipment, from that perspective.

Women are under-represented in the water industry; is that a problem, and if so, why?

Fiona Allen: One of the things that concerns me, and it's more when it comes to your professional organizations and your leadership, is the fact that there are so few women up in high levels… It doesn't provide a good role model for the younger women wanting to come up and work within any type of organization where there are so few women at the top of the officer pool.

Julie Hunt, P.E.: I think it's concerning overall that there are fewer women in our industry as a whole, and that may be one of the contributors to why we don't see as many women represented in those leadership roles… But the place that we're missing out is that we're not getting out there and encouraging or making ourselves known as a potential career choice for a lot of women.



PEMD continues brown bag lunch series with discussion of water reuse in Texas

In March, the Trinity River Authority's planning and environmental management division hosted the second installment of its newly launched brown bag lunch presentation series. More than 25 employees from across TRA's Northern Region offices and facilities took advantage of the opportunity to hear from special guest Dr. Ellen McDonald, who discussed current non-potable and potable reuse projects across the state, along with the potential for future projects. A recognized water reuse expert throughout Texas, Dr. McDonald also serves as project manager for an 11-agency investigation requested by the Texas Water Development Board to examine issues, ranging from regulatory challenges to public perception, associated with direct potable reuse projects.

A pat on the back for: Jeanne Daily

Jeanne Daily joined the Trinity River Authority in August 2011 as a senior accounting clerk, part of the financial services division. A typical day might find her reconciling bank statements and disbursement accounts, performing a daily check run and cash reconciliations, processing checks, and streamlining accounting processes. In other words, she helps make sure the money flows in and out of TRA just like it should.

Jeanne also enjoys converting manual systems to automatic processes in order to make them more efficient, drawing upon her experience in computer programming to develop and implement various Lawson query functions. She also loves to work in Access and Excel, plus programming other types of databases. "I have always enjoyed a challenge and there are plenty of those to tackle here as we move into a more technological world," she said.

Before joining TRA, Jeanne worked at Texas Health Harris Methodist Hospital Fort Worth for 13 years, enjoying stints in both insurance and collections before moving into accounting. When she began, the hospital had one Apple computer, but soon she was hard at work designing custom software to meet the hospital's accounting needs.

Away from work, Jeanne enjoys cooking, sewing, painting and watching the SciFi Channel or her favorite film: *Avatar*. Jeanne has two daughters, three grandsons, and one granddaughter with whom she also enjoys spending time.

General Manager's Message

Strategic planning process develops basis for TRA mission, vision, values

General Manager J. Kevin Ward

As I have previously discussed in *inTRA*, the management team at the Trinity River Authority embarked in 2012 on the first stage of a comprehensive strategic planning effort. This first step, in which we retained an outside consultant to provide an overall audit of current management status, is now complete, and we are poised to move forward with additional efforts.

The scope of the initial stage comprised a review and assessment of our mission, plans and goals; our management philosophy and practices; our overall operations; and our organizational structure, along with a study of our financial, human resources and informational technology management and services.

The consulting group examined background materials and documents representing everything from budgets and organizational charts to performance measures and policies/procedures documentation. The group also conducted multiple site visits and structured focus group and individual interviews with more than 100 TRA employees at all levels in order to understand current organizational structure, operating challenges and future opportunities.

This important information-gathering process gives us a clear snapshot of exactly where we stand as an organization – what we're doing well, along with the areas that show opportunities for improvement. We wanted the right information for making informed decisions that ensure our efficient and effective delivery of services throughout the Trinity River basin. Armed with this information, we can move forward with my overarching goal of establishing and defining a strategic direction for TRA in order to optimize the management of our organization.

We used a structured SWOT analysis to identify TRA's strengths and weaknesses (internal) and opportunities and threats (external).

The results revealed some great things: for example, TRA customers report high levels of satisfaction, and we can see that TRA continues to be recognized as an industry leader at both the state and national levels. Our employees say that TRA offers a good work environment, with stability, good benefits, an emphasis on safety and teamwork, and highly educated/skilled personnel. TRA is recognized as having a strong customer service orientation, an excellent agency reputation and a tremendous commitment to the health of the Trinity River and its water quality. Overall pride in TRA and its purpose was evident throughout the information-gathering process.

But we also have some work to do and some things to change – we need to improve things like internal communication; updating policies and procedures; key processes; and IT strategies. One of our main focuses moving forward will also be a clear articulation of TRA's mission, vision and values, along with how every TRA employee contributes to living those ideals every day. Our leadership team is deeply committed to improving these areas.

This process also revealed tremendous perceived opportunities in areas ranging from hydropower generation to water reuse projects and additional treatment opportunities throughout the Trinity River basin. In addition, we can identify external threats including an uncertain economy, aging infrastructure, increased regulatory requirements and customer budget concerns. Recognizing our external influences for success or failure can help us prepare to meet them in ways that are best for TRA.

TRA's leadership team recently held a strategic-planning workshop with the board of directors' executive and administration committees, during which we took the first steps toward articulating vision, goals and values statements. These drafts, once refined, finalized and approved by the TRA board of directors as part of a full strategic plan, will represent the foundation of our efforts moving forward. Next steps will include developing objectives and strategies for ensuring that everyone at TRA understands and contributes to the strategic direction of our organization and its important work.

Keep reading *inTRA* for further information as the process unfolds. The next few months will bring interesting developments. At TRA, we are a family, and we are a team – and every team is most successful when its members are working toward the same goals. I see great things in our future; thank you all for joining me as we enter the next stage of TRA's legacy of excellence.

TMCRWS wet-weather storage basin progress

Construction on a new 27-million-gallon capacity wet-weather basin at the Trinity River Authority's Ten Mile Creek Regional Wastewater System is expected to be substantially complete by July of this year. The new basin, a small portion of which is shown here, will allow TMCRWS to temporarily store excess influent in advance of treatment during times of extraordinary peak flows, enabling the plant to better serve its customer cities; improve operations; and continue maintaining permit conditions. TMCRWS serves Cedar Hill, DeSoto, Duncanville, Ferris and Lancaster.

Installation of the Cade Branch relief interceptor will ensure DCRWS' ability to accommodate future increased wastewater flows and maintain the stringent quality level of the plant's treated effluent – shown here as it discharges into its receiving stream.

TRA board of directors approves construction of DCRWS Cade Branch relief interceptor

During its regular February meeting, the Trinity River Authority board of directors approved a contract to construct approximately 17,000 feet of relief pipeline for the Denton Creek Regional Wastewater System's Cade Branch Interceptor System.

With approximately 39 miles of interceptor pipeline in four systems, DCRWS treats wastewater for Fort Worth, Haslet, Keller, Roanoke, Southlake, Argyle, Flower Mound, Northlake, Westlake and the Circle T Municipal Utility Districts Nos. 1 and 3.

Project summary

- Project status: Awarded in February 2013
- Anticipated construction period: 14 months
- Existing interceptor dimensions: 17,000 feet of 15- and 18-inch diameter pipe
- New interceptor dimensions: 221 feet of 48-inch pipe; 16,512 feet of 36-inch pipe; 25 feet of 18-inch pipe and 134 feet of 15-inch pipe
- Meter stations: Two existing, both of which will be updated and associated manhole junction structures installed, allowing for increased operational flexibility.
- Estimated project cost: $5.8 million
- Project benefits: The new parallel interceptor positions the DCRWS facility to accommodate future increased wastewater flows related to projected increased population numbers in its service area. As part of the project, crews will also reinforce the Cade Branch Creek bank and protect against future erosion along TRA pipelines and easements.

Employee Milestones

New Hires

CRWS welcomes **Wendell Summers** and **Quintin Winters** as operators I, and **Eric Rivera** as operator II. CRWS is also glad to have **Harald Mallwitz** as senior buyer and **Jeremy Burris** as maintenance mechanic I.

Gary Savanyu joins TRA as CSS engineer.

LLP welcomes **Lesly Wilkinson** as maintenance mechanic II.

Wolf Creek Park is happy to bring on **Gerald Collins** and **Christopher Rogers** as part-time maintenance helpers.

Curtis Richardson and **Juan Onate** join the team at TMCRWS as operators I.

Promotions

Anthony Chavarria was promoted to senior maintenance mechanic at CRWS.

Suzanne Hamm was promoted to senior secretary, **Keith Stone** was promoted to electronic technician I and **Martin Madaras** was promoted to senior operator at TMCRWS.

Kelly McKnight was promoted to environmental scientist I at GO.

Taylor Therese, granddaughter of Sue Beard, executive secretary, CSS, was born on Valentine's Day. Pictured here, left to right, are big brothers Chase, age 2; Dylan, age 8; Ethan, age 5; Carson, age 10; and baby Taylor.

Brandt, son of Dustin Taylor, construction inspector II, CSS, has been accepted to the University of Texas at Austin to study radio, TV and film. He will start this fall.

CRWS Maintenance Engineer Valery Jean-Bart was busy in February spreading the good news about engineering as a career choice. He served as a science fair judge at the Rube Goldberg Cedar Hill High School Competition, plus speaking about the importance of engineering to more than 200 students at Nimitz and Cedar Hill high schools and Permenter Middle School as part of Engineers Week.

Kathryn, daughter of Jim Dias, chief maintenance mechanic, CRWS, graduated from the United States Air Force Basic Military Training at Lackland Air Force Base in February. She currently attends Security Forces Technical Training at Lackland Air Force Base.

Chad Kale Jr., grandson of Internal Auditor Ann Carver, was born Feb. 7, weighing 8 pounds, 6 ounces, and was 22 inches long. Proud parents are Carol and Chad Kale.

McCartney, son of Gene Paul, training coordinator, CRWS, was selected to be part of the 2013 Smithfield Middle School National Junior Honor Society.

Construction Services Manager Thomas Sanders has plenty of reasons to brag on his granddaughters. Megan Moore, left, is a senior at Colleyville Heritage High School and recently was accepted to attend William Jewel College in Liberty, Mo., on both an academic and a vocal scholarship. She also has been invited to sing with the eight-member Choral Scholars of the college. Amanda Moore, right, is a seventh-grader at Colleyville Middle School and recently earned a position on the cheerleading squad for the second year in a row.

Rylee, daughter of Arlen Sauer, maintenance mechanic II, CRWS, was voted her sixth-grade basketball team's Most Valuable Player and also was chosen as part of the All-Star team. In March, the All-Star team played at the Dr Pepper Arena in Frisco in front of roughly 2,000 people prior to the Dallas Mavericks' junior team, the Texas Legends.

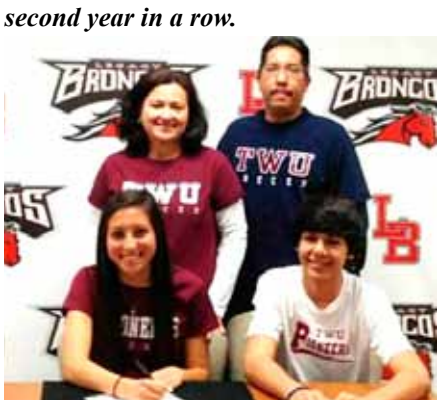
March was an exciting month for Jamie, son of Public Information Officer Michelle Clark. He won first place in his age division in the Texan Trail Run with a time of 7:49 for the one-mile race. Later in the month, he also earned his green belt in karate.

Congratulations, TRA Employees!

Mario Martinez, operator I, CRWS, has earned his Class C wastewater treatment license.

Susan Davis, senior secretary, GO, earned an associate's degree in business administration-administrative professional from Tarrant County College.

DCRWS Project Manager **John Bennett** has been inducted into the Water Environment Federation's Quarter Century Operators Club, recognizing his dedicated service to both the wastewater treatment profession and WEF. Qualified members must have been a significant, full-time participant in the water pollution control industry for a period of 25 years, 10 of which must include involvement in the day-to-day collections, maintenance, operations, laboratory or management of a wastewater transportation or treatment facility.



Stephanie, daughter of Maryann Gutierrez, office coordinator, CRWS, signed her letter of commitment to play soccer at Texas Woman's University in Denton on National Signing Day. She will attend TWU's nursing program beginning this fall. Stephanie played four years of varsity high school soccer and served as team captain at Mansfield Legacy High School. She also ran cross country for four years and served as captain of the cross country team.

Crews from ROCRWS, CRWS and CSS worked throughout much of the night to repair a pipeline rupture with no disruption of service or detrimental effects to the surrounding environment.

ROCRWS staff, contractors move swiftly to address pipeline rupture

In late January, the staff of the Trinity River Authority's Red Oak Creek Regional Wastewater System discovered a force main leak approximately 350 yards downstream of its Bear Creek lift station. The plant's Supervisory Control and Data Acquisition system registered a drop in the Bear Creek lift station discharge pressure, and further on-site investigation revealed a pipeline rupture. Project Manager Billy Hill quickly mobilized trucks to pump and transport wastewater away from the damaged section until its repair was complete.

An outside contractor worked to repair the line, and it resumed service approximately 10 hours after staff first detected the leak. Throughout the night, colleagues from TRA's Central Regional Wastewater System also joined the repair effort by transporting a track hoe and lights to the project site to aid crews working in the dark, plus assisting when needed. As part of the repair effort, the damaged pipe section was also encased in concrete for extra strength. Because of their swift action, TRA and its partnering contractor completed all repairs with no interruption of service for ROCRWS customers and with no detrimental effects to the surrounding environment. "We were lucky to get such a tremendous response from multi-project staff, our construction services team and our contractors to expedite this repair," said Hill. "If they hadn't worked so well together to get the job done, the emergency repair could have been much more serious and much more time-consuming. They all deserve a pat on the back."

ROCRWS serves all of Ovilla, Glenn Heights and Red Oak, along with portions of DeSoto, Cedar Hill and Lancaster. Capable of serving a population of 60,000, the system consists of a 4.6-million-gallon-per-day treatment plant and 24 miles of interceptor pipeline.

Art is shown here with colleagues Jesus Gomez-Longoria and Randy Scott as they reminisce about the adventures they've had with TRA.

Art Encinas shares a laugh and some memories with General Services Manager Don Tucker during Art's retirement celebration.

Best Wishes, Art!

After almost seven years of maintaining TRA's general office and catering to specific employee needs and preferences (not to mention constant demands for changing the A/C and heating airflows), Maintenance Mechanic II Art Encinas decided it was time to hang up his hat. GO employees gathered to share cake and memories on his last day. His colleagues took the opportunity to thank Art for his service and to wish him the very best of luck on his new adventures. Art took care of TRA facilities as if they were his own home, and he will be greatly missed.

Anniversaries

40 Years
Sam Scott, executive services manager, GO

35 Years
Carol Claybrook, administrative assistant to the general manager, GO
Curtis Tadlock, interceptor system specialist, CRWS

25 Years
Debbie Foxworth, permit administrator, LLP

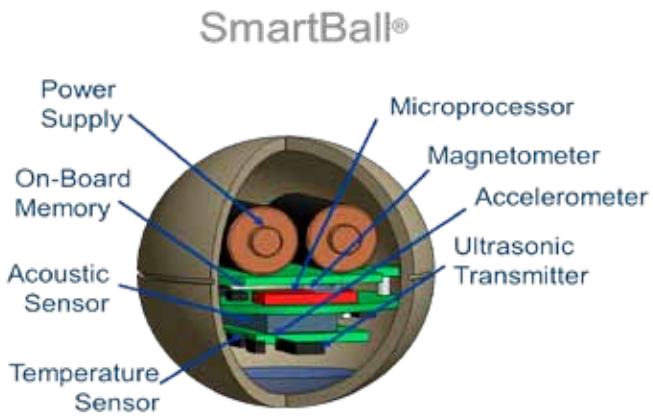
15 Years
Richard Brazier, maintenance mechanic II, CRWS
Mark Orbeck, chief engineering technician, CRWS

5 Years
Jeffrey Carter, operator I, TCWSP
Carion Taylor, SRSS coordinator, SRSS
Jennifer Ege, senior chemist, CRWS

3 Years
Arlen Sauer, maintenance mechanic II, CRWS

Cutting-edge technology yields valuable insight into health of TCWSP raw water line

The Pipediver™, shown here, has yielded preliminary data revealing areas where TRA may need to repair or rehabilitate sections of a pipeline that carries raw water from Lake Arlington to the TCWSP treatment facility.



In late 2012, the Trinity River Authority's Tarrant County Water Supply Project and a contracting partner employed state-of-the-art Smartball™ and Pipediver™ technology designed to detect leaks and assess the overall condition of more than eight miles of a concrete pipeline that transports raw water from Lake Arlington to the water treatment plant in Euless. The 30-inch line, the older of two running from the lake to the plant, began operation in 1974. The August/September 2012 issue of *inTRA* examined the adventures associated with deployment of the evaluation equipment in full detail.

Despite challenges the devices faced while navigating a desolate stretch where the pipeline crosses the Trinity River and changes size from 30 to 48 inches, both have now completed their journeys, and engineers have recovered useful data that can help TRA make the best, most cost-effective decisions about how to rehabilitate or repair certain sections of the pipeline now and over the next few years.

Thus far, data from the Smartball™ analysis have revealed four leaks and a number of air pockets, which decrease the usable space within a pipeline. One leak already has been repaired, and TRA is currently developing a plan to address the additional three. The Smartball™ analysis provided information about the leak repair that was both precise and accurate, allowing TRA staff to make a quick and efficient repair.

"It was truly amazing," said Northern Region Engineering Services Manager Ron Tamada. "The Smartball™ was able to pinpoint exactly where the pipe was leaking, so we were able to repair it with a minimum amount of damage and subsequent repairs to the owner's property."

As of press time, Pipediver™ data were still under analysis, though preliminary review shows areas where TRA may need to repair or rehabilitate sections of the line. Historical industry data suggest that a pipe of this size and age generally reflects approximately 94 percent of the line in good condition, five percent with some deterioration and one percent with significant damage. At this point, all signs indicate that, consistent with industry averages, approximately 94 percent of TRA's pipeline is in good condition, giving TRA staff confidence that the majority of the line has a remaining useful life.

"This project has been very helpful," said Tamada. "What we wanted to know was whether the line was still able to dependably convey water. Based on what we know so far, if we can repair the small sections that need it, we can get another several years of useful service from this line and defer the significant cost of pipeline replacement. That's definitely a good investment."

Next steps in the process include repairing identified leaks; excavating some areas to verify damage; developing hydraulic recommendations for regaining capacity; and repairing, rehabilitating or replacing sections where needed.

TCWSP provides drinking water to the cities of Bedford, Colleyville and Euless, along with portions of Grapevine and North Richland Hills.

The Smartball™ recovered useful information that can help TRA make effective decisions about how to address potential pipeline rehabilitation or repair.

Reflections on the AISD Water Careers Education Internship with TRA

By Larry Teague
Student, Arlington High School

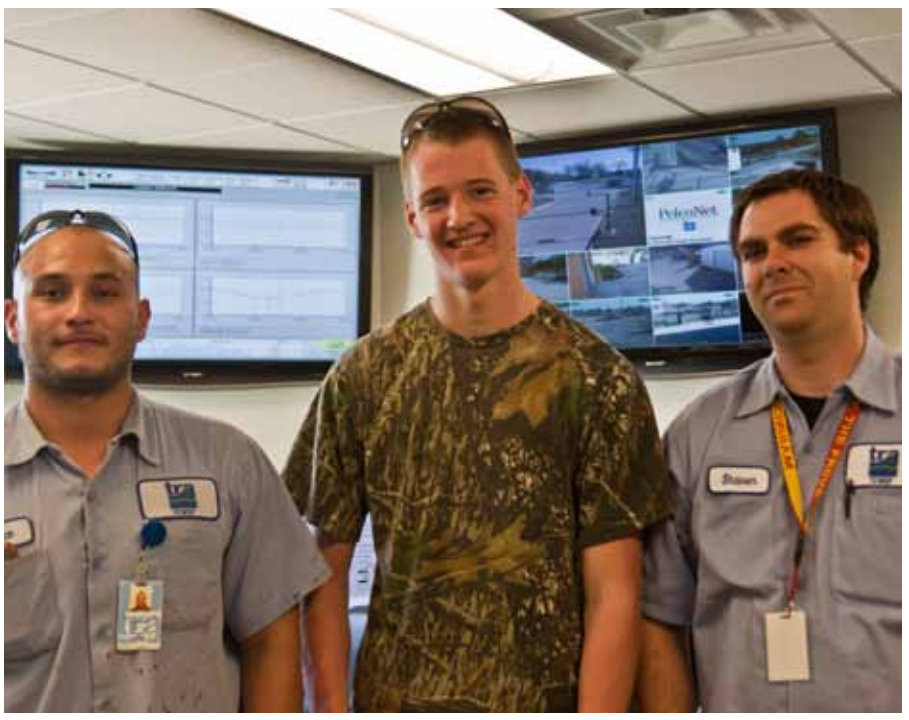
When I first interviewed with TRA and the city of Arlington for the Arlington Independent School District's water internship, I really didn't know what to expect. I was interested because the water industry was something I knew almost nothing about, but it seemed like something I could learn and enjoy doing.

I'm extremely happy that I chose to work for TRA; I love this organization. I think the one thing I love the most is the people. Everyone is always helpful, kind and willing to help. And it seems no matter what questions you ask, someone always has the insightful answer you're looking for.

I haven't met a single person who doesn't love and enjoy what they do. Everyone is passionate about their work whether it's as an operator or engineer. I have already learned so much in the months I've been here, and I'm looking forward to learning more.

This spring, our internship program will begin TCEQ water classes at Arlington High School, so we will be able to take the exam and obtain our class D water license. Also coming up this spring is the Junior Meter Madness Competition that I will be participating in.

After graduation, I hope to continue working at TRA while going to college. Overall, I really enjoy the internship, and I am really glad I have been able to learn so much and meet such amazing people. I know the skills I have learned here will carry on with me through the rest of my life.



Arlington High School student Larry Teague is shown here, center, with Marco Acosta, operator I (left), and Shawen Potts, operator I (right), during his work rotation at TRA's Tarrant County Water Supply Project.