June/July 2010

intra

Newsletter of the Trinity River Authority of Texas

Lake Livingston level normal despite lagging rainfall

June/July 2010

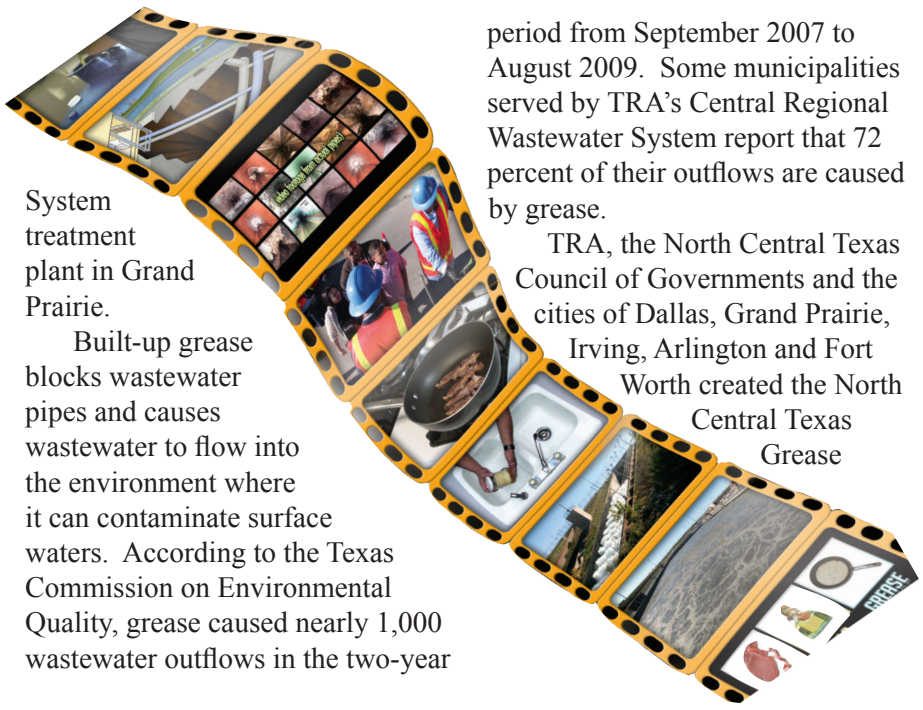
intra

Newsletter of the Trinity River Authority of Texas

TRA wins National Environmental Achievement Award

The National Association of Clean Water Agencies has honored the Trinity River Authority with a National Environmental Achievement Award for an informational video aimed at reducing fats, oils and grease in wastewater.

The *Cease the Grease, Apartment Edition* video illustrates the problems caused by fats, oils and grease in wastewater pipes. The video demonstrates what should and shouldn't go down the drain, along with how to properly dispose of fat-based waste. The video also includes a brief primer on wastewater treatment filmed at TRA's Central Regional Wastewater System treatment plant in Grand Prairie.



Built-up grease blocks wastewater pipes and causes wastewater to flow into the environment where it can contaminate surface waters. According to the Texas Commission on Environmental Quality, grease caused nearly 1,000 wastewater outflows in the two-year period from September 2007 to August 2009. Some municipalities served by TRA's Central Regional Wastewater System report that 72 percent of their outflows are caused by grease.

TRA, the North Central Texas Council of Governments and the cities of Dallas, Grand Prairie, Irving, Arlington and Fort Worth created the North Central Texas Grease Abatement Council in 2007 to address grease-related wastewater outflows in the upper Trinity Basin. The goal of this group is to share information, ideas and resources to educate the public on proper disposal of fats, oils and grease.

The NTGAC identified the need for an educational tool for apartment dwellers, an audience not typically targeted for wastewater information. *Cease the Grease, Apartment Edition,* available in both English and Spanish, has led to a reduction in grease-related wastewater pipe clogs.

The video is available at http://www.youtube.com/watch?v=YK3OnDdo5dc.

Lake Livingston level normal despite unusual rainfall pattern

The level of water in Lake Livingston remains slightly above the normal pool level of 131 feet above mean sea level despite less than average rainfall over the lake.

The Trinity River Authority measures rainfall on the lake with five automated gauges located at key points around the lake. Rainfall at Lake Livingston Dam, Wolf Creek Park, Onalaska, Riverside and Waterwood are averaged for a running total.

Current lake level, as of late July, was 131.13 MSL even though rainfall on the lake is nearly 8.5 inches, or 32 percent, behind the expected average annual rainfall of 27.19 inches.

Rainfall totals on Lake Livingston were lagging even further behind last spring.

"At the end of May, rainfall over the lake measured 9.76 inches, less than half of the expected annual average of 19. 36 inches," said Mark Waters, Lake Livingston Project (LLP) Assistant Manager.

Higher than average rainfall during June and July have brought the total for the year closer to the average. In June, LLP measured 5.34 inches when the annual average for the month is 4.79 inches. As of July 22, LLP calculated 3.63 inches of rainfall when a total of 3.04 inches is normal for the whole month of July.

Although overall rainfall is lagging behind, the level of water in Lake Livingston is 1.56 inches above the normal 131 MSL. In past years when rainfall over the lake has been less than the expected average, the level of water in the lake has fallen below normal. For example, in 2008, rainfall was 8.57 inches below average, and the lake level fell to 130.64 MSL, or 4.32 inches below normal pool level.

Spencer Karr, LLP Land and Emergency Management Coordinator, checks one of five rain gages at Lake Livingston used to measure rainfall over the lake.

Stormwater runoff from wet-weather events in the Trinity River basin north of Lake Livingston are responsible for maintaining the level of water in Lake Livingston in the absence of average rainfall.

"Key rainfall events in the upper basin of the Trinity River have maintained our lake level," said Waters.

Without rainfall over the lake or in the northern reaches of the basin, the level of water in the lake will drop because TRA must continuously release water from Lake Livingston to satisfy contractual obligations for water demand downstream from the dam.

On the cover: The water in Lake Livingston is maintained by a combination of rainfall over the lake and in the Trinity River basin upstream from the lake. Spring rains over the lake were well below average. Summer rainfall has been more than expected, but totals for the year are still more than eight inches below average. Even so, Lake Livingston remains full. See story on this page.

Inside:

CRWS to test new biosolids process 2
Jadrosich retires 2
New PIO for TRA 3
Trinity basin educational software.....3
Water planning points to conservation.....4
Vance announces retirement plans 4
Trinity Trash Bash coming up.....5
Barscreen challenge at CRWS 6
Fish ban/advisory changes.....7
Rehab for 101 manholes in Bear Creek line 7
Trinity River photo contest .....Back

TRA public information officer retires

John Jadrosich served for 35 years

John Jadrosich retired June 30 after serving as the Trinity River Authority's Public Information Officer for 35 years.

"John has represented TRA well in his tenure with the Authority, both with professionalism and with credibility," said Danny F. Vance, General Manager of TRA. "The Public Information Division of TRA will continue to enjoy the benefit of John's talent and dedication for years to come."

Jadrosich was responsible for the design and implementation of TRA's logo, which appears on TRA's vehicles, communications, business cards and signage. He served as Authority spokesperson and media liaison for many floods and other newsworthy events.

During his decades at TRA, Jadrosich oversaw presentations for, and attended, 210 meetings of TRA's Board of Directors, and he produced every TRA consolidated annual report in the history of the Authority. In addition, he produced or contributed to 210 *inTRA* newsletters, all but one of the newsletters TRA has published.

Jadrosich's extraordinary focus and dedication in carrying out his duties is best exemplified by the tremendous volume and quality of aerial photography he produced of TRA's projects. Aerial photography, Jadrosich-style, involved the airplane flying at low altitude and banking toward the plant or facility while he opened the airplane window and leaned out to snap the photographs.

Before joining TRA on May 15, 1975, he piloted fixed-wing aircraft and helicopters in Vietnam for the U.S. Air Force. He holds a bachelor's degree from Texas Christian University in Fort Worth.

CRWS to test new biosolids stabilization process

As part of long-term biosolids management, the Trinity River Authority's Central Regional Wastewater System (CRWS) will test a thermal hydrolysis process to dewater and stabilize sludge.

TRA's Central Regional Wastewater System cleans wastewater for 20 DFW Metroplex cities, along with the Dallas/Fort Worth International Airport. CRWS is currently permitted to treat 162 million gallons per day. The CRWS plant is undergoing construction to improve processes and expand treatment capacity to 189 MGD.

The CRWS treatment plant dewaters solids in either recessed-chamber filter presses or belt filter presses. The solids are stabilized with the addition of lime and pasteurized with heat during the dewatering process. The end result is exceptional Class A biosolids, which are applied by an independent contractor to non-food agricultural crops adjacent to the Dallas/Fort Worth Metroplex in compliance with state and federal biosolids regulations.

"CRWS processes and disposes of biosolids in the most cost-effective manner possible," said Bill Tatum, CRWS Project Manager.

However, with the growth of population in CRWS' customer cities and the corresponding increase in wastewater flows to the plant, biosolids production will increase. Simultaneously, the agricultural lands available for beneficial land application will decrease and be located farther from the plant. This will result in increased costs for CRWS biosolids processing and disposal.

The current CRWS solids process limits the use of the end product.

"Adding lime to the solids results in a high pH level, significantly decreasing our options for disposal," said Tatum. "We are limited to agricultural land applications."

In an effort to make long-term, cost-effective plans for processing and disposing of CRWS biosolids, the Authority retained consulting engineers to evaluate existing processes and recommend a management approach for the future. The resulting CRWS Solids Master Plan provides the Authority with flexible long-term alternatives.

One of the process options outlined in the CRWS Solids Master Plan is a thermal hydrolysis process for dewatering and stabilizing solids.

Thermal hydrolysis is a high-pressure steam treatment in which solids are pressurized and heated to 329 degrees F for 20 minutes, which thoroughly pasteurizes and sterilizes the material. Biosolids produced with thermal hydrolysis are dryer, lighter in weight, odor-free and pH neutral.

"Biosolids produced by thermal hydrolysis can be used for any purpose soil might be needed," said Tatum. "They can be composted with organic materials for use as a soil additive, land applied as a fertilizer or even used as fill dirt in construction projects."

Thermal hydrolysis also produces methane gas, which can be converted to energy to deflect operational costs. More information about thermal hydrolysis is available at http://www.cambi.no/ wip4/detail.epl?cat=10636.

Thermal hydrolysis has been successful throughout Europe and in Asia and Australia. In the United States, the District of Columbia Water and Sewer Authority plans to use thermal hydrolysis at the Blue Plains Advanced Wastewater Treatment Plant starting in 2014. Blue Plains, one of the largest advanced wastewater treatment plants in the world with a capacity of 370 MGD, currently dewaters and stabilizes solids with the same lime-train process used at CRWS.

"Before we can employ thermal hydrolysis at CRWS, we need to see how our solids will respond to the process," said Tatum.

To that end, CRWS solids will be sampled twice weekly and sent to Virginia Tech for a year-long pilot test.

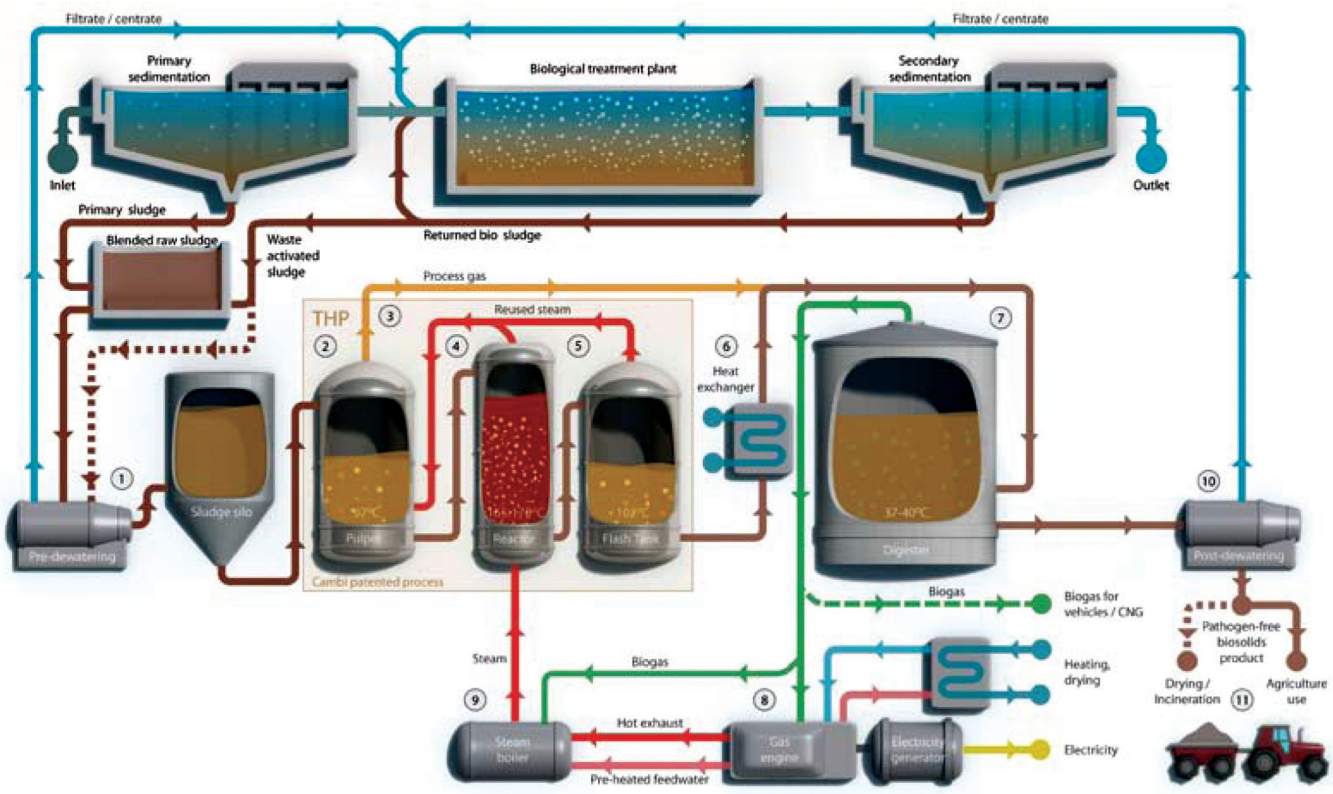


Diagram depicting the thermal hydrolysis process, which is a high-pressure steam treatment in which solids are pressurized and heated to 329 degrees F for 20 minutes. Biosolids produced with thermal hydrolysis are dryer, lighter in weight, odor-free and pH neutral. Thermal hydrolysis also produces methane gas, which can be converted to energy to deflect operational costs.

New PIO for TRA

TRA welcomed Michelle Clark as its new public information officer on May 24. She comes to TRA from GCG Marketing in Fort Worth where she was the agency's account services director. Prior to her time with GCG, Clark was the communications specialist for the Arlington ISD; she holds a bachelor's degree from Millsaps College in Jackson, Miss., and a master's degree from Baylor University.

Clark succeeds John Jadrosich, TRA's public information officer since 1975. Prior to Jadrosich's retirement in June, he and Clark worked together as he shared the knowledge of TRA he'd honed over the past 35 years. "The opportunity to work with John was a tremendous help as I prepared to follow in his footsteps," said Clark. "His knowledge of TRA's history and operations is significant, and I'm sure I'll appreciate the benefit of learning from him for years to come."

With a background heavy in media relations, Clark served as a spokesperson for the AISD during her tenure with the district, and she also brings experience in traditional marketing efforts supplemented by new media initiatives such as website planning, social media marketing and mobile marketing. She's looking forward not only to continuing the tradition of TRA's successful communications efforts, such as *inTRA*, but also to researching and implementing new avenues for TRA to build and foster relationships with customer cities and with the general public.

Clark has been married to husband Robert for 11 years; they have one son, four-year-old Jamie, and two dogs, Hank and Atticus.

Much of Clark's time with TRA thus far has included traveling to the Authority's various projects and meeting as many people as possible. She has toured most of the northern and southern regions, and hopes to visit the Wallisville Saltwater Barrier Project during the fall. She will also, along with Dr. Hong Wu, represent TRA at Texas Gatorfest in Anahuac in September. "I'm thrilled to be a part of TRA," she said. "Everyone here has been incredibly helpful and welcoming. I'm looking forward to getting to know more people and to becoming involved with additional projects throughout TRA and its service area – even if they include alligators!"

Anniversaries

40 years

Danny F. Vance, General Manager

30 years

Malcolm E. Cowdin, Maint. Mechanic II, CRWS

25 years

Gaylin V. Grant, Chief Maintenance Mechanic, CRWS
Michelle M. Harlan, Real Estate Specialist, GO
Helen R. Smith, Accounting Clerk, SRSS
Daniel L. Sutton, Chief Maint. Mechanic, CRWS

20 years

Michael P. Chandler, Senior Operator, TMC
Mike Querry, Inspector Supervisor, CSS

10 years

Jorge T. Chaheine, Senior Field Technician , TMC
Joann L. Clapper, Senior Secretary, CRWS
Drew W. Robb, Operator II, HRWSS
Donald S. Rowe, Senior Real Estate Specialist, GO
Charlie C. White, Park Ranger, LRF
Michael L. Woolsey, Automation Engineer, CRWS

5 years

Bruce E. George, Operator II, MCRWS

3 years

Herbert C. Gates, Maintenance Mechanic I, CRWS
Robert H. Gonzalez, Maintenance Mechanic I, CRWS
Aaron K. Johnson, Operator I, HRWSS
Casey S. Terrell, Storekeeper II, CRWS

Trinity Basin educational software debuts

Fort Worth and Grand Prairie ISDs to employ* Waters to the Sea: Trinity River *software to meet state requirements

A new educational software that teaches the importance of water in the history, culture and ecology of the Trinity River watershed arrived in north Texas in time for the beginning of the 2010-2011 school year.

The *Waters to the Sea: Trinity River* software was adopted as supplemental curriculum by Fort Worth and Grand Prairie Independent School Districts.

Kathy Cash, FWISD Exploratory Learning Investigations Specialist, said the software is a timely resource for the middle school curriculum. "The state mandates watershed studies as part of the science curriculum. This software provides the student with information about the Trinity River basin, historical influences and the importance of good water quality."

In addition, the Trinity River Audubon Center in Dallas, the River Legacy Science Center in Arlington, and the Fort Worth Nature Center are planning to use the software as a pre- and post-visit resource for school groups to enrich their onsite experiences.

Waters to the Sea: Trinity River focuses on the relationship between human activities and water resources in the Trinity River watershed, helping students understand how they impact the river and how the river affects their lives. Students come to know historic Texas characters like Sam Houston and Quanah Parker as they relate the story of the Trinity. The software, geared toward grades 4-8, covers essential water concepts such as the water cycle, quality, reuse and resource planning. Extensive video, animated visuals and fun interactive elements inspire students while they learn important scientific and environmental principles.

An actor posing as Sam Houston narrates portions of* Waters to the Sea: Trinity River. *Sam Houston is one of several historical characters featured in the software.

The software was developed by the Center for Global Environmental Education, which is an integral part of Hamline University's Graduate School of Education in Saint Paul, Minn. *Waters to the Sea: Trinity River* garnered extensive support from Texas agencies including the Trinity River Authority; the American Water Works Association Texas Section; the Water Environment Association of Texas; the cities of Dallas, Fort Worth and Irving; the North Central Texas Council of Governments; the North Texas Municipal Water District; the Region 6 EPA; the Tarrant Regional Water District and many others. The Trinity River Authority's Clean Rivers Program provided support for the development and distribution of the software.

Moving forward, Hamline University will contact school districts throughout the Trinity River basin to offer copies of the software. Schools may also contact Brinkley Prescott, Program Administrator at Hamline University, 651-523-2591, to request a copy.

General Manager's Message

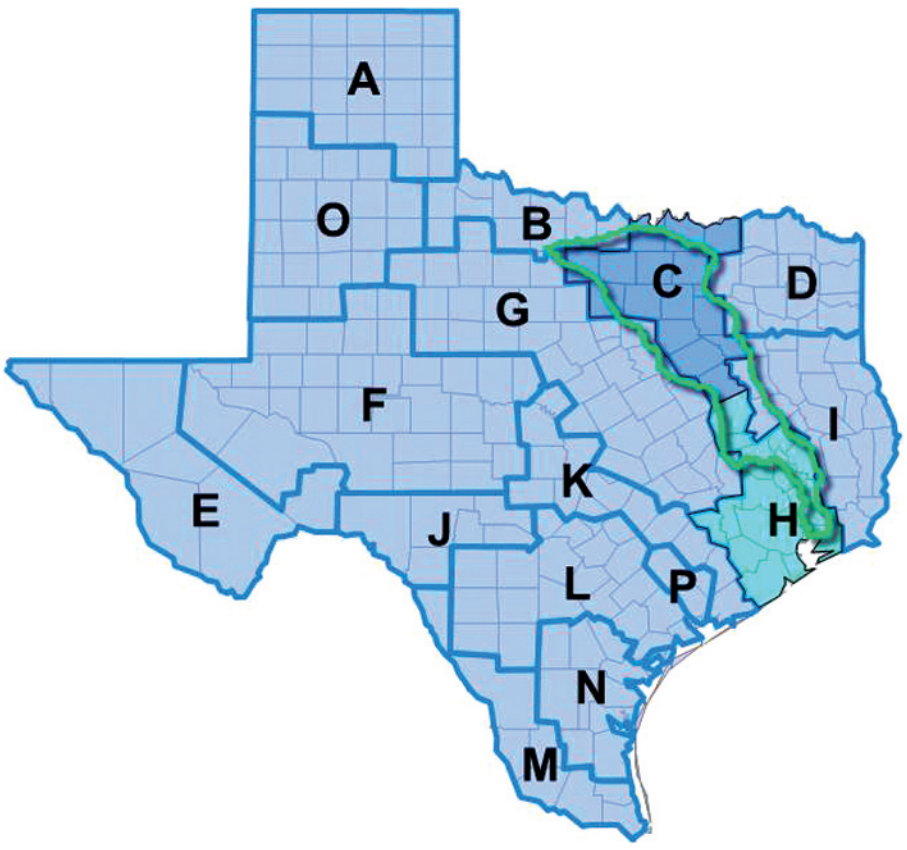
Water planning emphasizes conservation and reuse

General Manager Danny Vance

Now in its third complete five-year cycle since its inception in 1997, the preparation of the latest Texas State Water Plan, as mandated by Senate Bill 1, is nearing completion. The state's 16 Regional Water Planning Groups have, since approval of the 2006 plan, engaged in a series of meetings to explore expected population growth and subsequent increased water demands in their respective areas. Each group is charged with projecting population/water demand, determining existing supply, evaluating needs for additional water and recommending strategies for meeting those needs.

I have represented TRA during all three planning cycles on both the Region C and the Region H planning committees. It has been gratifying to see these groups work together on a regional basis to analyze population growth, water user groups and appropriate strategies to make sure we are satisfying the water needs of those groups.

We have been successful over the past 13 years with this model of resource planning; in fact, our State Water Plan is widely regarded as the blueprint for ensuring Texas' economic health and growth. The planning model has been touted nationally as a model for how to make realistic plans for future water needs. Though many were unsure of SB 1's ultimate value when it was proposed, its implementation has certainly highlighted the strength of local and regional cooperation.



Regional water planning groups C and H are included in the Trinity River basin.

For this planning cycle, Initially Prepared Plans for both groups were approved in March of this year. They will next be submitted to the Texas Water Development Board for inclusion in the 2012 State Water Plan. Both plans contain elements that directly affect TRA in a variety of ways.

Region C represents the northern segment of the Trinity River basin, including all or part of 16 North Central Texas counties. As of 2008, the population of this area was estimated at more than six million people, showing an increase of 21 percent in just eight years and representing a quarter of Texas' total population. As many of us can attest, Region C is heavily urbanized, with 81 percent of its population living in cities boasting populations of more than 20,000. In fact, the largely urban Dallas and Tarrant counties are home to 65 percent of the Region C population.

As one would expect, water use in Region C has risen dramatically in recent years, primarily in response to this increasing population and the resulting surge in municipal demand. Approximately 90 percent of current water use in Region C is for municipal supply. More than half of this water is discharged as treated effluent from wastewater treatment plants, making wastewater reclamation and reuse a potentially significant source of future water supply for the region. With our knowledge of and experience in wastewater reclamation, TRA will remain at the forefront of these water supply solutions.

The Region C population is expected to top nine million by 2030 and swell to more than 13 million by 2060 – the cap of the current water plan. Demands driven by this increase in population are expected to reach 2.4 million acre-feet per year by 2030 and 3.3 million acre-feet per year in 2060. It is interesting to note that these projected demands are actually just over one percent lower than those made in the 2006 Region C Water Plan, primarily attributed to a reduction in projected steam-electric power demands.

However, even with the lowered projections, Region C faces a shortage of 1.5 million acre-feet per year by 2060. The task before the regional planning group was to provide strategies and recommendations for meeting that shortage. We identified and evaluated a wide variety of potentially feasible water management strategies throughout the process of developing the current plan.

The group recommended a water conservation program that would result in a conservation and reuse supply of 1.2 million acre-feet per year by 2060 – this in addition to the 277,000 acre-feet per year of conservation currently built into demand projections. We also developed a strategy for a reduction in dry-year per capita municipal use from 197 gpcd in 2000 to less than 140 gpcd by 2020.

Major water management strategies also include developing 2.36 million acre-feet per year of new supplies, for a total available supply of 4.14 million acre-feet per year in 2060. This supply is approximately 25 percent greater than projected demand, leaving an effective reserve to account for development difficulties, unexpectedly severe droughts, greater-than-anticipated population growth, and needs beyond the current planning horizon. Interestingly, the plan includes only three major new reservoirs, compared to the more than 25 developed to supply Region C over the past 60 years.

Overall, the group recommends that 33 percent of future water supply come from current surface supplies, 25 percent from connecting existing sources, 23 percent from conservation and reuse, 15 percent from the development of new reservoirs, and 3 percent from groundwater supplies. The total budget for implementing these strategies is $18.6 billion.

Encompassing TRA's southern region, Region H comprises all or part of fifteen counties in southeast Texas and includes the entire San Jacinto River Basin, along with the middle and lower reaches of the Brazos and Trinity river basins.

Continued on page 6. See Water Planning.

TRA General Manager announces intent to retire by year end

During the first week of July, TRA General Manager Danny F. Vance announced plans to retire from the Authority by the end of 2010. Citing the need for more personal family time and full confidence in the TRA leadership staff, Vance said that he looks forward not only to seeing a new general manager named, but also to enjoying a transition period with his successor.

No announcements have been made regarding the process for selecting a new general manager; the TRA Board of Directors Executive Committee met in July, and the members will share results of their discussion during the next regularly scheduled meeting of the full board.

"I think every member of the board of TRA realizes that we can't replace Danny Vance as general manager," said Linda Timmerman, Ed.D., president of the TRA Board of Directors. "So, our goal is to select a new general manager who will build on the strong foundation that Danny has laid over the past forty years, and who will continue to keep the Trinity River Authority in a solid financial position, along with preserving our relationships with state and national agencies and our customer cities."

Vance joined TRA in 1970 and was named general manager in 1979, making him the longest-tenured general manager of any major river authority in Texas. At the time of his appointment, he was the second general manager in TRA history and the youngest individual to serve as the general manager of a major Texas river authority. Under his leadership, TRA has become the largest wholesale provider of water reclamation services in the state, and the Authority's assets have increased from $301.7 million to more than $1.622 billion.

During the coming months, each issue of *inTRA* will update readers on any developments in the selection process, along with reflecting on the highlights of Vance's leadership over the past 31 years.

Employee Milestones

New Hires

CRWS welcomes **Nenad Menicanin** as Electronic Technician I, **Brandon Smiddy** and **Dennis Tolleson** as Operator I, and **Silvia Zavala** as Senior Field Technician.

LLP welcomes **Bradley Heath** and **Gregory Nobles** as part-time Maintenance Helpers.

Burt Fogle has joined LRF as a Park Ranger.

TCWSP welcomes **Marco Acosta** and **Jason Coles** as Operator I, and **Villagomez Moreno** as Maintenance Mechanic II.

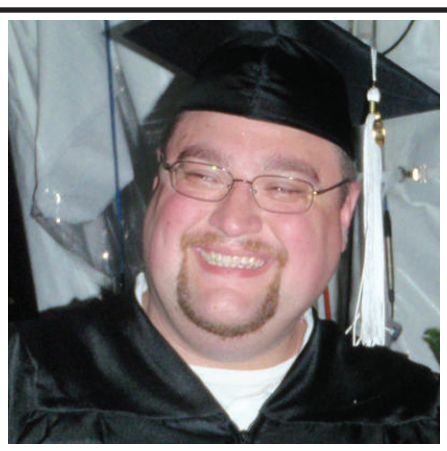
Promotions

Paula Orbeck and **Casey Terrell** were promoted to Assistant Buyer at CRWS.

Clayton Tidwell was promoted to Operator II at CRWS.

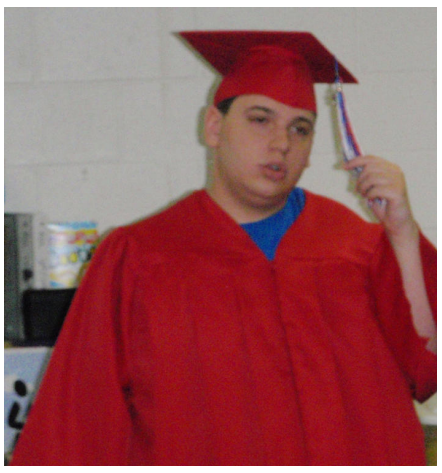
Current Events

The DFW Mid-Cities chapter of the Texas Society of Professional Engineers elected **Karen Stafford-Brown**, NR Manager of Engineering Services, to serve as chapter president for the 2010-2011 year.



Collin Harvey, son of Ginger and Craig Harvey, CRWS Laboratory Division Chief, graduated from the University of Texas at Arlington with a bachelor's degree in history.

Congratulations to Bill Tatum, CRWS Project Manager, on the birth of his first grandchild. Chase Rylan Tatum was born July 5 at 6 pounds, 11 ounces and 19.75 inches. Chase's parents are Christin and Shane Tatum.



Mark Harvey, son of Ginger and Craig Harvey, CRWS Laboratory Division Chief, graduated June 6 from Sam Houston High School.

Collin Harvey, son of Ginger and Craig Harvey, CRWS Laboratory Division Chief, was married to Jennifer Meyers June 12 at the First Baptist Church in Grand Prairie. The newlyweds honeymooned in Hawaii.

Tyler Rosetta, son of Stacy Rosetta, LLP Accounting Clerk, and her husband Brad, graduated June 4, 2010, from Shepherd High School. Tyler was a Distinguished Achievement graduate. He plans to attend Sam Houston State University in the fall.

Congratulations to David W. Hatley, CRWS Laboratory Supervisor, on the birth of his first grandson. Aaron Layne Van Toorn was born June 27 at 7 pounds, 13 ounces and 20 inches long. Aaron's parents are Melissa and Darek Van Toorn.

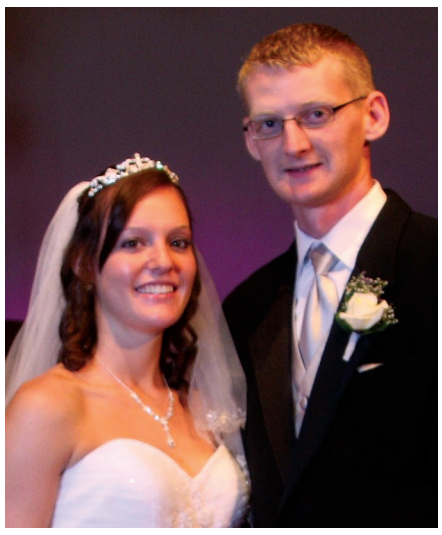
"Water is H2O, hydrogen two parts, oxygen one, but there is also a third thing that makes it water and nobody knows what that is."

— D.H. Lawrence

Correction

Brandon Morton's title was incorrect in Employee Anniversaries in the April/May issue of *inTRA*. Morton is Operator II at DCRWS.

Autumn Brewer, granddaughter of Warren Brewer, Northern Region Manager, was accepted to the Texas Academy of Mathematics and Science (TAMS) at the University of North Texas in Denton. Autumn just completed her sophomore year at Sulphur Springs High School. TAMS is a unique residential program at UNT for high-school-aged Texas students who are high achievers and gifted in mathematics and science. Autumn plans to study medicine. She has been on many mission trips including visits to New Orleans, Kenya, Uganda, Turkey, Panama and China.



Michelle Mae Davis and Jeffrey Scott Barnes were married June 26, 2010. Michelle's parents are Tom and Susan Davis, NR Senior Secretary. Michelle and Jeff live in Temple. Jeff serves in the United States Army with the Military Police at Fort Hood. He returned from a 12-month tour in Iraq on December 2009 and is expected to be deployed to Afghanistan in 2012. Michelle attends McLennan Community College in Waco, where she studies radiology.

TRA maintenance mechanic called to action

Sergeant E-5 Malcolm Evart Cowdin reports for duty

Malcom Evart Cowdin, Maintenance Mechanic II at the Trinity River Authority's Central Regional Wastewater System, was activated by the Texas State Guard June 27 in anticipation of Hurricane Alex. Cowdin was directed to report to active duty for 15 days to provide shelter management in Hidalgo County.

Cowdin traveled 550 miles to Mission, Texas, to open a shelter for evacuees at the Kenneth W. White Junior High School. In all, 850 evacuees stayed at 17 shelters in the Lower Rio Grande Valley.

"Hurricane Alex missed the horn of Texas, and thank God for that," said Cowdin. "We packed up Friday and convoyed 12 hours back to Shore View Armory in Fort Worth."

Trinity Trash Bash 2010

Nineteen North Central Texas communities are gearing up for Trinity Trash Bash events in September and October. Communities will host trash pickups, plus educational and entertainment activities in various combinations. Visit http://trinitytrashbash.com to participate.

The Trinity River Authority provides funds for Trinity Trash Bash through the Clean Rivers Program.

Trinity River 2010
TRASH BASH

CRWS meets challenging screening conditions

Millions saved with coarse bar screen selection and location

The Trinity River Authority's Central Regional Wastewater System (CRWS) will add new coarse bar screens to filter large debris from raw wastewater as it flows into the plant. At its June meeting, the TRA Board of Directors approved a $1,346,500 contract for the installation design and equipment purchase of coarse bar screens, which will be installed in front of pump stations 6 and 6A at the CRWS treatment plant in Grand Prairie.

TRA's Central Regional Wastewater System treats wastewater for 20 DFW Metroplex cities, along with the Dallas/Fort Worth International Airport. CRWS is currently permitted to treat 162 million gallons per day. The CRWS plant is undergoing construction to improve processes and expand treatment capacity to 189 MGD.

Most wastewater treatment plants screen incoming flows for solid debris such as plastics, cloth and strings. Screening wastewater at CRWS is especially challenging because of the size of the pipelines that transport wastewater to the plant, plus the placement of the pipelines next to rivers and creeks and the total distance the water must travel.

"Most CRWS pipelines are located next to the Trinity River or its tributaries to take advantage of gravity," said Bill Tatum, CRWS Project Manager. "The water flows by gravity to the plant, which decreases costs because we don't have to use electrical power to pump the water to the plant."

An aerial photo of TRA's Central Regional Wastewater System plant in Grand Prairie. After 30 years of operation and many expansions, space for new equipment is limited. Careful selection and siting of new coarse barscreens saved $15 million.

The CRWS collection system includes four lift stations, 138 meter stations and over 200 miles of pipeline. Pipes can be as large as 110 inches in diameter, and hundreds of manholes provide access to pipes at key points in the collection system. The heavy manhole covers are sometimes dislodged during flooding events, allowing debris to enter the wastewater stream. Despite the sizable nature of some storm debris, the large-diameter pipes are not easily obstructed, and many objects make their way to CRWS.

"There is plenty of opportunity for large debris to get into the wastewater and travel to the plant," said Tatum.

As a result, unusual objects including tree trunks, branches and construction materials arrive at the CRWS treatment plant where they can damage fine bar screens and pumping equipment. Coarse bar screens, placed in front of the fine bar screens, already located at pump stations 6 and 6A, will protect this valuable equipment.

"Building a stand-alone facility to house the coarse bar screens would have cost the Authority $25 million," said Tatum. "We wanted to make the best use of our resources, so we searched for a coarse bar screen that could be retrofitted to the existing structures at pump stations 6 and 6A."

Bar screens typically have metal bars spaced at regular intervals to catch debris but allow water to flow through. Mechanical teeth rake the screens to clean away debris. The debris is then deposited on a conveyer belt that moves it to a dumpster. The screen, mechanical rake, conveyor and dumpster consume a large amount of space.

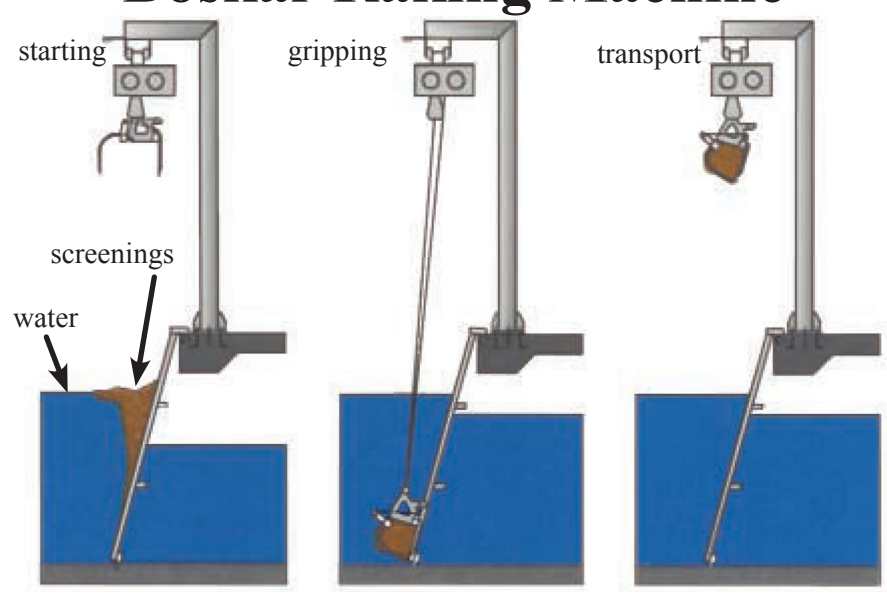
After an exhaustive search, CRWS found that the Bosker Raking Machine would fit the structures at pump stations 6 and 6A.

The Bosker bar screen system consists of multiple bar screen racks that are cleaned by a single raking machine. The raking machine is mounted on a monorail and can move from screen to screen. The raking machine travels to the bar screen where a gripper descends to the bottom of the screen, collecting debris as it goes. Once the gripper is full, it deposits the debris in a nearby dumpster.

"The Bosker System needs just one rake to clean multiple screens, and it doesn't require a conveyor. That saves space," said Tatum.

TRA saved approximately $15 million by selecting equipment that could be retrofitted to existing structures.

Boskar Raking Machine



Water Planning. Continued from page 4.

This region is home to two thirds of all U.S. petrochemical production and almost a third of the nation's petroleum industries. Thus, Region H is an economic powerhouse crucial to the development of both the Texas and the national economy; adequate water supplies are essential to this region's continued economic health.

The population of Region H is projected at 11.3 million in 2060, up from its current 6 million. Water demands are expected to grow from approximately 2.38 million acre-feet per year in 2010 to more than 3.53 million acre-feet per year in 2060. In addition to municipal demand, water consumption for manufacturing, steam-electric power generation and mining will increase throughout the planning period. These projections reflect both existing water conservation programs and expected passive conservation resulting from plumbing code changes that are expected to reduce per capita demands by approximately 8 percent by 2060.

Current predominant sources of surface water supplies for Region H are Lakes Conroe and Houston within the San Jacinto River basin and TRA's Lake Livingston within the lower Trinity River basin. Lake Livingston represents 52 percent of all available water supplies in the region. Despite adequate overall water supplies for Region H through 2060, the planning group identified communities that will experience water shortages during the planning period unless they take action to increase their supplies, primarily by redistributing available water. In fact, projected shortages totaled more than a million acre-feet per year by 2060, a shortage greater than that projected during the last water-planning cycle.

The water management strategies the group selected to meet projected growth in demand include conservation strategies for industrial, irrigation and municipal use, along with contractual and groundwater strategies. The contractual strategies directly affecting TRA include a recommendation that the San Jacinto River Authority purchase up to 76,500 acre-feet per year of uncommitted supplies from TRA to serve Montgomery County, and a recommendation that the City of Houston purchase up to 123,500 acre-feet per year from TRA as well. Total capital costs for the 2011 Region H water plan are estimated at $12.9 billion.

As was the case during the previous planning period, both regional plans continue to increase their emphasis on water conservation and wastewater reuse, an area of particular interest to TRA. We will continue to have a presence on both water planning boards to provide a voice for strategies that meet future water demand in ways that are both innovative and economically feasible.

Trinity River fish possession ban lifted, but consumption advisory expanded

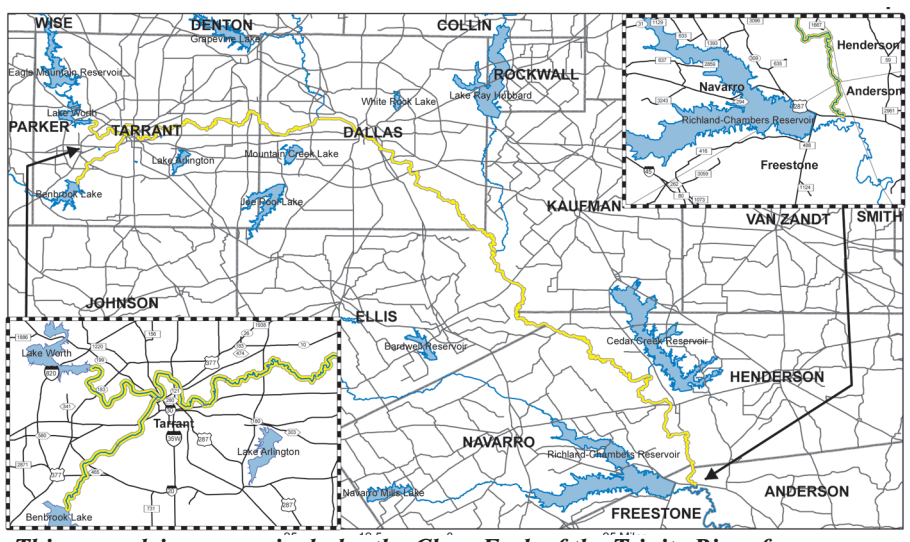
Until July of this year, the Texas Department of State Health Services (DSHS) had banned the possession and consumption of any fish species from portions of the lower Clear Fork, most of the West Fork and the main stem of the Trinity River down to State Highway 34. The ban prohibited the possession and consumption of fish and shellfish in specified waters, and game wardens could issue tickets if people were found in possession of fish, although catch-and-release fishing was allowed.

This ban has been lifted, and in its place DSHS issued an advisory warning people not to consume any species of fish from portions of the Trinity River in Tarrant, Dallas, Ellis, Kaufman, Henderson, Navarro, Freestone and Anderson counties. Consumption advisories such as this are recommendations that sometimes include limits on quantities, species, and sizes of fish and shellfish from affected waters.

This new advisory area includes the Clear Fork of the Trinity River from Benbrook Dam to the confluence with the West Fork and the West Fork from Lake Worth Dam to the main stem of the Trinity River at the U.S. Highway 287 bridge on the Freestone-Anderson County line (see map).

Laboratory testing of fish samples in the advisory areas found elevated levels of dioxins and polychlorinated biphenyls, or PCBs. PCBs are industrial chemicals once used as coolants and lubricants in electrical equipment. The U.S. Environmental Protection Agency banned PCBs in 1979, but items containing the chemicals did not have to be replaced. Dioxins are byproducts of combustion and industrial activity. Dioxins and PCBs degrade slowly in the environment and are often referred to as legacy pollutants because of their continued presence in river sediment.

Long-term consumption of dioxins and PCBs may cause cancer and reproductive, immune system, developmental and liver problems. According to DSHS standards, PCB levels in fish above 0.047 milligrams per kilogram may pose a risk to human health. PCB levels in the most recent Trinity River samples averaged 0.185 mg/kg and were as high as 1.301 mg/kg. Levels of dioxins averaged 2.64 picograms per gram, slightly above the DSHS standard of 2.33 pg/g.



This new advisory area includes the Clear Fork of the Trinity River from Benbrook Dam to the confluence with the West Fork, and the West Fork from Lake Worth Dam to the main stem of the Trinity River at the U.S. Highway 287 bridge on the Freestone-Anderson County line.

Elevated levels of PCBs and dioxins in fish do not pose a health risk for people swimming or participating in other water recreation activities.

The recently lifted possession and consumption ban had been in place since 1990 due to high levels of the pesticide chlordane. Levels of chlordane have dropped and are no longer a health concern.

Possession and consumption bans remain in place for Echo Lake in Tarrant County and Mountain Creek Lake in Dallas County. For more information, visit www.dshs.state.tx.us.

CRWS to rehab 101 manholes in Bear Creek interceptor

The Trinity River Authority's Central Regional Wastewater System (CRWS) will repair and rehabilitate 101 manholes as well as six junction boxes in the system's Bear Creek interceptor pipelines.

TRA's Central Regional Wastewater System cleans wastewater for 20 DFW Metroplex cities, along with the Dallas/Fort Worth International Airport. CRWS' collection system includes five lift stations, 138 meter stations, over 200 miles of pipeline and more than 1900 manholes. The Bear Creek interceptor collects wastewater from Bedford, Colleyville, Dallas/Fort Worth International Airport, Euless, Fort Worth, Grand Prairie, Grapevine, Hurst, Irving, Keller and Southlake.

Manholes provide access to pipelines at regular intervals. CRWS' manholes are spaced at distances between 500 and 2,000 feet, based on pipe size. State design criteria require manholes at changes in horizontal direction, changes in pipe size, and changes in the slope of the pipelines. Some manholes are situated over concrete junction boxes, which mark the intersection of two large pipelines flowing at the same grade.

Manholes and junction boxes deteriorate and suffer damage over time. They are typically constructed of concrete and, like concrete wastewater pipes, are susceptible to corrosion caused by a combination of gases released by wastewater and bacteria. Hydrogen sulfide gas is released when wastewater comes into contact with air. Sulfuric acid is formed when hydrogen sulfide combines with oxygen in the air. Certain bacteria in the wastewater system accelerate this acid formation. Over time, the acid dissolves the concrete and causes pitting and holes.

In addition, soils that surround manholes and junction boxes can expand, contract and shift, causing structural damage.

Maintaining the condition of manholes and junction boxes is critical to the safety of personnel and the successful operation of a collection system. Structural failure of these facilities can cause pipeline obstructions or allow entry of stormwater and groundwater, which can overload the pipes and cause outflows, especially during wet weather.

CRWS management identified 101 concrete manholes and six junction boxes in need of repair on CRWS' Bear Creek interceptor system.

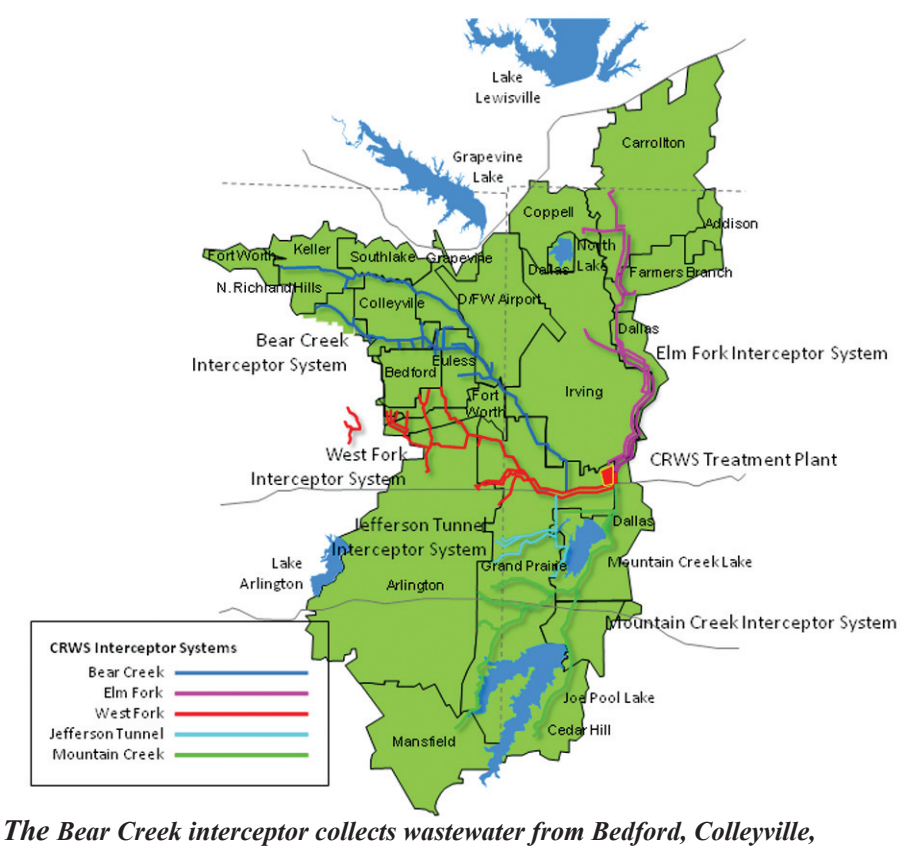
Manholes and junction boxes with the least damage will undergo a grouting and coating process. The structures will be cleaned and then grouted, creating a smooth, level surface. Next, a two-part, corrosion-resistant epoxy will be heated and applied to form a protective seal.

Manholes and junction boxes suffering from more serious or structural damage will be lined to form a "manhole within a manhole." This is accomplished by first inserting a flexible liner coated with resin into the existing manhole. The liner is then expanded to fit the manhole's shape by injecting hot water or steam. The hot water or steam also heats the resin coating on the liner, which causes it to harden, or cure, once it cools, creating a new manhole within the old manhole.

This repair process restores structural integrity to damaged manholes and junction boxes and protects against further hydrogen sulfide corrosion. In addition, the process does not require digging to gain access to the underground structures. This saves time and money over traditional open-cut repair or replacement and is less disruptive to traffic when manholes are located in streets.

In June, Suncoast Infrastructures, Inc. won the project with a bid of $898,545 to repair the Bear Creek manholes and junction boxes.

CRWS Service Area and Interceptor Map



The Bear Creek interceptor collects wastewater from Bedford, Colleyville, Dallas/Fort Worth International Airport, Euless, Fort Worth, Grand Prairie, Grapevine, Hurst, Irving, Keller and Southlake. Junction boxes and manholes in the interceptor will undergo repairs to keep the line in good working order.

Trinity River Authority of Texas
P.O. Box 60
Arlington, Texas 76004
(817) 467-4343

CHANGE SERVICE REQUESTED

PRSRT STD
U.S. POSTAGE PAID
FORT WORTH, TX
PERMIT # 1359

inTRA is published by the Trinity River Authority's Public Information Division for the Authority's valued employees, directors, consultants and other interested individuals. To request or submit information for publication, contact editor Debbie Bronson, TRA Public Information Assistant, 817-467-4343, or bronsond@trinityra.org.

Trinity photo contest under way

The second annual Trinity River photo contest began on June 30 and will run through October 15. The contest, sponsored by the City of Dallas, encourages participants to capture the natural beauty of the Trinity River along the Dallas Trinity River Corridor Project. Contest judges are looking for striking images of wildlife, the forest or prairie, architecture and structures near the river in an area that encompasses I-35 North at Royal Lane to Hwy 175-S at I-20. The contest has divisions for professional photographers, amateurs and youths, classified as 17 and younger. There are cash prizes, and the winning entries will be displayed, both at Dallas City Hall and on the City's website. Details about the contest, including entry rules, are available at www.dallasne.ws/cwjLry .