

Picatinny Arsenal Water Treatment Facility
Report on Water Quality
Drinking Water Consumer Confidence Report
2013 (2012 Results)



Picatinny Water Treatment Facility
Building 1383
Picatinny Arsenal, NJ 07806

Prepared by:

Keith Smith

Licensed Operator of Record

Veolia Water North America, Northeast LLC

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Dear Picatinny Arsenal Water Consumers:

In 1996, Congress amended the Safe Drinking Water Act. It added a provision requiring that all community water systems serving at least fifteen residential service connections year round deliver to their customers a brief annual Drinking Water Consumer Confidence Report (CCR). CCR's summarize information that your water system already collects to comply with regulations. This CCR is an annual report which includes information on your source water, the levels of any detected contaminants, compliance with drinking water rules, plus some educational information.

The Picatinny Arsenal Water Treatment Facility is pleased to inform you that the quality of water provided to you throughout Year 2012 met all federal and state drinking water regulations.

We are committed to providing you with safe, reliable, high quality drinking water that you expect and deserve. Veolia Water North America is pleased to serve you and to keep you informed about the drinking water quality here at Picatinny Arsenal.

Sincerely,

Keith Smith
Licensed Operator of Record
Veolia Water North America

1. WATER SYSTEM INFORMATION

Picatinny Arsenal Drinking Water System

- Name/phone number of contact person(s).
Keith Smith (Licensed Operator) (973) 366-9339
Carl Appelquist (Army Environmental) (973) 724-5517
- INFORMATION ON PUBLIC PARTICIPATION OPPORTUNITIES:
Individuals can obtain information on water issues/decisions affecting water quality through their Environmental Affairs Division.

Why There May Be Contaminants in the Water:

As water travels over the surface of land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material. It can also pick up substances resulting from the presence of animals or human activity.

The following is a list of contaminants that may be present in source water:

MICROBIAL CONTAMINANTS - such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

INORGANIC CONTAMINANTS - such as salts and metals, which can be naturally occurring or result from urban runoff, industrial or domestic wastewater discharges, oil and gas production, or farming.

PESTICIDES AND HERBICIDES - which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

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 storm water runoff, and septic systems.

RADIOACTIVE CONTAMINANTS - which can be naturally occurring or be the result of oil and gas production and mining activities.

ENSURING WATER QUALITY

Here at the Picatinny Arsenal Water Treatment Facility, our staff monitors water quality from many sources on a daily basis. We also collect approximately 100 samples each year and send these samples to an EPA-approved, New Jersey certified laboratory to analyze your drinking water. Our personnel take samples from the distribution system and at consumer taps. Samples are then shipped to the lab where a full spectrum of water quality analyses is performed.

MONITORING OF YOUR DRINKING WATER

To comply with EPA regulations, our water system monitors for the contaminant groups listed below. In addition, we perform tests for pH, chlorine residual, and temperature. We also test on a daily basis for Iron and Manganese. All these tests assure us that the highest level of drinking water quality is maintained throughout the entire water distribution system.

<u>ANALYTE/CONTAMINANT GROUP</u>	<u>MONITORING FREQUENCY</u>
1. Biological Contaminants (Total Coliform)	5 samples Monthly
2. Trihalomethane/Haloacetic Acids	Annually
3. Lead and Copper (Tested in 2012)	20 samples every 3 years
4. Inorganic Contaminants (Tested in 2012)	1 sample every 3 years.
5. Volatile Organic Compounds	Quarterly Stripper (Inf/Eff)
6. Nitrate/Nitrite (as Nitrogen)	Annually
7. Secondary Contaminants (Tested in 2012)	1 sample every 3 years
8. Asbestos	Under Waiver
9. Radionuclides (Tested in 2012)	1 sample every 4 years
10. Pesticides/SOC'S	Under Waiver
11. Radon	Quarterly Stripper (Influent)
12. Iron and Manganese	Daily for process control

2. SOURCES OF WATER

There are a total of 3 water wells that supply drinking water to the Arsenal:

Well 131: The depth of this well is 177 feet and draws water from the glacial aquifer. This is our primary well

Well 302D: The depth of this well is 417 feet and it pumps groundwater from the bedrock aquifer system. This is our backup well.

Well 410: The depth of the well is 108 feet and draws water from the glacial aquifer system. Not in use at this time.

Source Water Assessments

The New Jersey Department of Environmental Protection (NJDEP) has completed and issued a Source Water Assessment Report and Summary for Picatinny Arsenal's water system, which is available at www.state.nj.us/dep/swap/ (on this website type in "PICATINNY" for "water system name") or by contacting the NJDEP, Bureau of Safe Drinking Water at 609-292-5550. There is also a copy available for review at Picatinny's Environmental Affairs Directorate (Building 319).

The Source Water Assessments were completed at the end of December 2004 for all community water systems. The source water assessment performed on our 3 wells (131, 302, & 410) and determined the following Susceptibility Ratings for Picatinny Arsenal – ARDEC Sources:

Sources	Pathogens			Nutrients			Pesticides			Volatile Organic Compound			Inorganics			Radio-nuclides			Radon			Disinfection Byproduct Precursors		
	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L
Well 131			X	X				X		X					X		X		X		X			
Well 302		X				X			X	X				X		X		X		X		X		
Well 410		X		X					X	X				X		X		X		X		X		

The table above illustrates the susceptibility ratings for the seven conceptual contaminant categories for Picatinny's three source wells. The table provides the number of wells that were rated high (H), medium (M), or low (L) for each conceptual contaminant category. For the susceptibility ratings of purchased water, refer to the specific water systems source water assessment report. For the purpose of Source Water Assessment Program, radionuclides are more of a concern for ground water than surface water. **If a system is rated highly susceptible for a contaminant category, it does not mean a customer is or will be consuming contaminated drinking water.** The ratings reflect the conceptual potential for contamination of source water, not the existence of contamination.

Public water systems are required to monitor regulated contaminants and install treatment if any contaminants are detected at frequencies and concentrations above allowable levels. As a result of the assessments, DEP may customize (change existing) monitoring schedules based on the susceptibility ratings. If you have any questions regarding source water assessment reports or summaries please contact the Bureau of Safe Drinking Water at swap@dep.state.nj.us or 609-292-5550.

The eight contaminant categories are defined below:

- **Pathogens:** Disease-causing organisms such as bacteria and viruses. Common sources are animal and human fecal wastes.
- **Nutrients:** Compounds, minerals and elements that aid growth, that are both naturally occurring and man-made. Examples include nitrogen and phosphorus.
- **Volatile Organic Compounds:** Man-made chemicals used as solvents, degreasers, and gasoline components. Examples include benzene, methyl tertiary butyl ether (MTBE), and vinyl chloride.
- **Pesticides:** Man-made chemicals used to control pests, weeds and fungus. Common sources include land application and manufacturing centers of pesticides. Examples include herbicides such as atropine, and insecticides such as chlordane.
- **Inorganics:** Mineral-based compounds that are both naturally occurring and man-made. Examples include arsenic, asbestos, copper, lead and nitrate.
- **Radionuclides:** Radioactive substances that are both naturally occurring and man-made. Examples include radium and uranium.
- **Radon:** Colorless, odorless, cancer-causing gas that occurs naturally in the environment. For more information go to <http://www.nj.gov/dep/rpp/radon/index.htm> or call (800) 648-0394.
- **Disinfection Byproducts Precursors:** A common source is naturally occurring organic matter in surface water. Disinfection byproducts are formed when the disinfectants (usually chlorine) used to kill pathogens react with dissolved organic material (for example leaves) present in surface water.

PICATINNY ARSENAL WATER TREATMENT

Groundwater pumped from the active community wells undergoes an extensive treatment process. First, the groundwater from the operating wells is pumped to the primary surge tank at the water plant where potassium permanganate is injected to the water prior to filtration. The water then passes through green sand filters to remove iron and manganese. Following sand filtration, the water is treated through an air-stripping tower to remove volatile organic compounds, and is then pumped to a secondary surge tank. Finally chlorine is added for disinfection.

The water treatment plant has a design capacity of one million gallons of water per day but treated an average of 331,148 gallons of water per day in 2012.

. Over the past years, chemical feeders have been replaced, water storage tanks have been cleaned, repaired and or replaced, new alarm systems have been installed, raw and potable water mains have been replaced, equipment has been automated, and general system maintenance has been conducted. These upgrades and repairs have totaled in excess of \$3,500,000.

AVAILABILITY OF SOURCE WATER ASSESSMENT

Past industrial activities resulted in certain contaminants entering the groundwater systems supplying the Arsenal. Remediation efforts to clean up contamination have been extensive. These efforts include remedial investigation feasibility studies, groundwater contamination assessments, groundwater remediation, and surface water assessments.

INFORMATION ON POTENTIAL SOURCES OF CONTAMINATION

The installation has a combination of industrial and administrative support facilities, as well as residential facilities and recreational areas.

Potential sources of contamination consist of the following;

- Septic systems
- Abandoned wells
- Motor pool facilities that include vehicle maintenance shops, gas stations, vehicle wash racks, oil/water separators and storage buildings for fuels/petroleum, oil, lubricants and other flammable materials.
- Power generating facilities including transformer equipment areas
- Storage facilities that store batteries, explosives, fertilizer, insecticides, herbicides, hazardous waste and radioactive materials.
- Wastewater treatment facilities
- Golf courses
- Road de-icing.

3. DEFINITIONS

- **Maximum Contaminant Level (MCL)**

The highest level of a contaminant that is allowed in drinking water, MCL's, are set as close to the Maximum Contaminant Level Goal (MCLG) 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. MCLG's allow for a margin of safety.

- **Minimum Detection Limit (MDL)**

The lowest measurement laboratory equipment can accurately quantify.

- **Recommended Upper Limit (RUL)**

Recommended maximum concentration of secondary contaminants. These reflect aesthetic qualities such as odor, taste or appearance. RULs are recommendations, not mandates.

- **Treatment Technique**

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 actions that a water system must follow.

- **Variations and Exemptions**

State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

4. DETECTED CONTAMINANTS

A detected contaminant is any contaminant detected at or above its minimum detection limit (MDL). The EPA requires that this report show the HIGHEST level of each detected contaminant that is above the MINIMUM detection limit. A contaminant below the MDL is considered to be Non Detectable (ND).

The following tables present the highest level of contaminants that registered above the Minimum Detection Limit for the reporting period. All units are in parts per billion (ppb) unless otherwise stated. Only two of these contaminants (Sodium and Hardness), both secondary contaminants, exceeded the State or Federal Maximum Recommended Contaminant Level (MCL) for the Year 2012 reporting period.

Radioactive Contaminants (pci/l)							
Gross Alpha	0	15	1.36	N/A	10/26/12	No	Radioactive substances that are both naturally occurring and man-made
Radium 226/228	0	5	0.2	N/A	10/26/12	No	Radioactive substances that are both naturally occurring and man-made
Uranium	0	30 ug/l	1.49 ug/l	N/A	10/26/12	No	Radioactive substances that are both naturally occurring and man-made

**** No state required MCLG**

TECHNICAL INFORMATION (Health Effects)

CCR's require a brief discussion of any contaminants that have an established MCL and register above Minimum Detection Level in the drinking water. Alkalinity, Detergents ABS/LAS and Trichlorofluoromethane were detected at levels below MCL but there is no state "health effect" language required to be included in this CCR.

SODIUM - (Health effects)

In January 2012, Picatinny's water system exceeded the Secondary Recommended Upper Limit (RUL) for Sodium. The RUL for Sodium is 50 parts per million (ppm) and our water system detected sodium at 64.2 ppm. We are monitoring this situation closely and will continue to ensure compliance with both Federal and State drinking water regulations. Sodium levels above the RUL may be of concern to individuals on a sodium restricted diet.

BARIUM-(Health effects)

Water containing high levels of Barium may cause an increase in blood pressure.

SULFATE-(Health effects)

Water containing high levels of sulfate may cause diarrhea similar to laxatives.

HARDNESS (Health effects)

There are no negative health effects associated with high levels of hardness in drinking water.

CHLORIDE-(Health effects)

Not much is known about the health effects of chlorides. Negative health effects are usually associated with the salts like sodium, calcium, and potassium that they are attached to.

LEAD-(Health effects)

Infants and children: delays in physical or mental development: children could show slight deficits in attention span and learning abilities. Adults may have kidney problems and high blood pressure.

COPPER-(Health effects)

Short term exposure: gastrointestinal distress. Long term exposure: liver or kidney damage. People with Wilson's disease should consult their personal doctor if their water exceeds the action level.

METHYL TERIARY BUTYL ETHER - (Health Effects)

MTBE is used to increase the octane rating of gasoline, and more recently has been added to gasoline to meet the requirements of the clean air act, which require increased oxygen content of gasoline in both CO and ozone non-attainment areas. Typical concentrations in gasoline are 2 - 8 % by volume for increasing octane ratings. A

MCL of 70 ug/l for MTBE has been derived based on increased kidney weight seen in subchronic gavage studies and its classification as a possible human carcinogen.

TRICHLOROETHENE – (Health Effects)

The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that trichloroethene is a health concern at certain levels of exposure. This chemical is a common metal cleaning and dry cleaning fluid. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed to high levels over their lifetimes. Chemicals that cause cancer in laboratory animals may also increase the risk of cancer in humans that are exposed to lower levels over long periods of time. EPA has set forth the enforceable drinking water standard of 5.0 ug/l (parts per billion) to reduce the risk of cancer or other adverse health effects which may have been observed in laboratory animals. Drinking water that meets this standard is associated with little to any of this risk and should be considered safe.

TRICHLOROFLUOROMETHANE- (Health Effects)

Trichlorofluoromethane, a widely used halocarbon aerosol propellant and refrigerant, was selected for bioassay by the National Cancer Institute because of widespread exposure to this compound resulting from the indiscriminate use of aerosol sprays, and the well-documented hepatocarcinogenicity of the structurally analogous compound, carbon tetrachloride.

TOTAL TRIHALOMETHANE- (Health Effects)

Trihalomethanes are formed as by-products when chlorine is added to water supply systems. High levels of Trihalomethanes can damage the liver, kidneys and affect the brain. The MCL is 80 ppb and the water is tested at the furthest part in the distribution system to allow for the longest time for the parameters to develop.

HALOACETIC ACIDS (HAA5)- (Health Effects)

Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

TOTAL DISSOLVED SOLIDS (TDS)- (Health Effects)

These Contaminants may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water.

ZINC- (Health Effects)

These Contaminants may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water.

IRON- (Health Effects)

These Contaminants may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water.

CHROMIUM- (Health Effects)

Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.

5. COMPLIANCE WITH OTHER DRINKING WATER REGULATIONS:

WAIVERS - The Safe Drinking Water Act 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 the following:

Asbestos Waiver - The State determined that our system is not considered to be vulnerable to asbestos contamination. Our water was found to not be corrosive and our wells are not located in an area known to have asbestos-bearing rock formations. The NJDEP issued a waiver to Picatinny Arsenal in 1994.

Pesticides and Synthetic Organic Compounds (SOC's) - The State determined that our system is not considered to be vulnerable based on an extensive survey of the Arsenal land use. The NJDEP issued a waiver to Picatinny Arsenal in 1995.

6. IMPORTANT EDUCATIONAL INFORMATION:

Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. 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 under-gone organ transplants, people with HIV/AIDS or other immune systems 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 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 1-800-426-4791. Radon is a colorless, odorless, cancer-causing gas that occurs naturally in the environment. For more information on radon go to <http://www.nj.gov/dep/rpp/radon/index.htm> or call (800) 648-0394.

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. Picatinny 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 is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

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 the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's [Safe Drinking Water Hotline at 800-426-4791](http://www.epa.gov/safewater/hotline).

SPECIAL CONSIDERATION REGARDING CHILDREN, PREGNANT WOMEN, NURSING MOTHERS AND OTHERS:

Children may receive a slightly higher amount of a contaminant present in the water than do adults, on a body weight basis, because they may drink a greater amount of water per pound of body weight than do adults. For this reason, reproductive or developmental effects occur at lower levels than other health effects of concern. If there is insufficient toxicity information for a chemical (for example, lack of data on reproductive or developmental effects), an extra uncertainty factor may be incorporated into the calculation of the drinking water standard, thus making the standard more stringent, to account for the additional uncertainties regarding these effects. In cases of lead and nitrate, effects on infants and children are the health endpoints upon which the standards are based.