JCSUD
Johnson County Special Utility District
817-760-5200
PWS ID#: TX 1260018
Quality & Service Since 1965

Annual Water Quality Report

In 2016 a most noteworthy intro for this report period echoes Texas' rejoicing of finally breaking five years of drought conditions in 2015. While lakes all across Texas are back to full capacity, we'll be mindful to remember our friends in west Texas since most of their reservoirs are still surprisingly less than 30% full. During this interval of drought, 2011 became the new "infamous summer of misery." It surpassed 1980 as the driest and hottest on record with 71 days of 100 degrees. However in 2015, amid Cleburne's average annual 37.6 inch rainfall, the official data-collector for Cleburne reported an all-time record of 74 inches. The last time El Niño's effects brought similar excess was 24 years ago in 1991-92. Usually during a wet year, water-sales is markedly less than budgeted. However this was not the case last year as the rains came predominately in the spring and then again in the fall. Last summer was the hottest since 2011, so says ERCOT who oversees most of the Texas power grid. In a "double the rainfall" year, it still was coupled with a hot/dry summer. Given 2015's "twisted" weather conditions, the District operations were normal and the revenue budget projections were met even amid a record wet year.

Flint's Rocky Road to Unleaded Water at the Tap: Does JCSUD Compare?

Terry Kelley, G.M.

More recently the water crisis in Flint, Michigan has made virtually every major and local headline and newscast about the drinking water and detecting high levels of lead. It may be some time before all the facts surrounding Flint are understood. Nevertheless, it prompts everyone everywhere to wonder about how diligent their own water system is performing to avoid the fallout which Flint struggles with today. The problem in Flint places a spotlight of the effects of lead and how it can show up at the water tap. Flint's ordeal stresses the need for all water utilities to be diligent in their efforts, and communication with the public, to mitigate the lead content measured in the water system. Many have asked about how something like this could happen; some can't help but worry about this occurring closer to home. So, here is an earnest attempt to discern what details are known about Flint's water crisis and how it relates to local water quality efforts not found in the average news article or typical broadcast.

Flint's problems started in April 2014 when the cash-strapped city began drawing its water from the Flint River instead of purchasing it from Detroit. The decision was implemented by a state-appointed emergency manager. After switching to the new supply source, customers began calling about taste and odor problems. That summer, Boil Water Notices were issued due to total coliform test results. Later water quality issues became even more urgent as tests showed Flint's drinking water had become more corrosive. Research shows that after switching from one water supply to another, apparently corrosion control treatment was not being properly applied.

Lead and Copper

Lead is a toxic metal and is known to cause serious health problems including damage to the brain and kidneys, and can interfere with the production of red blood cells. The greatest risk of lead exposure is to infants, children, and pregnant women. Copper is an essential nutrient, yet elevated levels of copper in drinking water has been shown to cause stomach and intestinal distress.

While lead and copper are common metals found throughout the environment, it rarely occurs naturally in water supplies like rivers and lakes. The prevailing way by which lead and copper finds its way to the tap is associated with older homes and commercial buildings that have lead in the plumbing facilities. The corrosion or wearing-away of interior pipes, plumbing fixtures, and soldered fittings usual exists on the customer's side of the meter. But there was a time when short lengths of small diameter lead piping was used to connect meters to the water main.

This Consumer Confidence Report for January 1 to December 31, 2015 is intended to provide you with information about your drinking water and the efforts made by the District to provide safe drinking water. The District utilizes the latest available test results data for this publication.

Lead Pipe in Water Systems

In the late 1800's and entering into the twentieth century lead was a common material used in installing water service mains. "Service mains" are the shorter length of piping which connected meters of individual homes, apartment buildings, etc. to the street mains (larger lines that make up the distribution system). Research reveals that 70 percent of cities with populations greater than 30K in 1900 used lead service mains.

Iron, steel, and lead were the materials available for water lines at the time. For the shorter pipe lengths with small ¾ to 1 inch diameter, lead was used because it was malleable (ability to yield or bend) and did not have the propensity to corrode like steel and iron. Lead was more expensive, but given that it was relatively soft and pliable it was a viable, economical choice given the ease of bending around existing infrastructure and obstructions. It also surpassed steel and iron which often succumbed quicker to corrosion. Toxicity was a known quantity but testing lacked today's technology to glean the most forensic lasting effects. As late as 1916, a large part of the engineering community subscribed to the benefits of using lead service mains which outweighed the potential costs. The *Engineering News* journal (28 Sept. 1916, pp 594-96) highlighted the advantages of this type of flexible pipe and its advantages. However, in the same journal, concerns about lead poisoning were dispelled by recognizing that enough lead could dissolve from the pipes to be a detriment, but "on the other hand, lead has always been used for services in most of the large places without any unfavorable effects" (pp 595). Lead pipe was indeed a practical choice for the times. Particularly for the short runs from the street mains to the meter until the practical use of copper piping began in the 1940's.

Federal Regulations for Lead and Copper

In 1991, the EPA published regulations to control lead and copper in drinking water known as the Lead and Copper Rule (LCR) for water suppliers to abide by its four major components: 1) corrosion control; 2) source water treatment; 3) lead service line replacement; and 4) public education. The LCR included a goal of "zero" for lead levels, but it was not adopted as a standard enforceable by law. Most contaminants enter water systems at the source, lead levels (and copper) are widely variable because it depends on the miles of service lines buried throughout the city, crossing property lines and their meanderings into the home.

Read more on last page, 'Flint, MI'

REGULATED SUBSTANCES

Substance	Unit of Measure	Year	High Level Detected	Range of Levels	MCL	MCLG	Typical Source
Barium	ppm	2012	0.040	0.034 - 0.040	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Fluoride	ppm	2015	1.63	1.63 – 1.63	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
Nitrate	ppm	2015	0.329	0 - 0.811	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage, erosion of natural deposits.
Chromium	ppb	2011	9.16	0 - 9.16	100	100	Discharge from steel and pulp mills; Erosion of natural deposits.
Di(2ethylhexyl) phthalate	ppb	2015	0.5	0 – 0.5	6	0	Discharge from rubber and chemical factories.
Beta/photon emitters	pCi/L	2011	5	0 – 5	50	0	Decay of natural and man-made deposits.

EPA considers 50 pCi/L to be the level of concern (MCL) for beta particles.

Maximum Residual Disinfectant Level

Disinfectant	Unit of Measure	Year	Average Level	Range of Levels	MRDL	MRDLG	Typical Source
Chloramines Free Chlorine	ppm	2015	2.50	0.05 – 3.90	4.0	<4.0	Water additive used to control microbes

Disinfection Byproducts

Substance	Unit of Measure	Year	Average Level	Range of Levels	MCL	Typical Source
Total Haloacetic Acids	ppb	2015	20	2 – 46.2	60	By-products of drinking water chlorination
Total Trihalomethanes	ppb	2015	42	18.1 – 94.5	80	

Turbidity is a measure of the clarity of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. During the reporting year, samples taken to measure turbidity met water quality standards.

Substance	Unit of Measure	Year	Highest Single Measurement	Lowest Monthly % of Samples Meeting Limits	Turbidity Limits	MCL	Typical Source
Turbidity	NTU	2015	1.48	95.0%	0.3	TT	Soil Runoff

Additional Health Information for Lead:

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. This water supply is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps to take to minimize exposure is available from the Safe Drinking Water Hotline at (800) 426-4791 or at http://www.epa.gov/safewater/lead.

Tap water samples were collected for lead and copper analyses from homes throughout the service area.

Lead and Copper	Unit of Measure	Sampled	The 90th Percentile	No. of Sites Above AL	Action Level	Typical Source
Copper	ppm	8/6/2013	0.0662	0	1.3	Corrosion of household plumbing systems; Erosion of natural deposits. Leaching from wood preservatives.
Lead	ppb	8/6/2013	2.36	0	15	Corrosion of household plumbing systems; Erosion of natural deposits.

Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Source Water Assessment

The TCEQ completed an assessment of our source water and results indicate that some of our sources are susceptible to certain contaminants. The sampling requirements for our water system are based on this susceptibility and previous sample data. Any detections of these substances may be found in this Consumer Confidence Report. The District has two main water production sources. About 35 percent of total production comes from well water (Trinity Aquifer), and 65 percent is from purchased surface water from Lake Granbury and the City of Mansfield. For more information about our focus on protection efforts, contact Danny Armstrong at 817-760-5200. All sources are monitored and tested according to state regulations.

In the interest of conservation, the District has adopted the year-round policy that outdoor watering with sprinkler systems is prohibited between 10 am and 6 pm. This aligns with the idea to make every drop count.

Convenient Options for our Customers:

- Go paperless. Receive email notification when bill is ready.
- Sign up to receive and pay bill with text message system.
- Call toll free number 1-877-768-0858 for automated pay.
- Visit website: http://www.jcsud.com to pay your bill online.
- Pay by mail, in person, or night drop.
- We accept Visa, MasterCard, Discover, American Express

Under the Microscope

We are pleased to report that during the past year, the water delivered to your home or business complies with all state and federal drinking water requirements. The tables at the left show what substances were detected in our drinking water during the last testing period. Although all of the substances listed are under the Maximum Contaminant Level (MCL) set by the U.S. Environmental Protection Agency (EPA), it is important to inform of what was detected and how much of the substance was present in the water. The state requires monitoring for certain substances less than once per year because the concentrations of these substances do not change frequently. Contaminants that may naturally exist in untreated water include organic biological elements, such as bacteria and viruses; inorganics, such as salts and metals; pesticides and herbicides; chemicals from industrial or petroleum use; and radioactive materials. Fortunately, the report shows that contaminants do not exist in our local sources at action levels.

Many substances (such as calcium, sodium, or iron) which are often found in drinking water, can cause taste, color, and odor concerns. The taste and odor substances are called secondary substances and are regulated by the State of Texas, not the EPA. These substances are not causes for health concerns. Secondaries are not required to be reported in this document but they may affect the appearance and taste of your water.

Some Secondary Substances

This chart lists other items for which the water is tested. These items do not relate to public health but rather to aesthetic effects.
These items are often important to industrial users.

No MCL exists

Item	Measure	Avg Level
Calcium	ppm	13.77
Iron	ppm	0.03
pH	units	8.55
Sodium	ppm	229
Total Hardness	ppm	39.28

Community Participation

The District is governed by a Board of nine directors, each serving three year terms. In accordance with the Texas Election Code, each year the District orders an election which is scheduled for the first Saturday in February. The last day to file for a place on the ballot is 60 days before the Election Day. To learn more about the District's governance and the schedule for the next election planning cycle, please call the office. The Board regularly meets on the third Tuesday of each month beginning at 5:30 pm at the District office. An open forum at the beginning of each meeting is a time to receive public comments or concerns by those who wish to attend. Address: 2849 S Highway 171, Cleburne, TX Phone: 817-760-5200

En Español:
Este informe incluye información importante sobre el agua para tomar. Para asistencia en español, favor de llamar al telefono (817) 760-5200.

PWS ID# TX 1260018

DEFINITIONS and ABBREVIATIONS

MCLG: Maximum Contaminant Level Goal. The level of a contaminant in drinking water which there is no known or expected health risk. MCLGs allow for a margin of safety.

MCL: Maximum Contaminant Level. The highest permissible level of a contaminant in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MRDL: Maximum Residual Disinfectant Level. The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG: Maximum Residual Disinfectant Level Goal. The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectant to control microbial contamination.

Action Level: The concentration of a contaminant, which if exceeded, triggers treatment or other requirements which a water system must follow.

TT: Treatment Technique, a required process to reduce the level of a contaminant in drinking water.

NTU: Nephelometric Turbidity Units

ppm: parts per million, or milligrams per liter (mg/L) – or one ounce in 7,350 gallons of water

ppb: parts per billion, or micrograms per liter (µg/l) – or one ounce in 7,350,000 gallons of water.

pCi/L: picocuries per liter (measure of radioactivity)

CareShare Works!

In 2011 the District crafted a way to implement a benevolence program to help people who uniquely qualify for billing assistance. JCSUD serves a population near 40,000 and indeed on occasion we hear from those that are destitute or have encountered extenuating circumstances beyond their control. Since the program began some 5 years ago, over 90 percent of customers participate in working together towards the good cause of the *CareShare* program. In reviewing the *CareShare* file and reading a few among the many, there are "thank you" notes of the sincerest kind in appreciation for lending them a helping hand. A daughter writes "*God bless you all! You have no idea how much a blessing you are to my family*"… she goes on to explain about her mom's cancer and the overwhelming medical bills. Another request for assistance and their THANKS comes from a dialysis patient who was driving three times a week to White Settlement for treatment. A short note but a sobering point is made in another request because "*the family's house burned down.*" This should suffice to express how *CareShare* indeed is working to help others. Recipients aren't entitled to perpetual relief. The screening process is discrete and discerning to identify "unique" situations which truly merits a helping hand.

Today's program has no recurring administrative cost and requires no line item budget. The program platforms off of voluntary contributions. Collecting and accounting for contributions is automated. The program manages to generate a modest balance whereby distributions never exceed contributions. It is not big money, but its working well to care for the most in-need. Anyone who decides to opt-out can do so at any time. Having 9 out of 10 customers participating is evidence that putting-to-good-use the many "small" individual contributions is quite effective and seems to be as simple as it can be for now.

Among the customers that participate whom I've talked to appreciate knowing their annual contribution of less than the cost of a bottled-water at the convenience store is making a real difference to those that need it most. The old adage "many hands make light work" is the lean, economic engine which runs the *CareShare* program. In this way it makes you an equal partner as a contributor and a potential receiver.

'Flint, MI'. . . That variable combined with the fact that property owners, not utilities, are responsible for water lines in and around their homes made it, as the Government Accountability Office put it in 2006, "technologically infeasible to establish an enforceable standard" that could be applied fairly to all water systems and property owners. The LCR is really about mitigating the effects of leaching particulate from old metal pipes by requiring the water supplier to periodically test older homes and other structures. This identified the domain of locations which are inherently a higher risk because they were built during an era when lead piping was commonly used. Moreover, the LCR mandates public water suppliers to maintain proper treatment techniques including adding chemicals which control corrosion of pipes, since it is the predictable way lead finds its way to the tap. Safe chemicals, typically phosphates, enable a scale layer or biofilm to form and cling to the pipe wall. This process "passivates" the pipe whereby water molecules are prevented from interacting with the metallic surface. Given this explanation and the overwhelming task and expense to excavate virtually every old home in the country, this was EPA's best management solution to incorporate into the LCR in defending against lead levels breaching the acceptable limits.

Testing for Lead and Copper The federal and state drinking water regulations require water utilities to collect samples from a pool of homes most at risk of having elevated lead levels. If more than 10% of those homes tested have lead levels greater than 15 parts per billion (ppb), then action is required of the water utility to respond. It is not a violation if those homes testing positive exceed 10%. But the utility must respond to assure that corrosion control treatment is in fact working as it should to displace the leaching of lead and or copper from old pipes. Public awareness is also a requirement. The Consumer Confidence Report published each June on the District's website coupled with articles like this demonstrate the utility's good intentions to inform the public. When property owners have the opportunity to be better educated about lead and copper issues, they can decide to act upon how they can mitigate the presence of lead at the tap on their own premises by replacing old water lines, fixtures, and lead-soldered joints.

Summary Johnson County Special Utility District began in 1965 long after an era when lead piping was once used. There is none in the distribution system. For other utility providers, the fact is that no city knows how many service mains there are which may be made of lead. The only way to know is to excavate each suspect location to observe whether lead piping was used to connect the meter to the water main. Even then, it is still an unknown whether older homes were fitted with lead facilities (on the customer's side of the meter) when the structure was built. The reliance on test sampling also means that the vast majority of homes are not tested at all. Among older homes it means that the only way to know whether your tap water contains lead is to have it tested. EPA's regulations in the Lead and Copper Rules imparts safety amid the old facilities still in service today. Water utility providers must stay on top of their game to assure that treatment always maintains the right level of corrosion control. When Flint switched supply sources, the central issue which steered them head-on into a water crisis centered on the important question; was there a constant vigil to monitor, report, and act to avoid calamity? What a preventable debacle that evolved for Flint. But it serves well to remind all water purveyors about the safety of our most precious resource, safe drinking water. It is in our hands. So we'll not pass up the opportunity as we are reminded from another's hardship to renew our pledge in taking seriously the responsibility of good stewardship to operate, monitor, and report for the good of the whole domain we serve.

Water Loss Report

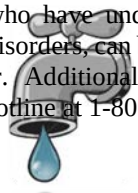
Each year, public water suppliers submit to the Texas Water Development Board their annual Water Loss Audit report. Every public water system has water loss. The percentage of unmetered water from the total supply which is pumped annually varies among systems. It can range up to 50% for some. Over the last decade the District's annual total water loss is about 14-16%. For 2015, JCSUD accounts for 15% total water loss or 243 MG (million gal) of the 1618 MG that was pumped into the system.

There are two categories of water loss called Apparent Losses and Real Losses. Real Losses account for about three-fourths of the total water loss. Real losses include the weeps and seeps which go undetected among the 903 miles of distribution system piping. The remainder, Apparent Losses are mainly due to meter accuracy. JCSUD uses a factor of 98%, which means the average meter registers 2% less than the actual volume passing through it. Another element is low-flows passing through the meter that are so small that some meters will not register it. Apparent Losses account for about one-fourth of total losses.

Texas is divided into 16 water planning areas. JCSUD is in the Brazos G Water Planning Group. It is worth noting that Brazos G's latest plan report states that 95 of 234 reporting entities have real losses exceeding 15%. JCSUD's real loss is 11% for 2015 and is near the 50th percentile (i.e. 50 percent of supplier's real losses were higher) among Brazos G area water suppliers. For example, Georgetown and Cedar Park (29% and 19% real loss respectively) each serves a population of about 55,000 while JCSUD serves about 40K population. However these cities have one-third less miles of distribution piping. The more miles of pipe coupled with the density factor (connections per mile), the more likely for water systems to report a higher rate of real loss. Both cities have 58 connections per mile, while JCSUD has 17 connections per mile. Comparatively speaking, JCSUD does well to report 11% real water loss serving a rural environment with over 900 miles of pipe.

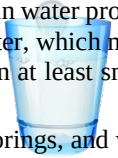
Special Health Information *Required language for ALL community public water suppliers:*

You may be more vulnerable than the general population to certain microbial contaminants, such as Cryptosporidium, in drinking water. Infants, some elderly, or immunocompromised persons such as those undergoing chemotherapy; those who have undergone organ transplants; those who are undergoing treatment with steroids; and people with HIV/AIDS or other immune system disorders, can be particularly at risk from infections. You should seek advice about drinking water from your physician or health care provider. Additional guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline at 1-800-426-4791.



Some Elements are Expected

To ensure tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain elements in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. Measurable amounts do not necessarily indicate that the water poses a health risk.



The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals, in fewer cases, radioactive material and substances resulting from the presence of animals or from human activity.