

**CITIZENS' WATER ADVISORY COMMITTEE
(CWAC)**

Technical/Planning and Policy Subcommittee

Wednesday, February 24, 2016, 12:00 p.m.

Director's Conference Room

Tucson Water, 3rd Floor

310 W. Alameda Street, Tucson, Arizona



Legal Action Report

1. Roll Call/Call to Order

The meeting was called to order by Subcommittee Chair Mark Murphy, at 12:01 p.m. Those present and absent were:

Present:

Mark Murphy	Chairperson-Representative, Mayor
Mitch Basefsky	Representative, City Manager
Brian Wong	Representative, City Manager
Kelly Lee	Representative, Ward 6

Absent:

Placido dos Santos	Representative, City Manager
Chuck Freitas	Representative, City Manager

Tucson Water Staff Present:

Timothy Thomure	Director
Britt Klein	Water Administrator
Ray Wilson	Water Administrator
Pat Eisenberg	Water Administrator
Andrew Greenhill	Intergovernmental Affairs Manager
Wally Wilson	Chief Hydrologist
Chad Lapora	Water Program Superintendent
Fernando Molina	Water Program Superintendent
Remy Sawyer	Environmental Scientist
Johanna Hernandez	Staff Assistant
Kris LaFleur	Staff Assistant

Others Present:

Chris Avery

2. Announcements – No action taken.

3. Call to Audience – No action taken.

4. Review & Approval of January 27, 2016 Legal Action Report and Meeting Minutes – Tucson Water noted a correction to the minutes. Member Wong motioned to approve the Legal Action Report and Meeting Minutes of January 27, 2016. Member Basefsky seconded. Motion passed unanimously by a voice-vote of 4-0.

5. Lead and the Tucson Water System – Tucson Water staff Chad Lapora, along with Britt Klein, presented on lead and the Tucson Water system. Subjects covered were the Lead and Copper Rule, the status of lead in the Tucson Water system, and consideration of lead poisoning in Flint, Michigan. The Lead and Copper rule was summarized for the Subcommittee: lead monitoring levels are 15 ppb, and copper monitoring levels are 1,300 ppb, systems exceed EPA

Citizens' Water Advisory Committee, Technical/Planning and Policy Subcommittee

Legal Action Report

February 24, 2016

regulations if 10% of samples exceed monitoring levels. Water is tested at the tap pursuant to EPA criteria, the public are notified of all results, and annual notices appear in the consumer confidence report. If systems exceed EPA regulations, additional monitoring, education, and treatment may be necessary. Between 1913 and 1929, lead services were mandatory in Tucson, 3,935 services were estimated to be installed during this time-period. Between 1988 and 2014, Tucson Water identified and replaced all known lead piping in the system. In 2004, Tucson Water reported an exceedance in the Thunderhead Isolated system, additional samples were taken, the source water was tested, and an aeration system was installed to increase the PH and address the corrosivity of the water. Testing of this system was done more frequently after the exceedance, until results were consistently below monitoring levels, and the PH of this system is still tested biweekly. Testing will continue while the wells are still in use (5-10 years). Tap, main, and isolated systems are all tested every three years, any lead found incidentally is assessed for replacement. Aside from Thunderhead, no exceedances of lead or copper monitoring levels have been reported. The Utility must carefully assess lead service lines to residential meters to determine if the customer has lead pipes after the meter as well. If the customer does have lead pipes, replacing Tucson Water infrastructure could cause a spike in lead levels. Such replacements are referred to as partial replacements, and must be carefully coordinated. It is important to remember that, the Utility's system stops at the customer's water meter, Tucson Water's samples are consistently below monitoring levels, and water corrosivity is monitored monthly. What caused the lead in Flint's water? Flint changed its source water from treated Detroit water to untreated Flint River water. The new source water is highly corrosive and was not tested or treated properly, resulting in lead leaching into the water from the systems 20,000 lead service lines. In addition to lead, cases of Legionnaires' disease increased dramatically. Systematic lack of addressing these problems resulting in the current situation in Flint. A comparison of blood lead levels in Flint, in other parts of the country, and in Pima County was provided for context. What happened in Flint is different from Tucson's own Red Water problem in 1992. Tucson Water also changed its source water, to CAP water, which resulted in complaints of water color, odor, and hardness, and increased water corrosivity. Differences in the composition of the new source water, hydraulics, and corroded iron infrastructure caused issues with the water. The Utility engaged in extensive studies, infrastructure, and customer panels to address the issues. In summary, all known lead services in the Tucson Water system have been eliminated, identification of unknown lead services will continue. The number of unknown lead service is very low and likely localized in the older residential areas around downtown. Tucson water will continue to monitor lead levels in the water, and replace lead services when encountered.

6. Future Meetings/Agenda Items – See projected agenda for further information.

7. Adjournment – Meeting adjourned at 12:27 p.m.

LEAD AND THE TUCSON WATER SYSTEM

TPP February 24, 2016

Presented By: Chad Lapora and Britt Klein



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Purpose/Bottom Line Up Front

Purpose

- Discuss the Lead and Copper Rule
- Discuss historical, present, and future status of lead in the Tucson Water system.

Bottom Line Up Front

- Tucson Water has made extensive efforts to remove/replace known lead piping in the system. Any lead piping remaining in the system is minimal, localized, and immediately assessed for replacement when encountered.



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Why Lead and Copper?

Exposure to Lead and Copper may cause:

- Lead: damage to brain, red blood cells, and kidneys; particularly in young children and pregnant women
- Copper: distress to stomach and intestines, damage to liver and kidneys, Wilson's disease complications

Lead and Copper get in the drinking water:

- Mainly from wear and tear of old plumbing materials (pipes, etc.) that contain lead and copper



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The Lead and Copper Rule (LCR)

56 FR 26460-26564, 1991 (Revised 1991, 1992, 1994, 2000, 2010)

Purpose: Protect Public Health

- Minimize lead and copper in drinking water
- Reduce effects of water corrosivity by reducing lead and copper plumbing materials

Description: Establish Monitoring Standards

- Set monitoring levels at 15 ppb for lead, and 1,300 ppb for copper
- Set steps to take if monitoring levels are exceeded in 10% of samples

Application

- Safe Drinking Water Act prohibited lead pipes, solder, & flux after 6/1986
- LCR applies to all community water systems



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LCR Monitoring Requirements

Lead and Copper Tap / Water Quality Parameter (WQP)

- EPA determines criteria for high risk sampling sites for sampling every 6 months
- Sample is taken after 6 hours of water standing motionless in plumbing
- Large systems sample 100 sites (standard), or 50 sites (reduced) for Lead/Copper
- Consistent samples below monitoring levels may qualify for reduced sampling

Lead Consumer Notice

- Send all lead results to every sampling site regardless of levels detected

Consumer Confidence Report (CCR)

- Provide educational information regarding lead in drinking water in CCR



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Exceeding LCR Monitoring Levels

Water Quality Parameter (WQP)/Tap Monitoring

- Increased frequency of testing

Public Education

- Engage in education within 60 days after end of monitoring period; repeat annually until below monitoring levels

Source Water Monitoring/Treatment

- Determine contribution from source water within 6 months
- If necessary, treat source water within 24 months
- Groundwater systems monitor every 3 years initially, consistent samples below monitoring levels qualify for reduced monitoring (every 9 years)



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History of Lead in Tucson Water System

Mandatory Lead Services

- November 1913 - January 1929
- Official City limits of Tucson

Exceptions to Mandatory Lead Services (1913-1929)

- Block of area north of Speedway, south of 18th street, east of Euclid, and west of 12th /Main (1917)
- Outlying districts (1919)

Estimated Number of New (lead) Services Installed (1913-1929)

- 3,935
- Copper and Cast Iron included (January 1929)



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Monitoring and Replacement of Lead Services in Tucson Water System

1988 – TW began extensive monitoring of known lead services

1989 – TW began replacing lead services incidentally

2005 – TW began aggressive lead services replacement program

2008 – 95 potential lead service sites identified, all confirmed lead services removed

2010 – Isolated systems sampled, no exceedances reported

2011 – Main system sampled, no exceedances reported

2012 – 3 previously unknown lead services found and removed during construction of courthouse

2013 – Isolated systems sampled, no exceedances reported

2014 – Prohibition of leaded brass; no leaded brass can be reinstalled during repairs



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LCR Exceedance in Tucson Water System

Thunderhead Ranch

- 2004 – 2 of 55 samples exceeded monitoring levels
- Additional samples taken
- Resampling of exceedances
- Testing of source water
- Treatment of source water
- Notification to residents
- Biannual sampling until 2006; annual and triennial testing thereafter; biweekly PH testing



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On-Going Monitoring and Replacement

Designated sites sampled triennially

Main and Isolated systems sampled triennially

Lead services found incidentally are assessed for replacement



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Important Factors to Consider

Tucson Water system stops at the customers water meter

Samples are consistently below monitoring levels

Partial replacement can result in spikes in lead levels

Water corrosivity monitored monthly



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So...What Happened with Flint's Water?

April 2014 Flint Changed its Source Water

- From Detroit water to Flint River to *save money* until a treatment plant was complete
- Flint River water is highly corrosive
- Water was not tested or treated properly

Water Began Corroding Lead Pipes (20,000 lead service lines)

- Lead leached into water
- Lead levels doubled in parts of Flint – elevated lead found in 40% of homes

Legionnaires' disease increased over 6.5 times more than previous 4 years

Systematic Lack of Addressing Problem

- City and State had prior knowledge
- Proper steps weren't taken to address the problem



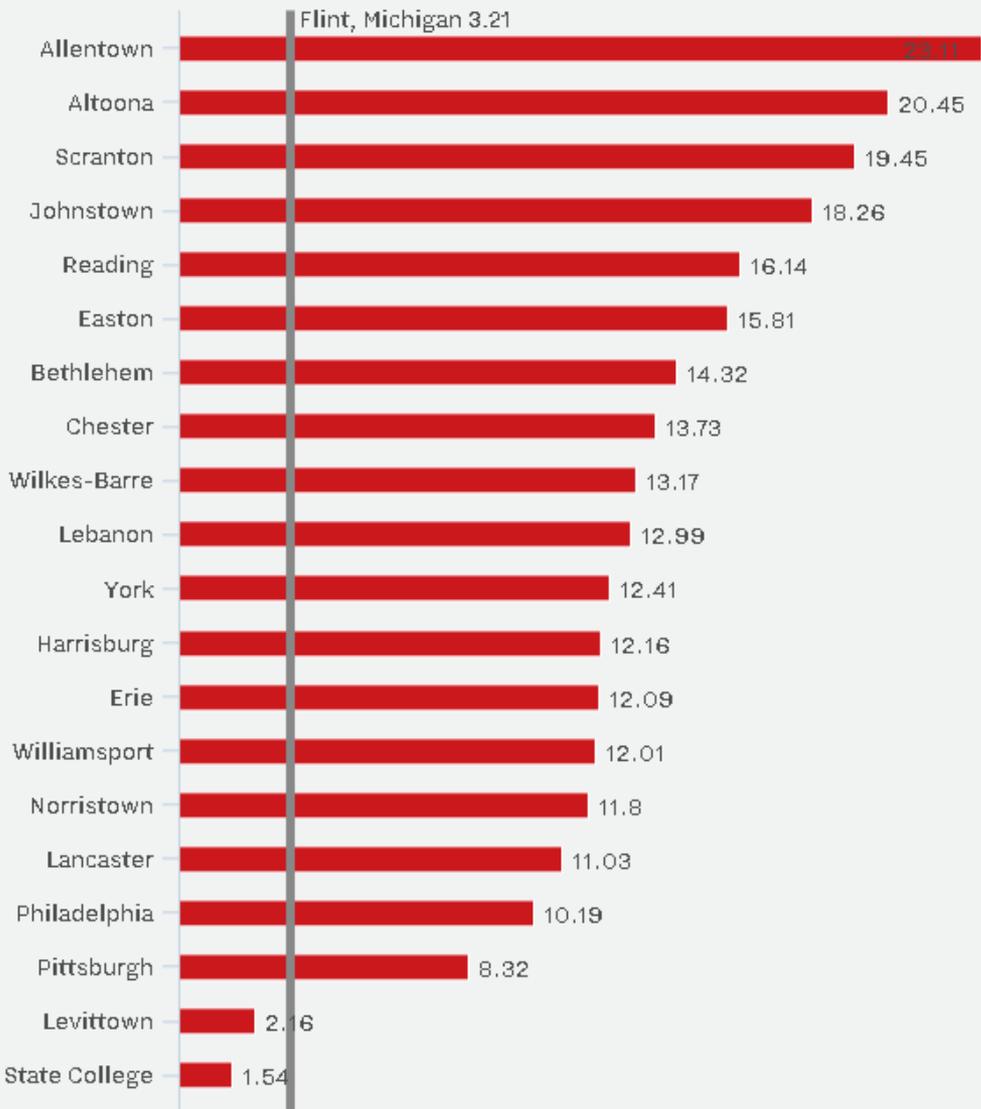
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This group of 20 cities in Pennsylvania had an elevated blood lead level rate 22 percent higher than the state

■ Elevated BLLs ≥ 5 $\mu\text{g}/\text{dL}$ as % of children tested

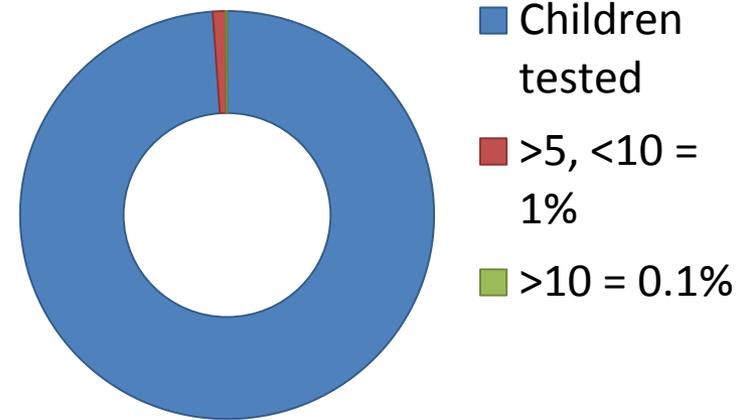


Source: Pennsylvania Department of Health, 2014
 Credit: Sarah Frostenson

Vox

Flint is a national scandal, how does it compare?

Pima County Elevated BLLs ($\mu\text{g}/\text{dL}$) 2014 (CDC)



How is Flint Water Crisis Different from Tucson's Red Water

1992 Tucson Water Added a New Source Water: CAP

- Addition of Colorado River Water

Complaints of Water Color, Odor, Hardness, and Corrosivity Increased

- Chemical composition of CAP water, microbiological differences, hydraulics, and corroded iron infrastructure caused issues with water – not lead

1994-2001 Extensive Studies and Infrastructure Dedicated to Correcting Problem

- Corrosion Study – replace & rehabilitate more than 220 miles of mains and service lines
- Recharge and Recovery – blended water
- Customer Panels – neighborhood scale trials



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Conclusion

- Previous efforts have eliminated known lead services in the Tucson Water system; identification of unknown lead services will continue.
- The number of unknown lead services is very low, and is likely localized in the older residential areas around downtown.
- Tucson Water will continue to be vigilant in monitoring lead levels in water, and replacing lead services when encountered.



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Questions?



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Draft Lead Fact Sheet

2 22 2016

Is our water safe to drink?

Yes. Tucson Water is a leader in water quality and we deliver safe, high quality drinking water to 730,000 customers. We monitor for lead and more than 200 other constituents. Tucson Water conducts about 14,500 individual tests a year on water, before it reaches a customer's home. The Utility has a continuous monitoring system and collects samples at key points: at the source, and in the water distribution system, plus samples at customer homes. Tucson Water also has a dedicated state certified water quality laboratory.

What is lead?

Lead is a common metal found throughout the environment in lead based paint, air, soil, household dust, food, certain types of pottery porcelain and pewter, and water. Lead can pose a significant risk to your health if too much of it enters your body.

How can lead get into water?

The amount of lead in water depends on:

- the amount of corrosion of the pipes and fixtures
- the water's acidity and its temperature
- the types and amounts of minerals in the water
- geography and erosion of natural deposits

Lead can get into tap water by corrosion: the corrosion of plumbing containing lead, brass or chrome plated brass fixtures, fittings and solder and from old water service lines. Homes built before 1996 are more likely to have plumbing components containing lead. New homes may contain lead because new plumbing fittings, including those labeled "lead-free," may contain up to a weighted average of not more than .25% in the wetted surface material.

What is Tucson Water doing to help ensure that lead isn't in tap water? (How are we different from Flint?)

- Tucson Water complies with the monitoring and reporting requirements of the U.S. EPA's Lead and Copper Rule.
- Stable source of drinking water: For the last 15 years, our primary source for drinking water has been a blend of recharged CAP water and groundwater.
- Protective coating: Our water's natural mineral deposits provide a protective coating to pipes, mains and home plumbing.
- Preventative maintenance programs: Over the past 20 years, Tucson Water has replaced aging mains and pipes. Should Tucson Water uncover a lead service line it will automatically be replaced with a copper service line up to the meter.
- Water Quality Support for customers: The utility's Water Quality Support team will answer customer questions about water quality.
- Transparent testing and reporting. Tucson Water tests water continuously and reports it to customers monthly, quarterly and annually.
tucsonaz.gov/water/annual_wq_reports

Draft Lead Fact Sheet

2 22 2016

What are lead levels here in Tucson?

Tucson Water tests the corrosivity of its water to leach lead from its system every 3 years. We will be testing the water for lead in 2016 for our Isolated systems and 2017 for the main system. The most recent test results show that the lead for the system was below the USEPA's lead action level of 15 parts per billion, which is equivalent to 2 drops of water in a 15,000 gallon swimming pool.

How can I find out information about what's in my water?

1. Review Tucson Water's [Annual Water Quality Report](http://www.tucsonaz.gov/water/wqreport) online www.tucsonaz.gov/water/wqreport or request a copy by calling (520) 791-2544.
2. For [Monthly Online Water Quality Reports](http://www.tucsonaz.gov/water/monthly-water-quality-reports): Go to www.tucsonaz.gov/water/monthly-water-quality-reports
3. Quarterly Main System Water Quality Reports appear in [Water Matters](http://www.tucsonaz.gov/water/water-matters) (January, April, July, and October issues) www.tucsonaz.gov/water/water-matters
4. Visit the [Tucson Water website](http://www.tucsonaz.gov/water) at www.tucsonaz.gov/water
5. Contact the Water Quality Team with questions and concerns: (520) 791-5945 or CustomerSupportUnit@tucsonaz.gov