

## NEWARK'S WATER FACTS

Population Served .....	33,610
Metered Customers.....	9,919
Annual Average Pumpage.....	3.5 million gallons per day
Service Area .....	25 square miles
Surface Water Supply.....	60%
Ground Water Supply.....	40%
Purchased Water Supply.....	0%

### Conservation Tips

Check your toilet for leaks by putting food coloring in your tank. If the color shows up in the toilet bowl without flushing, you have a leak that is wasting water and costing you money.

- Turn the water off while brushing your teeth.
- Take shorter showers.
- Use dishwasher and clothes washer for full loads only.
- Keep a bottle of cold water in the refrigerator.
- Water your lawn only when necessary.
- Water in the evening or early morning to reduce evaporation. Avoid watering on windy days.
- Use a shut-off on your hose.
- Fixing a leaking faucet can save 140 gallons of water a week.
- Use a bowl of water to clean and prepare vegetables, rather than letting the faucet run.

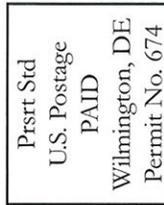
For more water conservation tips, check out our website at <http://cityofnewarkde.us>

If you have any questions concerning your water, your water service, or this report, please call or write to us at:

Newark Water Department  
c/o Roy Simonson, Tom Coleman,  
Andrea Coyle, or Bill Zimmerman  
220 Elkton Road, Newark, DE 19711  
PWS ID 0000630  
(302) 366-7055  
<http://cityofnewarkde.us>

Newark City Council meets on the second and fourth Mondays of the month. The meetings are held in the Newark City Council Chamber at the Newark Municipal Building, 220 Elkton Road, Newark, Delaware, starting at 7:00 p.m. Additional information can be obtained by calling the following agencies:

EPA Safe Drinking Water Hotline: (800) 426-4791  
Delaware Office of Drinking Water: (302) 741-8630  
University of Delaware, Water Resources Agency  
[www.wr.udel.edu](http://www.wr.udel.edu)



Newark Water & Wastewater Department  
220 Elkton Road  
Newark, DE 19711



# Water Quality Report 2011

*Excellence in Water Quality...  
Our Constant Goal!*



Water & Wastewater  
Department  
City of Newark, Delaware

## NEWARK'S HIGH-QUALITY WATER

The City of Newark Water Department has been committed to providing you with high-quality water since 1888. We regularly test our water to ensure the quality. We are proud to report that the water Newark supplies meets or exceeds the water quality standards for the Delaware Division of Public Health Office of Drinking Water and the Environmental Protection Agency. The table on the other side of this report lists those substances found in our finished water during the calendar year 2011.

## HOW THE WATER IS TREATED

At the Newark Water Treatment Facility (NWTf), water from the White Clay Creek is clarified with alum and polymer and then filtered to remove impurities. Chlorine is added to kill harmful bacteria and viruses. Other chemicals added to the water are fluoride, to protect your teeth, and lime to reduce the corrosivity of the water.

The South Well Field Iron & Manganese Removal Plant aerates well water by a forced air blower, to remove any volatile compounds and raise the pH. The water is then treated with chlorine and potassium permanganate and

pumped through green sand filters, which removes all iron and manganese in addition to filtering the water. Other chemicals added to the water are fluoride to protect your teeth, lime to further raise the pH and polyphosphate to reduce the corrosiveness of the water.

Water in our new reservoir is recirculated by a pump through a pipeline extending around the perimeter. Water leaves the pipeline via adjustable slots and flows to the large wetlands bench. Here the water flows through a special sand and gravel material before being returned to the reservoir. This wetland's bench helps to clarify and remove nutrients from the water.



## THE SOURCE OF YOUR WATER

The adjacent map illustrates which of the sources serves you. The South Well Field contains eight wells drawing water from the sand and gravel Potomac and Columbia aquifers. The Laird Tract Wells have two rock wells drawing from the Wissahickon aquifer occasionally pumping into the northern area. The Newark Water Treatment Plant has been drawing water from the White Clay Creek since 1992. The White Clay Creek is also the source of the water we use to fill the new reservoir.

## PROTECTING THE WATERSHED

Newark is actively involved in the White Clay Creek Wild and Scenic watershed management plan. The plan delineates a cooperative approach to resource management and watershed protection. The White Clay Creek is now designated a Wild and Scenic River. Newark participates in the watershed-based Christina Basin Water Quality Management Strategy which is designed to protect and improve the quality of the streams including the White Clay Creek.

## PROTECTING THE GROUND WATER

Preventing pollution is the top priority in protecting our groundwater supply. In 1991, Newark developed and implemented Water Resource Protection Regulations. The regulations protect our drinking water supply from pollution that may be associated with inappropriate land uses.

## MANAGING THE DISTRIBUTION SYSTEM

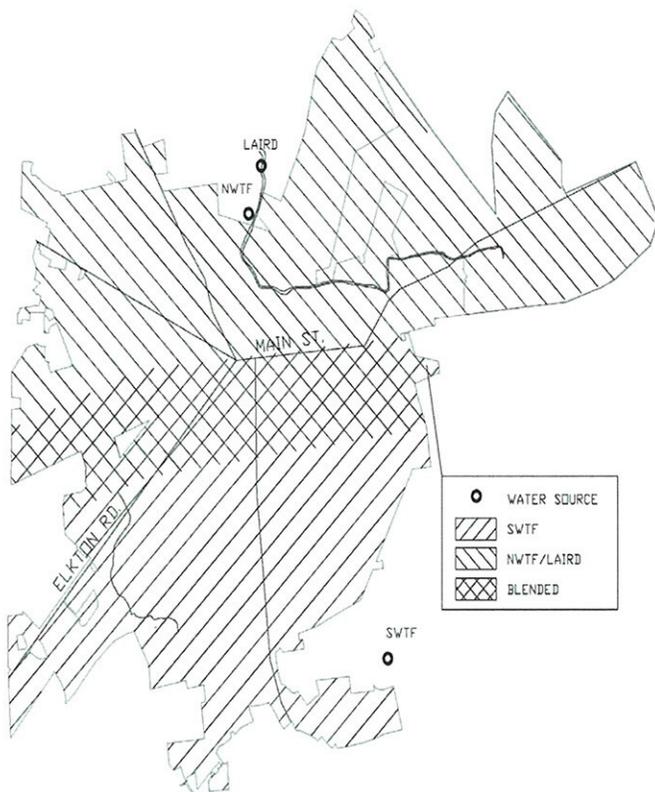
Another tool for water quality maintenance is effectively managing the 91 miles in our water distribution system. Seven tanks store enough treated water to last two days and we now have a 318 million gallon raw water reservoir on line.

In December of 2011 we completed the first phase of an ongoing water main rehabilitation project. Kells Avenue from South College Avenue to Academy Street and Wollaston Avenue were cleaned and cement lined and have seen a significant improvement in water quality and flow. This summer we are planning two major rehabilitation projects. The first will be replacing the existing 4" main in Kent Avenue with a larger 6" main. The second will be a downtown cleaning and lining project similar to what was done on Kent and Wollaston Avenues. We are currently planning to clean and line all of Townsend and Indian Roads along with portions of Orchard, Winslow and Sunset Roads. The project area is bounded by Kent Way to the north, West Park Place to the south, Beverly Road to the west and South College Avenue to the east.

We flush the entire system yearly. Water needs to remain fresh and retain sufficient chlorine for disinfection. Each month, we analyze 40 distribution system water samples for bacterial content and chlorine. Regulated substances are sampled as required.

## SOURCE WATER ASSESSMENT

In 1996, Congress amended the Safe Drinking Water Act creating a new program titled Source Water Assessment and Protection Program. Each state is required to identify and evaluate all sources of water that are used as drinking water sources within the state. The goal of the program is to assess the susceptibility of public water sources to contamination and to promote and facilitate the protection of these water sources. Customers should contact the City of Newark Water Department at 302-366-7055 about how to obtain a copy of our surface and ground water assessments. You may also view our surface and ground water assessments at the website: <http://www.wra.udel.edu/publicservice/swapp>



## SYSTEM UPDATE

The re-drilling and relocation of Well 14 has begun on the South Well Field Treatment Plant site. We expect the well to be in service before the end of the year and to yield at least 0.5 million gallons a day.

Work will begin before the end of the year on the new Northwest Booster Station. The new booster station will be located directly above the existing booster station and be well above the flood plain. The new booster station will be designed to be integrated into our SCADA system when it becomes available.

Installation of an additional water line across the White Clay creek to provide redundancy is in the planning stage and could be completed this year.

- Wise water use is very important.
- Water is a natural resource shared by everyone.
- The amount of water on the earth does not change.
- Water is not always available where it is needed.
- Water is used by people in many different ways.
- Pollution makes water more difficult and expensive to make safe.
- Wasting water wastes energy because it requires energy to treat water, and pump it.

Now let us focus on what private citizens can do.

Runoff is a major issue with regard to both surface and ground water quality. Here are several things you can do to reduce the negative effects of runoff.

- Control soil erosion whenever you disturb the ground. Protect disturbed ground with mulch or plants.
- Pick up and properly dispose of pet waste.
- Direct down spouts away from paved areas and towards vegetated areas.
- Establish rain gardens to allow rain water to slowly infiltrate into and recharge the ground water.
- Use rain barrels to collect and store rain water for gardening use.
- Reduce impermeable surfaces by using porous paving blocks, filter cloth, concrete cellular mattresses, block and concrete pavers, gravel, stone, and vegetation.
- Support reforestation efforts along local streams and rivers.

Change or adjust your landscape maintenance practices.

- Minimize use of chemicals and when required use organic products when possible.
- Don't apply herbicides, pesticides, and fertilizers before a rain storm.
- Leave grass clippings on the lawn to feed the lawn and reduce fertilizer needed later.

- Don't mow lawns less than 2". This develops longer roots, shades out weeds, and reduces water requirements.
- Minimize lawn watering practices. Learn about the best time to water your lawn and the best amount of water to apply.
- Plant native species. They are easier to maintain and feed the local wildlife.
- Compost garden debris, leaves and vegetable scraps for a free soil supplement.

With everyone's help we can significantly improve and preserve the water resources that we rely upon to make our potable water.

*Information for this section was gathered from publications developed by the White Clay Creek Watershed.*

Additional information can be found at the following web sites:

**White Clay Wild and Scenic River Program**

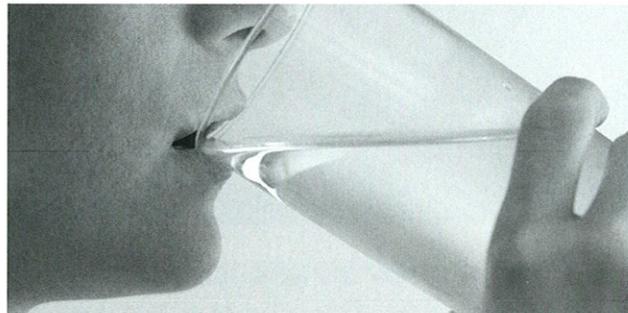
[www.whiteclay.org](http://www.whiteclay.org)

**White Clay Watershed Association**

<http://mercury.ccil.org/~wcwa/>

**City of Newark**

<http://www.cityofnewarkde.us/>



## INFORMATION FOR YOU

The sources of drinking water (both tap water and bottled water) include streams, ponds, reservoirs, 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 human activity.

Substances that may be present in source water include:

- **Microbial substances** include viruses and bacteria, which may be naturally occurring or from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- **Inorganic substances** include salts and metals, which can be naturally occurring or result from urban storm runoff, industrial or domestic wastewater discharges, or farming.
- **Pesticides and herbicides** may come from a variety of sources

improve the quality of the streams including the White Clay Creek.

such as agriculture, urban stormwater runoff, and septic systems.

- **Organic chemical substances** include synthetic and volatile organics, which are by-products of industrial processes and can also come from gasoline stations, urban stormwater runoff, and septic systems.
- **Radioactive substances** which can be naturally occurring or the result of oil and gas production and mining activities.

**Drinking water**, including bottled water, may reasonably be expected to contain at least small amounts of some substances. The presence of these substances does not necessarily indicate that water poses a health risk. More information about substances and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800) 426-4791.

*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 regulations establish limits for contaminants in bottled water which must provide the same protection for public health.*

## IMPORTANT HEALTH NOTES

**Cryptosporidium and Giardia** You may have seen reports about Cryptosporidium and Giardia, microscopic organisms which can enter surface waters from runoff containing animal wastes. If ingested, Cryptosporidium and Giardia can cause diarrhea, fever and other gastrointestinal symptoms. Crypto and Giardia were not found in Newark's finished water sample. The organisms are eliminated in our treatment process through filtration, clarification and disinfection.

**Radon** Radon gas is found in soil. The gas moves through the ground into the air and may enter homes through foundations. Drinking water from ground water may add radon to the home air. The EPA indicates the risk is small compared to the radon entering through soil. Standards for monitoring radon in drinking water have not been set by EPA and the Delaware Office of Drinking Water.

**Special Populations** Some people may be more vulnerable to substances in drinking water than the general population. Immune-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/CDC guidelines on appropriate means to lessen the risk of infections by cryptosporidium and other microbial substances are available from the EPA Safe Drinking Water Hotline at (800) 426-4791.

and ground water assessments. You may also view our surface and ground water assessments at the website:

<http://www.newarkde.gov/publicservice/ewassess>

Regulated Substances								
	Unit of Measure	Highest Level Allowed MCL	Ideal Goal MCLG	Highest Level Detected HLD	Range of Levels Detected	Date	Violation	Major Sources
Barium	ppm	2	0	0.2162	0.167-0.2162	2011	N	Discharge of drilling wastes, metal refineries, erosion of natural deposits
Chromium	ppb	100	0	8	2.7-8	2011	N	Discharge from steel and pulp mills, erosion of natural deposits
Di(2-ethylhexyl)phthalate	ppb	6	0	0.90	0-0.9	2010	N	Discharge from rubber and chemical factories
Fluoride	ppm	2	0.8	1.77	0-1.77	2011	N	Water additive which promotes healthy teeth
Nickel	ppb	100	0	1.9	0-1.9	2009	N	Discharge from mining and plating operations, erosion of natural deposits
Nitrate	ppm	10	0	6.73	0.8-6.73	2011	N	Leaching from septic tanks; runoff from fertilizer use
Pentachlorophenol	ppb	1	0	0.11	0.0-0.11	2009	N	Discharge from wood preserving factories
Selenium	ppb	50	0	2	0-2	2011	N	Discharge from petroleum and metal refineries, mines; erosion from natural deposits
Total Organic Carbon	mg/l	TT	*	2.5	1.2-2.5	2011	N	Naturally present in the environment
Tetrachloroethylene	ppb	5	0	0.841	0.667-0.841	2008	N	Discharge from factories and dry cleaners
Turbidity	ntu	0.3	*	0.27	0.02-0.27	2011	N	Particulate matter from soil erosion and biological cycles

### Radiological Contaminants

Beta/photom emitters	mrem/yr	4	0	0.38	0.38-0.38	2011	N	Erosion of natural deposits and synthetic deposits
Combined Radium 226/228	pCi/L	5	0	0.21	0.21-0.21	2011	N	Decay of natural deposits

### Special Educational Statements

**Most Recent Monitoring Statement:** The Office of Drinking Water allows us to monitor for some contaminants less than once per year. This is because the concentration of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

**Nitrate:** Drinking water nitrate levels above 10 mg/l are a health risk for infants of less than 6 months in age. High nitrate levels in drinking water can cause blue baby syndrome in infants consuming this water. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should seek advice from your health care provider.

**Total Organic Carbon (TOC)** has no health effects. TOC is an indicator for the formation potential of disinfection byproducts - trihalomethanes (TTHM's) and haloacetic acids (HAA's). Drinking water containing these disinfection byproducts in excess of their respective MCL's may lead to adverse health effects. Our water is well below the MCL's for these disinfection byproducts.

**Turbidity:** The turbidity (cloudiness of the water) samples of water leaving the treatment plant must be less than 0.3 nephelometric turbidity units in at least 95% of samples in any month.

### Microbiological Substances (40 samples per month)

	Unit of Measure	Highest Level Allowed MCL	Ideal Goal MCLG	Highest Level Detected HLD	Range of Levels Detected	Date	Violation	Major Sources
Total Coliform	each	We collect >40 bacterial samples per month, no more than 5% of the samples can be positive	0	0	We collected 492 bacterial samples and had no positive bacterial samples	2011	N	Naturally present in the environment

### Disinfectants and Disinfectant by-products

	Unit of Measure	Highest Level Allowed MCL	Ideal Goal MCLG	Highest Level Detected HLD	Range of Levels Detected	Date	Violation	Major Sources
Chlorine (free)	ppm	4	1.0	2.30	0.40-2.30	2011	N	Disinfection chemical added to water - chlorination
Haloacetic Acids, Total (HAA's)	ppb	60**	no goal	49.9	1.0-49.9	2011	N	By-product of drinking water chlorination
Total Trihalomethanes (TTHM's)	ppb	80**	no goal	45.6	1.0-45.6	2011	N	By-product of drinking water chlorination

\*\*This MCL is based on a 4 quarterly average

TTHM's and HAA's are a running 4 quarterly annual average

### Lead and Copper (31 samples)

	Unit of Measure	Action Level	# of sites over AL	90th Percentile	Range of All Samples	Date	Violation	Major Sources
90th Percentile Lead	ppb	15	0	3.9	2-5	2011	N	A total of 31 samples were collected none exceeded 15 ug/l } reduced monitoring
90th Percentile Copper	ppm	1.3	0	0.77	0.021-0.859	2011	N	

### Special Educational Statements

**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. The City of Newark 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 the 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 (800) 426-4791 or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

### Unregulated Substances and Secondary Standards

	Unit of Measure	SMCL	Goal	Average	Annual Range	Date	DEFINITION OF TERMS
Alkalinity	ppm	nr		68	25-68	2011	Action Level - that concentration of a contaminant which when exceeded requires the water supplier to remediate.
Chloride	ppm	250	< 250	85	35-85	2011	Highest Level Detected (HLD) - the highest level detected in a group of samples.
Hardness (Total)	ppm	nr		120	70-120	2011	Maximum Contaminant Level (MCL) - the highest level of a contaminant that is allowed in drinking water.
Iron	ppm	0.3	< 0.3	0.10	0.02-0.10	2011	Maximum Contaminant Level Goal (MCLG) - the level of a contaminant in drinking water below which there is no known risk to health.
Manganese	ppm	0.05	0	0.03	0.0006-0.03	2011	Secondary Maximum Contaminant Level (SMCL) - means an MCL which involves a biological, chemical or physical characteristic of water that may adversely affect the taste, odor, color, or appearance (aesthetics).
Nickel	ppm	0.1	0	0.0035	0.0035-0.0035	2011	millirem per year (mrem/yr) - the millirem per year is the unit of absorbed radiation dose in one year.
pH	0-14	6.5-8.5	7.2	7.5	7.3-7.5	2011	Non detects (nd) - laboratory analysis indicates that the contaminant is below the laboratory detection limit.
Sodium	ppm	nr	< 50	34	16-34	2011	Not Regulated (nr) - no MCL established for this contaminant.
Sulfate	ppm	250		51	13-51	2011	Picocuries Per Liter (pCi/l) - the unit of measure using picocuries in one liter. The measure of the radioactivity in water.
Total Dissolved Solids	ppm	nr	< 500	236	210-236	2011	ppb - parts per billion or micrograms per liter - one ounce in 7,350,000 gallons of water

### Special Educational Statements

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