



ANNUAL
WATER
QUALITY
REPORT

Water testing performed in 2008



CITY OF EAST ORANGE



PWS ID#: NJ0705001

Meeting the Challenge

We are proud to present our annual water quality report. This edition covers all testing completed from January 1 through December 31, 2008. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal drinking water standards. We continually strive to adopt new and better methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please share with us your thoughts about the information in this report. After all, well-informed customers are our best allies.

Source Water Assessment

The New Jersey Department of Environmental Protection (NJDEP) has completed and issued the Source Water Assessment Report and Summary for this public water system, which is available at www.state.nj.us/dep/swap or by contacting the NJDEP's Bureau of Safe Drinking Water at (609) 292-5550. You may also contact the East Orange Water Commission's Customer Service Department at (973) 266-8869 to obtain information regarding your water system's Source Water Assessment.

If a system is rated highly susceptible for a contaminant category, it does not mean a consumer is or will be consuming contaminated drinking water. Ratings reflect the potential for contamination of source water, not the existence of contamination.

Results for our 18 wells:

The following categories were rated High potential for contamination: nutrients, volatile organic compounds, inorganics, radon, and disinfection by-product precursors.

The following categories were rated Medium potential for contamination: pathogens, nutrients, pesticides, inorganics, radionuclides, and disinfection by-product precursors.

The following categories were rated Low potential for contamination: nutrients, pesticides, and volatile organic compounds.

Surface water purchased from the City of Newark was rated High potential for contamination in the following categories: pathogens, inorganics, and disinfection by-product precursors.

Surface water purchased from the City of Newark was rated Low potential for contamination in the following categories: nutrients, pesticides, volatile organic compounds, radionuclides, and radon.

Treatment Train Description

To ensure the quality of our water, it is treated with chlorine as a disinfectant. No additional treatment is required to produce excellent quality drinking water.

What's Your Water Footprint?

You may have some understanding about your carbon footprint, but how much do you know about your water footprint? The water footprint of an individual, community, or business is defined as the total volume of freshwater that is used to produce the goods and services that are consumed by the individual or community or produced by the business. For example, 11 gallons of water are needed to irrigate and wash the fruit in one half-gallon container of orange juice. Thirty-seven gallons of water are used to grow, produce, package, and ship the beans in that morning cup of coffee. Two hundred and sixty-four gallons of water are required to produce one quart of milk, and 4,200 gallons of water are required to produce two pounds of beef.

According to the U.S. EPA, the average American uses about 100 gallons of water daily. In fact, in the developed world, one flush of a toilet uses as much water as the average person in the developing world allocates for an entire day's cooking, washing, cleaning, and drinking. The annual American per capita water footprint is about 8,000 cubic feet; twice the global per capita average. With water use increasing six-fold in the past century, our demands for freshwater are rapidly outstripping what the planet can replenish.

To check out your own water footprint, go to www.h2oconserve.org, or visit www.waterfootprint.org to see how the water footprints of other nations compare.

Where Does My Water Come From?

This year the City of East Orange was supplied with an average of 8.25 million gallons of water each day for domestic consumption, fire protection, ground irrigation, and other water supply needs. The city draws groundwater from four well-fields, containing 18 wells, in the 2,300-acre East Orange Water Reserve located in Millburn, Livingston, and Florham Park. In addition, the city purchases surface water from the City of Newark to meet consumer demand.

Community Participation

We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled Board of Water Commission meetings held on the second Tuesday of the month at 99 South Grove Street, East Orange, NJ, at 5:00 p.m.

Questions?

For more information about this report, or for any questions relating to your drinking water, please contact the East Orange Water Commission's Customer Service Department, Monday through Friday, at (973) 266-8869 between the hours of 8:30 a.m. and 4:00 p.m., ET, or via email at water@ci.east-orange.nj.us and visit us online at www.eowater.com.



Lead and Drinking Water

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 East Orange Water Commission ensures that the water supply provided to its residents meets all established standards for lead, and provides high-quality drinking water, but cannot control the variety and maintenance of materials and systems used in residential and commercial 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 you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

Water Conservation

You can play a role in conserving water and save yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:

- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you can save more than 30,000 gallons a year.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants 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. The presence of these contaminants does 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 some cases radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, or volatile organic contaminants. The table below shows only those contaminants that were detected in the water. The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

REGULATED SUBSTANCES ¹

| SUBSTANCE (UNIT OF MEASURE) | VIOLATION | YEAR SAMPLED | MCL [MRDL] | MCLG [MRDLG] | AMOUNT DETECTED | RANGE LOW-HIGH BASED ON MULTIPLE SAMPLES | TYPICAL SOURCE |
|---|-----------|-----------------|--|-----------------|--------------------|--|--|
| Alpha Emitters (pCi/L) | No | 2008 | 15 | 0 | 0.86 | 0.8–0.86 | Erosion of natural deposits |
| Barium (ppm) | No | 2008 | 2 | 2 | 0.11 | 0.01–0.11 | Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits |
| Chlorine ² (ppm) | No | 2008 | [4] | [4] | 1.14 | 0.36–1.14 | Water additive used to control microbes |
| Combined Radium (pCi/L) | No | 2008 | 5 | 0 | 0.03 | 0.02–0.03 | Erosion of natural deposits |
| Fluoride (ppm) | No | 2008 | 4 | 4 | 0.073 | 0.062–0.073 | Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories |
| Haloacetic Acids [HAA] ² (ppb) | No | 2008 | 60 | NA | 19.75 | ND–56 | By-product of drinking water disinfection |
| Mercury [inorganic] (ppb) | No | 2008 | 2 | 2 | 0.055 | ND–0.055 | Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland |
| Nitrate (ppm) | No | 2008 | 10 | 10 | 1.2 | 0.008–1.2 | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits |
| TTHMs [Total Trihalomethanes] ² (ppb) | No | 2008 | 80 | NA | 34.32 | 6–77 | By-product of drinking water chlorination |
| Tetrachloroethylene ³ (ppb) | No | 2008 | 1 | 0 | 0.87 | 0.59–1.29 | Discharge from factories and dry cleaners |
| Total Coliform Bacteria (% positive samples) | No | 2008 | 5% of monthly samples are positive | 0 | 1.25% | NA | Naturally present in the environment |
| Trichloroethylene ² (ppb) | No | 2008 | 1 | 0 | 0.11 | ND–0.26 | Discharge from metal degreasing sites and other factories |
| Uranium (ppb) | No | 2008 | 30 | 0 | 2.26 | NA | Erosion of natural deposits |

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

| SUBSTANCE (UNIT OF MEASURE) | VIOLATION | YEAR SAMPLED | AL | MCLG | AMOUNT DETECTED (90TH%TILE) | SITES ABOVE AL/TOTAL SITES | TYPICAL SOURCE |
|--------------------------------|-----------|-----------------|-----|------|-----------------------------------|----------------------------------|---|
| Copper (ppm) | No | 2006 | 1.3 | 1.3 | 0.29 | 0/30 | Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives |
| Lead (ppb) | No | 2006 | 15 | 0 | 8 | 1/30 | Corrosion of household plumbing systems; Erosion of natural deposits |

UNREGULATED SUBSTANCES

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | AMOUNT DETECTED | RANGE LOW-HIGH BASED ON MULTIPLE SAMPLES | TYPICAL SOURCE |
|---|-----------------|--------------------|--|---|
| Bromoform ² (ppb) | 2008 | 0.3 | ND–0.82 | By-product of drinking water disinfection |
| Dibromochloromethane ² (ppb) | 2008 | 0.47 | 0.23–0.62 | By-product of drinking water disinfection process |

OTHER SUBSTANCES

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | AMOUNT DETECTED | RANGE LOW-HIGH BASED ON MULTIPLE SAMPLES | TYPICAL SOURCE |
|--|-----------------|--------------------|--|---|
| Haloacetic Acids [HAA]–IDSE Results ^{2,4} (ppb) | 2008 | 4.7 | ND–35.98 | By-product of drinking water disinfection |
| TTHMs [Total Trihalomethanes]–IDSE Results ^{2,4} (ppb) | 2008 | 9.9 | 0.22–43.02 | By-product of drinking water disinfection |

¹ Under a waiver granted on December 30, 1998, by the NJDEP, our system does not have to monitor for synthetic organic chemicals/pesticides because several years of testing have indicated that these substances do not occur in our source water. The SDWA regulations allow monitoring waivers to reduce or eliminate the monitoring requirements for asbestos, volatile organic chemicals, and synthetic organic chemicals. Our system received monitoring waivers for synthetic organic chemicals and asbestos.

² Footnote for City of East Orange: The 'Amount Detected' reflects the running annual average of multiple samples collected throughout the calendar year.

³ Footnote for City of East Orange: Although the highest level detected (1.29) for tetrachloroethylene is above the MCL, EPA compliance is based upon the running annual average of multiple samples collected throughout the calendar year. 'Amount Detected' (0.87) reflects the yearly average.

⁴ We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., HAAs and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.

Definitions

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

MCL (Maximum Contaminant Level): 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.

MCLG (Maximum Contaminant Level Goal): 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.

MRDL (Maximum Residual Disinfectant Level): 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.

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 disinfectants to control microbial contaminants.

NA: Not applicable.

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

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

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).