



# 2014 WATER QUALITY REPORT

Customer Service & Water Quality Departments  
270.442.2746

Paducah Water PWSID 0730533  
Website: [pwwky.com](http://pwwky.com)

# Welcome

to Paducah Water's annual water quality report. Over the last year there were many accomplishments. In these pages you will learn about the upgrades we've made to the PW distribution system and how these improvements have prepared us for a secure future, allowing PW to continue to be the Clear, Clean Choice!

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## OVERVIEW



In all we do at Paducah Water we strive to provide our customers with the most dependable water service and high quality customer service at every level. This year we've made a number of improvements that have strengthened our distribution system and increased its reliability. We have also updated our customer service software, making it more convenient for PW customers to access their account information and pay their bills, whether in person, through mail, over the phone or online. The transition to the new system was at times frustrating to our customers and to our staff, but has certainly proven worthwhile. We recognize, too, that the long, cold and snow-covered winter impacted all in a negative way, frustrating everyone because of our inability to read water meters.

As we head into the future, we will continue to seek opportunities to better serve our customers by providing the high quality, great tasting water they've come to depend on. We truly are the Clear, Clean Choice.

*Glen Anderson*, GENERAL MANAGER

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# WATER QUALITY

Since 1885 Paducah Water has provided our customers with water service and the highest quality drinking water available. We are aggressive in our pursuit of efficient solutions that make water taste better and we are committed to providing every customer with clear, clean drinking water in his or her home or business.

The Water Quality team at the Paducah Water Treatment Plant is comprised of Class IV Certified Operators and certified Lab Analysts. Not only are our personnel certified, but Paducah Water has onsite certified Microbiology and Wet Chemistry Laboratories. Nearly three hundred tests are performed daily at our labs. Operators closely monitor water quality in every step of the treatment process, from the raw source to the tap. Samples are taken at least every two hours and analyzed immediately, allowing time to promptly react and make any necessary adjustments. An online monitoring system is also in place, ensuring operators are immediately aware of any area of the treatment process that may need their attention.

A minimum of 70 routine bacteriological samples are taken monthly throughout the Paducah Water distribution system. Businesses, homes, fire hydrants and other sampling stations are used as collection sites for the samples. On occasion, a Boil Water Advisory may be issued by our distribution personnel due to a main break or construction. When a Boil Water Advisory is issued, bacteriological samples are collected and analyzed in our onsite Microbiology Laboratory. Samples must be confirmed negative before the Division of Water can lift the advisory. By maintaining an onsite bacteriological laboratory, the samples can be analyzed more efficiently, which in turn reduces Boil Water Advisory times for our customers.

With Paducah Water's source of water being the Ohio River, we have formed a partnership with The Ohio River Valley Water Sanitation Commission (ORSANCO) that has proven

to provide many benefits. Since 1948, ORSANCO and its member States have cooperated to improve water quality in the Ohio River Basin by operating monitoring programs and special studies to address emerging water quality issues. ORSANCO provides useful data about water quality upstream from Paducah Water, which allows ample time for reaction to any changes in water quality. We also assist ORSANCO by collecting and analyzing raw water samples in our onsite laboratory. The relationships that have formed between our water quality personnel and other water quality professionals through ORSANCO are priceless.

Paducah Water is also a member of the Kentucky Water and Wastewater Operator's Association and the American Water Works Association. Operators and lab analysts are regularly encouraged to attend classes through these organizations to stay current with new regulations and procedures.

We continue to make improvements to the Paducah Water Treatment Plant to keep it functioning properly and to allow us to optimize the treatment process. This past year, sludge collector equipment and filter valves and controls were replaced.

The Kentucky Division of Water has regulatory requirements that water treatment plants must meet. And yet again, Paducah Water has exceeded those goals. We were again awarded the Area Wide Optimization Award. We also received the Partnership for Safe Water Award for 2013 from the American Water Works Association and the EPA. The folks leading this award-winning water quality team are Ricky Gilbert, Plant Superintendent, and Mindy Martin, Water Quality Supervisor. Their leadership, matched with the dedication and hard work of the treatment plant employees, plays a big part in Paducah Water being recognized as a leader in providing customers with high-quality, great tasting water!

For a list of honors Paducah Water has received for our commitment to water quality, visit the water quality section of our website ([pwwky.com](http://pwwky.com)) and click on "Awards".





# ENGINEERING & DISTRIBUTION

Paducah Water is proactive when it comes to maintaining the reliability of our water distribution system. We must always be aware of new technology that will help to improve our processes. This allows us to maintain the high quality level of service that we currently provide to our customers. We regularly monitor and update our system, while striving to stay within our budget.

This year the Paducah Water Engineering & Distribution departments completed a number of projects. The projects were selected from the 2013 Capital Improvements Plan which provides our staff with guidance for budgeting and prioritization of system improvement projects.

Paducah Water completed five water main replacement projects in 2013 totaling 10,400 linear feet. These projects were located in the areas of Old Mayfield Road, Coxey Street, Jones Street, Ashcraft Drive and 22nd Street and were completed using Paducah Water's in-house construction crew as well as independent contractors. Replacement projects are initiated in order to replace a segment of existing main that has exhibited an increased rate of failure due to a number of factors including, age, material, soil properties, joint material, etc.

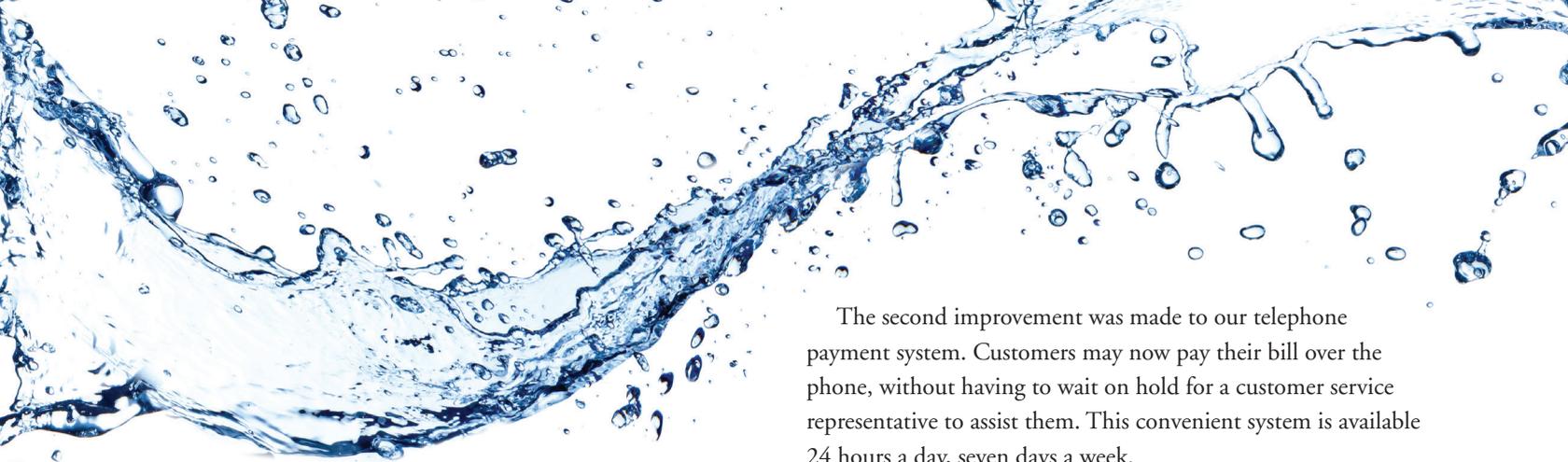
In addition to the replacement projects, Paducah Water completed three water main extension projects totaling 14,500 linear feet. The US 62/Blandville Road project included 11,000 linear feet of 12" water main along Blandville Road from Buchanan Road to Fisher Road. This project significantly strengthened the western portion of Paducah Water's distribution system and provided new water service to 17 property owners. The Monroe/Madison Transmission Project consisted of 3,100 linear feet of 16" water main in an existing alley between North 21st Street and Joe Clifton Drive. This project enhanced the reliability and transmission capacity of water supply to Paducah Water's Forest Hills Reservoir. The Forest Hills Reservoir Bypass project consisted of the replacement of 24" valves and construction of

approximately 400 linear feet of 20" and 24" water main at the Forest Hills Reservoir. This project significantly enhanced the reliability and redundancy of Paducah Water's largest water storage reservoir that serves over 50% of Paducah Water's customers. Each project was completed within Paducah Water's budget and on time.

Paducah Water's Engineering Department passed an annual audit performed by the Kentucky Division of Water in July 2013 and is in compliance with its Agreed Order to provide regulatory project review. Paducah Water is one of only a few water utilities in Kentucky to be granted the authority to review and approve new water distribution projects in-house without the need to forward applications to the Kentucky Division of Water. This ability for in-house project review translates into a much faster (up to several weeks in many cases) and more efficient plan review process for developers, as well as in-house projects initiated by Paducah Water.

Paducah Water continually performs inspections and maintenance of its nearly 4,000 hydrants in the distribution system. In 2013, Paducah Water initiated a hydrant adjustment project to identify and address hydrants in the distribution system that are in need of height adjustment. This project is important for both safety and function. First, if properly installed a fire hydrant is designed to break away approximately 4" above the ground surface if hit by an automobile or piece of heavy equipment. If installed too low or too high, this break away feature may not perform as intended. Second, the soil around a hydrant can gradually raise over time due to a number of processes including improper development grading, soil deposition from erosion or improper installation. Accumulation of soil may slow access to the hydrant nozzles and the hydrant must be raised to perform properly.

In 2013, Paducah Water significantly enhanced its valve exercise program with the purchase of a Vermeer trailer-mounted vacuum excavator with computer-driven hydraulic valve actuator. With this unit, we can efficiently perform several specialized tasks relating to operating existing valves. Paducah Water has thousands of valves in the distribution system, with some dating to the early 1900s. As with any mechanical apparatus, each valve must be exercised routinely, maintained properly and repaired/replaced if necessary in order to ensure that it will perform as intended. An on-board computer monitors performance and rotational torque applied to each valve and updates those records in Paducah Water's operational database via on-board InfraMap software. The vacuum excavation feature allows us to locate buried utilities safely and efficiently with minimal disturbance and restoration cost.



# CUSTOMER SERVICE

Paducah Water knows that our customers lead busy lives and that their time is valuable. That's why we strive to provide the highest level of quality customer service possible. Currently, bills can be paid by mail, in person at our business



office, over the phone, through automatic bank draft, at payment drop boxes located throughout our service area and online at [www.pwwky.com](http://www.pwwky.com). This past year we upgraded two of those payment systems.

In December, Paducah Water launched a new bill payment system that allows our customers to view and pay their bill online. The online system is user-friendly and includes convenient new services. The system is now able to e-mail notifications to our customers when their bill is ready to be viewed online. Customers can register for an online account at [www.pwwky.com](http://www.pwwky.com).

The second improvement was made to our telephone payment system. Customers may now pay their bill over the phone, without having to wait on hold for a customer service representative to assist them. This convenient system is available 24 hours a day, seven days a week.

Paducah Water will continue to make improvements to our customer service processes in the coming year. Our next project will allow us to process customer service requests through a paperless system. Paducah Water's service technicians will record the results of each request as it is handled and the customer service representative will be able to quickly retrieve the information in each customer's account. This means that our customer service representatives will be able to address our customers' needs in real time, allowing us to be more efficient and earth-friendly in the process.

If you have any questions about our services please call 270.442.2746 during our business hours, Monday through Friday, from 7:30 a.m. to 4 p.m.

# WATER SOURCES

The sources of the water supply for Paducah Water customers are the Ohio and Tennessee Rivers. These are considered to be surface water sources. A final source water assessment for this system has been completed and is contained in the Source Water Assessment and Protection Plan Susceptibility Analysis and Protection Recommendations for McCracken County. The completed plan is available for inspection and can be obtained at the Purchase Area Development District office at 270.247.7171. A summary of the susceptibility analysis is as follows. An analysis of the susceptibility of PW's water supply to contamination indicates that this susceptibility is generally high. There are numerous petroleum storage facilities along the Ohio and Tennessee Rivers that provide fuel to land and river transportation. Numerous bridges cross the Ohio and Tennessee Rivers, as well as major tributaries such as the Clarks River and Island Creek. These bridges are of greater concern due to the possibility of hazardous materials infiltrating the water source near the intake due to traffic accidents, structural collapse of the bridge, or illegal dumping. River traffic is a concern that has become more prevalent in the past few years due in part to increased news coverage of accidents and collisions. Other potential areas of concern are Island Creek and local farming practices.

# PADUCAH WATER PWSID KY0730533 2013

The data presented in this report are from the most recent testing done in accordance with administrative regulations in 401 KAR Chapter 8. As authorized and approved by EPA, the State has reduced monitoring requirements for certain contaminants to less often than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data in this table, though representative, may be more than one year old. Unless otherwise noted, the report level is the highest level detected.

|   |   |   |                                |                     |                                     |
|---|---|---|--------------------------------|---------------------|-------------------------------------|
| <b>Turbidity (NTU) TT</b><br>* Representative samples of filtered water | <b>Allowable Levels</b><br>No more than 1 NTU*<br>Less than 0.3 NTU in 95% of monthly samples | <b>Highest Single Measurement</b><br>0.14 | <b>Lowest Monthly %</b><br>100 | <b>Violation No</b> | <b>Likely Source</b><br>Soil runoff |
|---|---|---|--------------------------------|---------------------|-------------------------------------|

## REGULATED CONTAMINANTS TEST RESULTS

| Contaminant [code] (units) | MCL | MCLG | Report Level | Range of Detection | Date of Sample | Violation | Likely Source of Contamination |
|----------------------------|-----|------|--------------|--------------------|----------------|-----------|--------------------------------|
|----------------------------|-----|------|--------------|--------------------|----------------|-----------|--------------------------------|

### Microbiological Contaminants

|  |    |   |    |                    |                |    |                                      |
|--|----|---|----|--------------------|----------------|----|--------------------------------------|
| <b>Total Coliform Bacteria # or % positive samples</b> | 5% | 0 | 1% | 2 Positive Samples | June/Oct. 2013 | No | Naturally present in the environment |
|--|----|---|----|--------------------|----------------|----|--------------------------------------|

### Inorganic Contaminants

|   |          |     |                         |                |         |    |   |
|---|----------|-----|-------------------------|----------------|---------|----|---|
| <b>Barium [1010] (ppm)</b>                                | 2        | 2   | 0.026                   | 0.026 to 0.026 | Jan. 13 | No | Drilling wastes; metal refineries; erosion of natural deposits                              |
| <b>Copper [1022] (ppm) sites exceeding action level 0</b> | AL = 1.3 | 1.3 | 0.061 (90th percentile) | 0.001 to 0.104 | July 12 | No | Corrosion of household plumbing systems   |
| <b>Fluoride [1025] (ppm)</b>                              | 4        | 4   | 0.80                    | 0.8 to 0.8     | Jan. 13 | No | Water additive which promotes strong teeth  |
| <b>Nitrate [1040] (ppm)</b>                               | 10       | 10  | 0.400                   | 0.4 to 0.4     | Jan. 13 | No | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits |
| <b>Nitrite [1041] (ppm)</b>                               | 1        | 1   | 0.432                   | 0.432 to 0.432 | Jan. 11 | No | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits |

### Synthetic Organic Contaminants including Pesticides and Herbicides

|  |     |     |      |            |         |    |   |
|--|-----|-----|------|------------|---------|----|---|
| <b>Atrazine [2050] (ppb)</b>                 | 3   | 3   | 0.20 | BDL to 0.4 | July 13 | No | Runoff from herbicide used on row crops |
| <b>Di(2-ethylhexyl) adipate [2035] (ppb)</b> | 400 | 400 | 7.70 | 7.7 to 7.7 | Jan. 11 | No | Discharge from chemical factories       |

### Disinfectants/Disinfection Byproducts and Precursors

|  |     |     |                       |                               |     |    |                                  |
|--|-----|-----|-----------------------|-------------------------------|-----|----|----------------------------------|
| <b>Total Organic Carbon (ppm) (measured as ppm, but reported as a ratio)</b> | TT* | N/A | 1.07 (lowest average) | 0.77 to 1.33 (monthly ratios) | N/A | No | Naturally present in environment |
|--|-----|-----|-----------------------|-------------------------------|-----|----|----------------------------------|

\*Monthly ratio is the % TOC removal achieved to the % TOC removal required. Annual average of the monthly ratios must be 1.00 or greater for compliance.

|   |            |             |                                   |                                       |          |    |  |
|---|------------|-------------|-----------------------------------|---------------------------------------|----------|----|--|
| <b>Chlorine (ppm)</b>                                 | MRDL = 4   | MRDLG = 4   | 1.10 (highest average)            | 0.2 to 1.82                           | N/A      | No | Water additive used to control microbes  |
| <b>Chlorite (ppm)</b>                                 | 1          | 0.8         | 0.74 (average)                    | 0 to 0.8                              | July 13  | No | Byproduct of drinking water disinfection |
| <b>Chlorine dioxide (ppb)</b>                         | MRDL = 800 | MRDLG = 800 | 190                               | 0 to 190                              | Sept. 13 | No | Water additive used to control microbes  |
| <b>HAA (ppb) (all sites) [Haloacetic acids]</b>       | 60         | N/A         | 46 (LRAA for the highest site)    | 13 to 70 (range of individual sites)  | N/A      | No | Byproduct of drinking water disinfection |
| <b>TTHM (ppb) (all sites) [total trihalomethanes]</b> | 80         | N/A         | 76.75 (LRAA for the highest site) | 26 to 110 (range of individual sites) | N/A      | No | Byproduct of drinking water disinfection |

### Unregulated Contaminants (UCMR 3) Plant Tap

| Contaminant [code] (units) | Average | Range (ppb)      | Highest Month |
|----------------------------|---------|------------------|---------------|
| 1,4-dioxane                | 0.16    | 0.08 to 0.23     | Nov. 13       |
| Vanadium                   | 0.45    | 0.00 to 0.70     | Aug. 13       |
| Molybdenum                 | 0.78    | 0.00 to 2.10     | Nov. 13       |
| Strontium                  | 97.50   | 55.00 to 140.00  | Nov. 13       |
| Chromium-6                 | 0.07    | 0.06 to 0.07     | Aug. 13       |
| Chlorate                   | 322.50  | 190.00 to 540.00 | Aug. 13       |

### Unregulated Contaminants (UCMR 3) Distribution

|            |        |                  |         |
|------------|--------|------------------|---------|
| Vanadium   | 0.60   | 0.30 to 0.80     | Aug. 13 |
| Molybdenum | 0.80   | 0.00 to 2.20     | Nov. 13 |
| Strontium  | 106.00 | 65.00 to 150.00  | Nov. 13 |
| Chromium-6 | 0.11   | 0.08 to 0.12     | Aug. 13 |
| Chlorate   | 373.00 | 230.00 to 650.00 | Aug. 13 |

UCMR 3 testing was performed quarterly from 5/2013-2/2014

Our water system has sampled for a series of unregulated contaminants. Unregulated contaminants are those that don't yet have a drinking water standard set by the USEPA. The purpose of monitoring for these contaminants is to help EPA decide whether the contaminants should have a standard. There are no MCL's and therefore no violations if found.

## DEFINITIONS & ABBREVIATIONS

**Maximum Contaminant Level (MCL):** the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

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

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

**Maximum Residual Disinfectant Level Goal (MRDLG):** 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 disinfectants to control microbial contaminants.

**Treatment Technique (TT):** a required process intended to reduce the level of a contaminant in drinking water.

**Action Level (AL):** the concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

### > GREATER THAN < LESS THAN

**N/A:** Not applicable. Does not apply.

**NTU:** Nephelometric Turbidity Unit, a measure of water clarity.

**pCi/l:** Picocuries per liter, a measure of radioactivity in water.

**ppb (ug/l):** Parts per billion or micrograms per liter.

**ppm (mg/l):** Parts per million or milligrams per liter.

**LRAA:** Locational running annual average. The annual average of one monitoring location.

**BDL:** Below Detection Levels. Laboratory analysis indicates that the contaminant is not present.

## SPECIAL INFORMATION AVAILABLE

Some people may be more vulnerable to contaminants in drinking water than the general population.

Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS, or other immune system disorders, some elderly and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers.

EPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).





Paducah Water  
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## PADUCAH WATER CONTACT INFORMATION

If you are interested in learning more about the water department and water quality, there are a number of opportunities available. Questions about water service may be answered by calling our Customer Service office and questions about water quality may be answered by calling our Water Quality Department at 270.442.2746.

The members of the Commissioners of Waterworks meet at 5 p.m. on the last Wednesday of each month at the Paducah Water Works office, 1800 North 8th Street. Board sessions are open to the public.

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 and, in some cases, radioactive material, and may pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- (A) *Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.*
- (B) *Inorganic contaminants, such as salts and metals, which can be natural-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.*
- (C) *Pesticides and herbicides, which may come from a variety of sources, such as agricultural, urban stormwater runoff, and residential uses.*
- (D) *Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.*
- (E) *Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.*

In order to ensure that tap water is safe to drink, EPA prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) 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. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the **EPA's Safe Drinking Water Hotline (800-426-4791)**.

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. Paducah Water 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 two 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 you can take to minimize exposure is available from the Safe Drinking Water Hotline or by going to [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

Some people who drink trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of cancer.

Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.

**FOR QUESTIONS ABOUT THE QUALITY OF OUR DRINKING WATER OR ABOUT THIS REPORT, CALL PADUCAH WATER'S WATER QUALITY DEPARTMENT AT 270.442.2746.**