



*Township of Sparta
Water Utility
65 Main St
Sparta, NJ 07871*

Annual Drinking Water Quality Report

PWSID #1918003 HIGHLAND WATER SYSTEM For the Year 2011

We are pleased to present to you this year's Annual Drinking Water Quality Report. This report is designed to inform you about the quality water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources.

WATER SYSTEM DESCRIPTION

We are committed to ensuring the quality of your water. Our water source is wells. Our wells for this system draw groundwater from Precambrian rock aquifers.

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, Bureau of Safe Drinking Water at (609) 292-5550.

We are pleased to provide this report, which shows our water quality and what it means.

NEED ADDITIONAL INFORMATION?

If you have any questions about this report or concerning your water utility, please contact Denise Amato at 973/729-7133. 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 Township Council meetings at Town Hall, 65 Main Street. Meetings are held on the second and fourth Tuesdays of each month at 7:30 p.m. Also contact the Sparta web site at www.spartanj.net

MONITORING PROGRAM & RESULTS

The Sparta Water Utility routinely monitors for constituents in your drinking water according to Federal and State laws. The following table shows the results of our monitoring for the period of January 1st to December 31st, 2011, unless otherwise noted.

The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

DEFINITIONS

In the following table you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

Non-Detects (ND) - laboratory analysis indicates that the constituent is not present.

Parts per million (ppm) or Milligrams per liter (mg/L) - one part per million corresponds to one minute in two years or a single penny in \$10,000.

Parts per billion (ppb) or Micrograms per liter (ug/L) - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

Action Level - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Treatment Technique (TT) - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Maximum Contaminant Level - The "Maximum Allowed" (MCL) is 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 -The "Goal"(MCLG) is 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 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 contamination.

Secondary Contaminant - Substances that do not have an impact on health. Secondary contaminants affect aesthetic qualities such as odor, taste or appearance. Secondary standards are recommendations, not mandates.

Recommended Upper Limit (RUL) - Recommended maximum concentration of secondary contaminants. These reflect aesthetic qualities such as odor, taste or appearance. RUL's are recommendations, not mandates.

Picocuries per liter (pCi/L) - picocuries per liter is a measure of the radioactivity in water.

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 synthetic organic compounds.

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/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

EPA requires monitoring for over 80 drinking water contaminants. Those contaminants listed in the table are only contaminants detected in your water.

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TEST RESULTS

Contaminant	Violation Y/N	Level Detected	Units of Measurement	MCLG	MCL	Likely Source of Contamination
Radionuclide Contaminants: Results from 2004, 2005 & 2006			Sampling Required in 2012 & 2015			
Adjusted Alpha Particle Activity	No	Average of Facilities: 2.8 Range of Facilities Averages: 1.2 – 5.1	pCi/L	0	15	Erosion of natural deposits
Combined radium-226/-228	No	Average of Facilities: 0.29 Range of Facilities Averages: 0.18 – 0.38	pCi/L	0	5	Erosion of natural deposits
Uranium	No	Average of Facilities: 4.2 Range of Facilities Averages: 1.6 – 7.7	ug/L	0	30	Erosion of natural deposits
Voluntary Testing Pending Regulation (MCL to be established)						
Radon Results from 2/8/00	No	Range: 526 to 1838	pCi/L	0	300 to 4000?	Erosion of natural deposits

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TEST RESULTS

Contaminant	Violation Y/N	Level Detected	Units of Measurement	MCLG	MCL	Likely Source of Contamination
Inorganic Contaminants:						
Barium Results from 2009	No	Range: <0.010 to 0.033	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Copper Results from 2010	No	0.569 (90 th percentile) No samples exceed the action level	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Fluoride Results from 2009	No	Range: 0.11 to 0.22	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories (Sparta Water Utility does not fluoridate its water supply)
Lead Results from 2010	No	3 (90 th percentile) No samples exceed the action level	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Nitrate (as Nitrogen)	No	Range: <0.20 to 4.91	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Arsenic Results from 2009	No	Range: <2	ppb	0	50 (2006) 5	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Volatile Organic Contaminants/Disinfection Byproducts: Distribution Systems Tests						
Total Trihalomethanes (TTHMs)	No	Range: <0.5 to 4.9 Running Annual Average: 10	ppb	n/a	80	By-product of drinking water chlorination
Haloacetic Acids (HAA5)	No	Range: <2.5 to <2.5 Running Annual Average: 1	ppb	n/a	60	By-product of drinking water disinfection
Disinfectant Residuals	No	Annual Average: 0.25 Range: 0.10 to 0.80	ppm	4	4	Water additive used to control microbes

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. Sparta Water Utility is responsible for providing high quality 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, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at 800-426-4791 or at <http://www.epa.gov/safewater/lead>.”

TEST RESULTS

Secondary Contaminant	Level Detected	Units of Measurement	RUL
Chloride Results from 2009	Range: 10 to 191	ppm	250
Hardness Results from 2009	Range: 71.9 to 313	ppm	250
Sodium 2009 Results from all wells data 2009 Results - Hidden Glen Wells Results from Highlands #2 Well	Range: 11.6 to 74.8 Range: 26.3 to 44.5 Running Annual Average: 6.6 Range: 35.4 to 46.7 Running Annual Average: 36.2	ppm	50
Sulfate Results from 2009	Range: 14 to 35	ppm	250
TDS (Total Dissolved Solids) Results from 2009	Range: 174 to 606	ppm	500
Zinc Results from 2009	Range: <30 to 54	ppb	5000
Manganese Results from 2009	Range: <4 to 64	ppb	50
Iron Results from 2009	Range: <30 to 440	ppb	300

Sodium: For healthy individuals the sodium intake from water is not important, because a much greater intake of sodium takes place from salt in the diet. However sodium levels above the recommended upper limit may be of concern to individuals on a sodium restricted diet.

Manganese: The recommended upper limit for manganese is based on staining of laundry. Manganese is an essential nutrient, and toxicity is not expected from levels, which would be encountered in drinking water.

Iron: The recommended upper limit for iron is based on unpleasant taste of the water and staining of the laundry. Iron is an essential nutrient, but some people who drink water with iron well above the recommended upper limit could develop deposits of iron in a number of organs of the body.

The recommended upper limit of 0.05 milligrams per liter (mg/l) for manganese was exceeded with a level of 0.064 mg/l at the Stonebridge wells and the recommended upper limit of 0.3 milligrams per liter (mg/l) for iron was exceeded with a level of 0.440 mg/l at the Hidden Glen wells in this water system in 2009.

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 can pick up substances resulting from the presence of animals or from human activity.

Contaminants 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, and wildlife.*
- *Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water 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 storm water runoff, and residential uses.*
- *Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts 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.*

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.

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 1-800-426-4791.

HEALTH EFFECTS LANGUAGE:

*(1) **Alpha emitters:** Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.*

*(2) **Combined Radium 226/228:** Some people who drink water containing radium-226 or - 228 in excess of the MCL over many years may have an increased risk of getting cancer.*

*(3) **Uranium:** Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.*

*(4) **Copper:** Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's disease should consult their personal doctor.*

*(5) **Lead:** Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.*

*(6) **Fluoride:** Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth.*

*(7) **Nitrate:** Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.*

*(8) **Barium:** Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.*

*(9) **Radon:** Is a radioactive gas that you can't see, taste or smell. It is found throughout the U.S. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will in most cases be a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. Fix your home if the level of radon in your air is 4 picocuries per liter of air (pCi/L) or higher. There are simple ways to fix a radon problem that are not too costly. For additional information, call your state radon program or call EPA's Radon Hotline 800-SOS-RADON (800-767-72366).*

*(10) **Arsenic:** Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.*

*(11) **THMs (Total trihalomethanes):** Some people who drink water containing 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 getting cancer.*

(12) **Haloacetic Acids (HAA):** Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

(13) **Chlorine:** Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.

Special considerations 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 are used for calculating a drinking water standard if these 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 additional uncertainties regarding these effects. In the cases of lead and nitrate, effects on infants and children are the health endpoints upon which the standards are based.

Susceptibility Ratings for Highland Water System Sources

The source water assessment performed on our eight (8) sources determined the following:

The table below illustrates the susceptibility ratings for the seven contaminant categories (and radon) for each source in the system. The table provides the number of wells and intakes that rated high (H), medium (M), or low (L) for each contaminant category

Highlands	Pathogens			Nutrients			Pesticides			Volatile Organic Compounds			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	
Sources																									
Wells – 6		3	3		6				6	1		5			6		3	3	1	5				6	
GUDI – 0																									
Surface water Intakes - 0																									
Stonebridge	Pathogens			Nutrients			Pesticides			Volatile Organic Compounds			Inorganics			Radio-Nuclides			Radon			Disinfection Byproduct Precursors			
Sources	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	
Wells – 2			2		1	1			2			2			2			2		2				2	
GUDI – 0																									
Surface water Intakes - 0																									

If a system is rated highly susceptible for a contamination category, it does not mean a customer is or will be consuming contaminated drinking water. The rating reflects the potential for contamination of source water, not the existence of contamination. Public water systems are required to monitor for regulated contaminants and to install treatment if any contaminants are detected at frequencies and concentrations above allowable levels.

NJDEP found the following potential contaminant sources within the source water assessment areas for our sources:

- **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 atrazine, 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 Byproduct 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.

INFORMATION ON PHARMACEUTICALS

- Protecting the health of our customers is our mission. While we understand that pharmaceuticals are an issue of interest, to date research has not demonstrated an impact on human health from pharmaceutical compounds at the trace levels discovered in drinking water.
- These compounds are not regulated in drinking water and there is no established monitoring requirements, no standard detection methods, or even a list of recommended sentinel contaminants.
- Our utility conducts thousands of analyses every year to ensure the water we provide meets or surpasses Safe Drinking Water Act standards, which were created to protect customers.
- Unfortunately there is no “blanket” water test, and there are literally tens of thousands of individual compounds for which we could search.
- With the absence of any known health benefit and given the amount of resources required to conduct tests for pharmaceutical compounds, we have chosen not to conduct these tests in our community at this time.
- We will continue to work closely with others in the drinking water community to advance the science and understanding of this issue and will take whatever steps are necessary to protect the health of our customers.

Township of Sparta Ordinance, Chapter XIX Water, Section 19-10,

PERMANENT WATER CONSERVATION RESTRICTIONS AND GUIDELINES

- A. Outdoor water of lawns, gardens or other vegetation by lawn sprinklers of the portable type or permanent irrigation installation shall be restricted to **6am to 9am and 6pm to 9pm** for hours of operation and are requested to follow the **odd/even restrictions** set forth in paragraph b,2 of this section.
- B. **Voluntary restrictions.** During the months of April, May, June, July, August, September and October of each year, all residential customers, tenants and business being served by the Sparta Township Water Utility are requested to observe the following voluntary water use restrictions:
 - (1) Indoor conservation measures.
 - (2) Outdoor water usage between the hours of 9am to 6pm shall be restricted to hand held hoses for the watering of gardens, shrubs, flower beds, car and equipment and buildings and decks shall be restricted to alternate days, with usage on even-numbered days for those residents or businesses whose dwelling, building or box number are even and on odd-numbered days for those residents or businesses whose dwelling, building or box number are odd. There shall be no such outdoor water usage on the 31st day of any month within the voluntary restriction period.

We at the Sparta Water Utility work hard to provide top quality water to every tap. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life and our children's future.



Fire hydrant use is strictly limited to fire protection and authorized agents/employees of the Township. Any unauthorized activities should be reported immediately. If you are concerned or observe any unusual activities on or near a water tank or well site, please notify our office at (973) 729-7133 or contact Sparta Police Dept. at (973) 729-6121. For emergencies call 911