LOUISIANA DRINKING WATER PROTECTION PROGRAM

2018 newsletter

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INSIDE THIS issue

BURIED AND FORGOTTEN: OUR WATER AND WASTEWATER INFRASTRUCTURE

Potholes. Road and bridge repairs. The inconveniences of an eroding infrastructure are readily apparent on a daily basis. But less apparent are the millions of miles of underground water and sewer pipes that make up the infrastructures that provide essential service to our homes and businesses. We take it for granted that water will flow from our taps and our toilets will flush without giving it much thought…we don't think about or even value what we can't see. Few people realize what it takes to treat and deliver drinking water or treat wastewater to safely return to the environment. The treatment plants and pipes that provide these crucial services are aging and crumbling, putting our families, environment, and economy at risk. The lead crisis in Flint, Michigan demonstrates the consequences of quick fixes and deferred maintenance. And it happens much closer to home. In 2016 the Town of St. Joseph faced a water crisis that had been unfolding for years. While unfortunate, Flint brought the "invisible" water infrastructure into the public light. Most of our nation's buried water and wastewater infrastructures were built 50 or more years ago and some have been in the ground for a century or longer…and they're failing. According to the U.S. Water Alliance these are the challenges facing our nation:

- **1.7 trillion:** The number of gallons of drinking water we lose every year to faulty, aging, or leaky pipes. When you add in leakage from sewer and stormwater pipes, that number rises to 6 trillion gallons.
- **237,600:** The number of water main breaks every year in the US. That's 700 a day, and almost one every two minutes.
- **47 years:** The average age of our pipes. Pipes in urban centers are often older— some in New Orleans are up to 100 years old.
- **D:** The grade U.S. drinking water and wastewater infrastructures received from the American Society of Civil Engineers.
- **$4.8 trillion:** What we need to invest over the next twenty years to keep our water and wastewater systems in a state of good repair. Storm water systems will require an addition $298 billion over the next 20 years. ***http://thevalueofwater.org/***

Although water is essential to our daily lives, we pay much less for it than electricity, cable television, or other utilities. The current rates do not accurately reflect the actual cost of supplying clean drinking water or wastewater management, which often far exceed the financial capabilities of many water utilities. In addition, money earmarked for infrastructure often gets diverted to other projects. The reason? These events generate little interest to the public and are "low visibility" activities. In general, the public likes to see what they pay for. How often do we see a ribbon-cutting on a new water line? Visibility quickly changes, however, when the water comes out of the tap polluted or not at all! High profile water crises have brought awareness to our infrastructure challenges. Now is the time to leverage that awareness in a call to action from federal, state, and local governments as well as citizens to make water and wastewater infrastructure a national priority. Without increased investment in this critical infrastructure we could lose much of the public health and environmental gains made from the Safe Drinking Water and Clean Water Acts. Can we afford to do it? Can we afford not to?

DID YOU know?

The average person spends less than one percent of his or her total personal expenditure dollars for water and wastewater services.

Source: www.lenntech.com

OUR WATER PIPES CRAWL WITH MILLIONS OF BACTERIA

Our water pipes crawl with millions of bacteria. Researchers from Lund University in Sweden have discovered that our drinking water is to a large extent purified by millions of "good bacteria" found in water pipes and purification plants. So far, the knowledge about them has been practically non-existent, but this new research is about to change that.

A glass of clean drinking water actually contains ten million bacteria! But that is as it should be -- clean tap water always contains harmless bacteria. These bacteria and other microbes grow in the drinking water treatment plant and on the inside of our water pipes, which can be seen in the form of a thin, sticky coating -- a so-called biofilm. All surfaces from the raw water intake to the tap are covered in this biofilm.

Findings by researchers in Applied Microbiology and Water Resources Engineering show that the diversity of species of bacteria in water pipes is huge, and that bacteria may play a larger role than previously thought. Among other things, the researchers suspect that a large part of water purification takes place in the pipes and not only in water purification plants.

"A previously completely unknown ecosystem has revealed itself to us. Formerly, you could hardly see any bacteria at all and now, thanks to techniques such as massive DNA sequencing and flow cytometry, we suddenly see eighty thousand bacteria per milliliter in drinking water," says researcher Catherine Paul enthusiastically.

The work of doctoral student Katharina Lührig, who works together with Catherine, professors Peter Rådström and Kenneth Persson, and colleagues Björn Canbäck and Tomas Johansson has been published in Microbes and Environments. The results have led to lively discussions within the industry about the role of biofilms in drinking water. At least a couple of thousand different species live in the water pipes. According to the researchers there is a connection between the composition of bacteria and water quality. "We suspect there are 'good' bacteria that help purify the water and keep it safe -- similar to what happens in our bodies. Our intestines are full of bacteria, and most the time when we are healthy, they help us digest our food and fight illness, says Catherine Paul. Although the research was conducted in southern Sweden, bacteria and biofilms are found all over the world, in plumbing, taps and water pipes. This knowledge will be very useful for countries when updating and improving their water pipe systems. "The hope is that we eventually may be able to control the composition and quality of water in the water supply to steer the growth of 'good' bacteria that can help purify the water even more efficiently than today," says Catherine Paul.

Lund University. "Our water pipes crawl with millions of bacteria." Science Daily, 16 December 2015. www.sciencedaily.com/releases/2015/12/151216082553.htm

SOURCE WATER PROTECTION: A HISTORICAL PERSPECTIVE

The Safe Drinking Water Act Amendments of 1986 created the Wellhead Protection Program to protect groundwater sources of community public drinking water. The 1996 amendments further expanded protection to all sources of public drinking water including surface water. However, long before these amendments were added to the Safe Drinking Water Act of 1974, before drinking water protection area signs dotted our highways, the need for source water protection was recognized.

The earliest investigations of movement of contaminants in groundwater examined disease-causing bacteria. By the 1850s public health officials in England recognized the link between typhoid outbreaks and certain water wells. U.S. officials also made this connection to cholera exposure during the 1870s. In 1882 a French scientist used dyes to trace the source of contaminated groundwater. The methods used by public health officials as early as the mid-1800s reflect the contemporary understanding of the of groundwater movement and the linkages between surface sources of contamination and groundwater. This understanding led to widespread acceptance that wells must be placed at a safe distance from sources of contamination. By the turn of the century several state legislatures in the United States had passed laws restricting the placement of cemeteries within a minimum distance of wells. In 1902, the United States Geological Survey (USGS) advised against using shallow wells stating that "water in the surface zone of flow is everywhere exposed to contamination by seepage of impurities from the surface of the ground, and wells in this zone of groundwaters are especially subject to pollution." In 1929 the American Water Works Association, a leading water supply organization, reported on well contamination from a factory in their journal and recommended a protective zone 100 meters in diameter around water wells.

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In 1937 the Committee on Groundwater Supplies of the State Sanitary Engineers cautioned that well sites in industrial areas should be avoided. By the early 1940s contamination of public drinking water supplies by nonbiological wastes became a major concern. The U.S. Public Health Service issued a manual for public groundwater supplies that called for a minimum distance of 50 feet between a well and a potential source of contamination but cautioned the safe distance depends on the subsurface material and rate of pumpage. Recognizing the effect of drawdown, it went on to state that wells supplying large volumes of water should be placed at greater distances from potential sources of contamination.

By 1950 the study of groundwater hydrology clearly indicated the potential for movement of liquid wastes from land disposal sites to surface and groundwaters. The overwhelming evidence demonstrates there was an adequate recognition of the potential for contamination of drinking water sources nearly 40 years before the Safe Drinking Water Act Amendments of 1986 formally created the Wellhead Protection Program. Though federal laws now provide general source water protection programs, the actual implementation of protection activities is carried out by the states in cooperation with local governments, water utilities, and local citizens. Knowledge isn't power unless it's applied.

(Source: The Road to Love Canal: Managing Industrial Waste Before EPA, Craig E. Colten & Peter N. Skinner, 1996)

COMMUNITY OUTREACH ACTIVITIES

LDEQ Geologist Jesse Means teaches students to identify bugs that indicate water quality at the annual Sparta Aquifer Fest in Jimmy Davis State Park, Jackson Parish.

Rusty Reeves, LRWA Deputy Director, Training Specialist (right), explains the operation of an onsite wastewater treatment system in Thibodaux. The training was part of a home owner's wastewater treatment system maintenance class conducted by LRWA, LDEQ, and LDH.

LDEQ Geologists Shanna Mason, Mary Gentry, and John Jennings work the LDEQ exhibit at the Annual Louisiana Rural Water Association Conference in Lake Charles.

LDEQ Geologist Shanna Mason gives a permeability demonstration to show students how water flows through aquifers at the Ocean Commotion event in Baton Rouge.

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DRINKING WATER PROTECTION PROGRAMS 2017 - 2018

DeSoto Parish. There are 11 active community public water systems in DeSoto Parish. A community meeting was held on November 16, 2017 in Mansfield, LA. Attendees learned where their water comes from, why it is important to protect it and how they can protect it and also volunteered to educate facilities/businesses that are considered to be significant potential sources of contamination (SPSOCs) near public water wells. LDEQ provided volunteers with packets containing the location of the SPSOCs, material to distribute to personnel at each SPSOC, and instructions on conducting these educational visits. Volunteers were also instructed on how to report changes to SPSOC information to LDEQ. A total of 178 SPSOCs (visitable and non-visitable) were verified and 17 educational visits were completed. Committee meetings were devoted to further drinking water protection education. A presentation on back flow prevention was given by the Louisiana Rural Water Association and the Louisiana Department of Health. The presentation consisted of backflow prevention requirements and a review of a backflow prevention plan template. The committee along with the Sabine Parish Drinking Water Protection Committee hosted a "movie night" viewing of the documentary Liquid Assets: The Story of Our Water Infrastructure. The documentary highlights communities from across the United States, providing an understanding of hidden water infrastructure assets, demonstrating watershed protection approaches, and illustrating twenty-first century solutions.

Shanna Mason, LDEQ, gives an introduction to Liquid Assets at the Sabine-DeSoto Drinking Water Protection Movie Night.

Red River Parish. There are 11 active public community water systems in Red River Parish. Due to the rural nature of the parish and small number of water systems no drinking water protection committee was formed. The drinking water protection team met and worked with the water systems, updated source water assessments, verified 53 SPSOCs (visitable and non-visitable), and visited 17 owners and operators of SPSOCs to educate them on best management practices. Red River Parish water operators, local officials, and residents will be invited to participate in drinking water protection meetings and activities in neighboring Bienville Parish in the fall of 2018.

Susan Robbins, LRWA, serves popcorn at the Sabine-DeSoto Drinking Water Protection Movie Night.

Sabine Parish. There are 17 active community public water systems in Sabine Parish. A community meeting was held on September 28, 2017 in Many, LA to educate the public on drinking water protection and solicit volunteers for a parish wide drinking water protection committee. LDEQ provided volunteers with packets containing the location of the SPSOCs, material to distribute to personnel at each SPSOC, and instructions on conducting these educational visits. A total of 169 SPSOCs (visitable and non-visitable) were verified and 41 educational visits were completed. Committee meetings were devoted to further drinking water protection education. A presentation on using source water protection to promote the use of tap water from public utilities was given by the Louisiana Rural Water Association. Another presentation on oil and gas well regulations was given by the Louisiana Department of Natural Resources. The committee also co-hosted a "movie night" with the Sabine Parish Drinking Water Protection Committee for a viewing of the documentary Liquid Assets: The Story of Our Water Infrastructure. The movie night was held at the Sabine Theater in Many, LA with 45 people in attendance.

TITLE 51 UPDATES AND SOURCE WATER PROTECTION

SUBMITTED BY: SUSAN ROBBINS, SOURCE WATER PROTECTION SPECIALIST
LOUISIANA RURAL WATER ASSOCIATION (LRWA)

Title 51:XII (Water Works Standards Rule) updates are all the talk these days. If you haven't downloaded a copy, there's a link at the end of this article. The new updates became effective August 1, 2018.

If you have seen my presentation on source water protection you know there are not many laws out there to protect your source of drinking water. Those that are only require setbacks from certain sources of contamination, and are not enough to even get out of the critical area of 1000 feet from a wellhead or intake for that matter. In Louisiana, a 1000-foot radius is considered to be the critical area around a public drinking water supply well.[1]

Source Water Protection Plans may be a requirement for permitting of new drinking water sources in Louisiana.[2] Well, blow my socks off! I never thought I would see the day. While there are many references to source water protection and potential sources of contamination in the sanitary code, the following two are huge steps for Louisiana in protecting our drinking water sources.

Subchapter C. Source Development

§167. Surface Water

*A. A **source water protection plan** enacted for continued protection of the watershed from potential sources of contamination shall be provided as determined by the state health officer. Surface water includes sources of water supply such as, but not limited to:*

1. all streams;

2. tributary streams;

3. drainage basins,

4. natural and man-made ponds and lakes; and

5. artificial reservoirs or impoundments.

And

§169. Groundwater

D.2. Continued sanitary protection of the well site from potential sources of contamination shall be provided by having a minimum 50-foot radius of ownership and a minimum 100-foot radius of control from the well head. The radius of control required beyond the minimum 50-foot radius of ownership shall be provided either through ownership, zoning, easements, leasing or other means acceptable to the state health officer which shall be maintained for the life of the well until the well is ultimately properly abandoned.

While these requirements will only be for new wells and intakes at the engineering level, it is a step in the right direction for protecting our drinking water "From the Source to the Tap".

The 1996 Amendments to the Safe Drinking Water Act (SDWA) took a major step in drinking water protection by mandating states perform a source water assessment (SWAP) for each public water system. The State did this for every public water system in Louisiana, between the years of 2000 to 2003. Each water system is required to have one on file and readily available for viewing by your customers. In addition to SWAP reports, public water systems are encouraged to voluntarily participate in a protection program by creating a Source Water Protection Plan.

The best way to protect drinking water is to keep contaminants from entering source water and the public water system is the first line of defense to reduce or eliminate contaminants in source water. So, get ahead of the curve and opt to develop a Source Water Protection Plan for your existing drinking water sources. And guess what? LRWA can help you do that and it won't cost you a thing.

You can download your copy of the Water Works Standards Rule here: ***http://www.dhh.la.gov/assets/oph/Center-EH/engineering/SDWP/LR_Vol44No02_Feb_20_2018_Water_Works_Standards_Rule.pdf***

[1]*Louisiana Source Water Assessment Program, February 1999 (Revised April 2001) – Appendix R*

[2]*Water Works Standards Rule - Louisiana Register (February 20, 2018)*

ASK THE DWPP TEAM

Question: Does leaving the water running while brushing your teeth really waste that much water?

Answer: Yes! The average bathroom faucet runs at a rate of about two gallons per minute. Anywhere from two to six gallons of water go down the drain every time you brush. Assuming you brush at least twice a day for a minimum of two minutes nearly 3,000 gallons of water go down the drain in a year. Now that doesn't seem so small! Turning off the water will conserve water and save you money.

Question: If you have the ability to clean up our drinking water before it gets to our homes, why does the quality of the source water matter so much?

Answer: There is a significant expense in removing pollutants from your water. Your drinking water can be treated by filtering it through special filtration systems and/or addition of chemicals but these treatments are quite costly. The more polluted the source water the more it will cost to treat it and that cost will ultimately be passed on to you. More importantly, treatment technologies may not remove certain pollutants or may be cost-prohibitive and an alternate source of water must be found. An ounce of prevention really is worth more than a pound of cure!

SABINE PARISH WATER DISTRICT #1 WINS LOUISIANA RURAL WATER ASSOCIATION AWARD

Sabine Water District #1 received highest honors this year at Louisiana Rural Water Association's Annual Awards Banquet when they were named the Source Water Protection System of the Year. The awards were presented on July 18, 2018 at LRWA's 31st Annual Training and Technical Conference held in Lake Charles, Louisiana.

LRWA is a nonprofit organization established to aid small water and wastewater systems through training and on-site technical assistance. The LRWA Awards Program was established to recognize the outstanding efforts of Rural Water and Wastewater Systems and their personnel.

Sabine Parish Water District #1 completed all elements of State Drinking Water Protection program including all elements of a working Source Water Protection Plan. The Manager and employees were very active in hosting and participating in the Drinking Water Protection Committee meetings. Sabine #1 also utilized their website to promote the viewing of "Liquid Assets," one of the SWP implementation activities selected by the Sabine Parish Drinking Water Protection Committee. While doing all of this, Sabine #1 completed the expansion of their distribution system to include the Robeline-Marthaville Water System.

Walter Mains, accepting award on behalf of Sabine Parish Water District #1 from Donald Nash, LRWA Board President

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THE DRINKING WATER PROTECTION TEAM SALUTES MUNICIPALITIES AND PARISH GOVERNMENTS WHO HAVE ADOPTED A GROUNDWATER PROTECTION ORDINANCE (AS OF 9/30/2018):

Acadia
Acadia Parish Police Jury
Town of Church Point
City of Crowley
Town of Iota
City of Rayne

Allen
Town of Elizabeth
City of Oakdale

Avoyelles
Avoyelles Parish Police Jury
City of Marksville
Town of Mansura
Town of Moreauville
Town of Simmesport

Beauregard
City of DeRidder
Town of Merryville

Bossier
Bossier Parish Police Jury
Town of Haughton
Town of Plain Dealing

Calcasieu
City of DeQuincy
Town of Vinton
City of Westlake

Caddo
Village of Ida
Village of Rodessa
Town of Vivian

Caldwell
Town of Columbia

Catahoula
Village of Harrisonburg
Town of Jonesville

Concordia
Concordia Parish Police Jury
Town of Clayton
City of Vidalia

East Feliciana
Village of Norwood
Town of Wilson

Evangeline
Village of Pine Prairie

Grant
Town of Pollock

Iberia
Village of Loreauville

Iberville
Town of Maringouin
Village of Rosedale
Town of White Castle

Jefferson Davis
Jeff. Davis Parish Police Jury
City of Jennings
Town of Lake Arthur
Town of Welsh

Lafayette
City of Carencro
Town of Duson
City of Youngsville

LaSalle
Town of Jena
Town of Olla

Lincoln
Lincoln Parish Police Jury
City of Grambling

Livingston
Village of Albany
City of Denham Springs
Village of Killian
Town of Livingston
City of Walker

Morehouse
City of Bastrop
Village of Bonita

Natchitoches
Village of Goldonna

Ouachita
City of West Monroe

Rapides
Village of Cheneyville
Town of Glenmora
Town of Lecompte
Village of McNary
Town of Woodworth

Richland
Town of Mangham
Town of Rayville

St. Landry
St. Landry Parish Council
City of Eunice

Town of Melville
City of Opelousas
Town of Washington

St. Martin
City of Breaux Bridge
Town of Henderson

St. Tammany
Town Abita Springs
Town of Madisonville
City of Slidell

Tangipahoa
Tangipahoa Parish Council
Town of Amite
Town of Kentwood
City of Ponchatoula
Village of Tangipahoa
Village of Tickfaw

Tensas
Town of St. Joseph

Vermilion
Vermilion Parish Police Jury
City of Abbeville
Town of Delcambre
Town of Erath
Town of Gueydan
Town of Kaplan
Town of Maurice

Vernon
Vernon Parish Police Jury
Village of Anacoco
Town of Hornbeck
City of Leesville
Town of Rosepine
Village of Simpson

Washington
Town of Angie

Webster
Webster Parish Police Jury
Town of Cullen
City of Minden
Town of Sibley
City of Springhill

West Baton Rouge
Town of Addis

West Feliciana
Town of St. Francisville

Aquifer Evaluation and Protection Unit
P.O. Box 4301
Baton Rouge, LA 70821-4301

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2018 newsletter

The Drinking Water Protection Team is a part of the Aquifer Evaluation and Protection Unit within the Water Planning and Assessment Division. This Division is under the Office of Environmental Assessment at the Louisiana Department of Environmental Quality. Drinking Water Protection Team members educate the public about the importance of protecting drinking water sources. The team plays a vital role in working with Louisiana communities to establish local drinking water protection programs. The team is available to give presentations on water protection issues to your school or organization. Please call 225-219-3510 for more information.

This newsletter and all previous issues are available online at: http://deq.louisiana.gov/resources/category/drinking-water.

WE LOOK FORWARD TO HELPING YOU PROTECT YOUR COMMUNITY'S DRINKING WATER!

VISIT US AT WWW.DEQ.LOUISIANA.GOV/AEPS