

## 2002 WATER QUALITY REPORT

### MANASQUAN WATER SUPPLY SYSTEM

PWSID 1352005

A division of the New Jersey Water Supply Authority, serving the customer communities of BRIELLE, SEA GIRT, SPRING LAKE, SPRING LAKE HEIGHTS AND WALL TOWNSHIP

The Manasquan Water Treatment Plant, located on Hospital Road in the Allenwood section of Wall Township, is owned by the Monmouth County Improvement Authority and is operated by the New Jersey Water Supply Authority. The Manasquan Water Treatment Plant provides an average of 60% of the water used by the residents of the above customer communities. Raw water for this facility is taken from the MANASQUAN RIVER in Wall Township and the MANASQUAN RESERVOIR in Howell Township. The Manasquan Water Supply System also provides raw water to the New Jersey American Water Company for treatment and distribution to other communities in Monmouth and Ocean Counties.

The water produced by the Manasquan Water Treatment Plant meets current State and Federal Safe Drinking Water standards. This water is monitored for a large number of contaminants. The contaminants, which have been detected in monitoring from January 1<sup>st</sup>, 2001 through December 31<sup>st</sup>, 2001, are listed in the **TEST RESULTS** table, below. For the complete monitoring schedule or for further information about this report, you can contact Lawrence E. Duff, System Superintendent at the Manasquan Water Supply System. Telephone - 1-732-974-8383 - extension 222; Fax - 1-732-974-8607 or E-mail - [lduff@infi.net](mailto:lduff@infi.net).

**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 microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).**

### TEST RESULTS

CONTAMINANT	HIGHEST LEVEL DETECTED	RANGE DETECTED	UNIT OF MEASUREMENT	MCLG	MCL	LIKELY SOURCE OF CONTAMINATION	VIOLATION
<b>MICROBIOLOGICAL CONTAMINANTS</b>							
TOTAL COLIFORM BACTERIA	1.9	0 - 1.9	%	0	5% OF SAMPLES POSITIVE	NATURALLY PRESENT IN THE ENVIRONMENT	NO
TOTAL ORGANIC CARBON (TOC)	AVERAGE 43%		%	N/A	TT = AVERAGE OF REMOVAL OF RAW WATER TOC, 35 % TO 45% REMOVAL MINIMUM	NATURALLY PRESENT IN THE ENVIRONMENT	NO
	MINIMUM 19%	19% - 67%	%	N/A			
TURBIDITY	0.67	0.02 - 0.67	NTU	N/A	TT = 5NTU	SOIL RUNOFF	NO
	99%	100% - 99%	%	N/A	TT = 95 PERCENT OF SAMPLES < 0.5 NTU		
<b>RADIOACTIVE CONTAMINANTS</b>							
ALPHA EMITTERS SAMPLED IN 2000	0.45	0.45	pCi/L	0	15	EROSION OF NATURAL DEPOSITS	NO

## TEST RESULTS

CONTAMINANT	HIGHEST LEVEL DETECTED	RANGE DETECTED	UNIT OF MEASUREMENT	MCLG	MCL	LIKELY SOURCE OF CONTAMINATION	VIOLATION
<b>INORGANIC CONTAMINANTS</b>							
BARIUM	0.025	0.021 - 0.025	PPM	2	2	DISCHARGE OF DRILLING WASTES; EROSION OF NATURAL DEPOSITS; DISCHARGE FROM METAL REFINERIES	NO
CYANIDE	53	ND - 53	PPB	200	200	DISCHARGE FROM STEEL/METAL FACTORIES. DISCHARGE FROM PLASTIC AND FERTILIZER FACTORIES.	NO
FLUORIDE	0.12	0.09 - 0.12	PPM	4	4	EROSION OF NATURAL DEPOSITS; DISCHARGE FROM FERTILIZER AND ALUMINUM FACTORIES	NO
NITRATE	0.52	ND - 0.52	PPM	10	10	RUNOFF FROM FERTILIZER; LEACHING FROM SEPTIC TANKS; EROSION OF NATURAL DEPOSITS	NO
<b>VOLATILE ORGANIC CONTAMINANTS</b>							
TTHM(TOTAL TRIHALOMETHANES)	AVERAGE 22.9	2.2 - 45.7	PPB	N/A	QUARTERLY AVERAGE 100	BY-PRODUCT OF DRINKING WATER CHLORINATION	NO
<b>SECONDARY CONTAMINANTS</b>							
IRON	116	2 - 116	PPB	N/A	300 (RUL)	EROSION OF NATURAL DEPOSITS	NO
MANGANESE	9	4 - 9	PPB	N/A	50 (RUL)	EROSION OF NATURAL DEPOSITS	NO
SODIUM	20.1	16.7 - 20.1	PPM	N/A	50 (RUL)	EROSION OF NATURAL DEPOSITS; ROADWAY ICE/SNOW CONTROL	NO
<b>DISINFECTANTS/DISINFECTANT BY-PRODUCTS</b>							
CHLORINE	1.69	0.01 - 1.69	PPM	4 MRDLG	4 MRDL	WATER ADDITIVE USED TO CONTROL MICROBES	NO
HAA5 (HALOACETIC ACIDS)	AVERAGE 14	1.7 - 34.4	PPB	N/A	QUARTERLY AVERAGE 60	BY-PRODUCT OF DRINKING WATER OZONATION	NO

## DEFINITIONS

In the preceding **Test Results** table you will find 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 detectable above the minimum detection level for that analysis method.

*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* - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

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

*Nephelometric Turbidity Unit (NTU)* - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

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

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

*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 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.

*Total Coliform* - Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other harmful bacteria may be present

*Total Organic Carbon* - Total Organic Carbon has no health effects. However, total organic carbon provides a medium for the formation of *Disinfection By-products*. The *Treatment Technique* for total organic carbon requires that 35% to 45% of the total organic carbon in the raw water is removed through the treatment processes.

*Turbidity* - Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity is measured as an indication of the effectiveness of the filtration process. The *Treatment Technique* for turbidity requires that no individual sample exceeds 5 *NTU* and 95% of the samples collected during a month must be less than 0.5 *NTU*.

*TTHM* - Total Trihalomethanes are carcinogenic compounds created when Chlorine is added to water as a disinfectant. The current *MCL* for TTHM's requires that the average of four quarterly samples does not exceed 100 *parts per billion*. In January 2002, the *MCL* will be reduced to 80 *parts per billion*.

*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. RULs are recommendations, not mandates.

*Disinfection By-products* - These compounds are by-products of the addition of chlorine or ozone employed in the disinfection of drinking water. These compounds are confirmed or suspected carcinogens for which *MCLs* have been set.

*HAA5* - Haloacetic Acids are compounds created when Ozone is added to water as a disinfectant. These compounds will be regulated, in January 2002, to an *MCL*, which will require that the average of four quarterly samples does not exceed 60 *parts per billion*.

## **HEALTH EFFECTS**

The Health Effects of each of the DETECTED CONTAMINANTS listed in the TEST RESULTS table are shown below.

### *Microbiological Contaminants:*

**Total Coliform.** Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present.

**Total Organic Carbon.** Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of *disinfection by-products*. These by-products include *Trihalomethanes* (THMs) and *Haloacetic acids* (HAAs). Drinking water containing these by-products in excess of the *MCL* may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.

**Turbidity** - 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.

### *Radioactive Contaminants:*

**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.

### *Inorganic Contaminants:*

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

**Cyanide** - Some people who drink water containing cyanide in excess of the *MCL* over many years could experience nerve damage or problems with their thyroid.

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. Fluoride in drinking water at half the *MCL* or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining and/or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.

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.

*Volatile Organic Contaminants:*

TTHMs (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 system, and may have an increased risk of getting cancer.

*Secondary Contaminants:*

Iron - The secondary *Recommended Upper Limit (RUL)* for iron is based on unpleasant taste of the water and staining of laundry. Iron is an essential nutrient, but some people who drink water with iron levels well above the *RUL* could develop deposits of iron in a number of organs in the body.

Manganese - The secondary *Recommended Upper Limit (RUL)* for manganese is based upon staining of laundry. Manganese is an essential nutrient, and toxicity is not expected from levels, which would be encountered in drinking water.

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 (RUL)* may be of concern to individuals on a sodium-restricted diet.

*Disinfectants/Disinfection By-Products:*

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.

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

## ***SPECIAL HEALTH CONCERNS***

### **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.

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. 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 ask advice from your health care provider.

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline at 1-800-426-4791.

All sources of drinking water are subject to potential contamination by substances that are naturally occurring or man made. These substances can be microbes, inorganic or organic chemicals and radioactive substances. All 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.

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 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 stormwater run-off, 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 run-off 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 stormwater run-off 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, the EPA prescribes regulations (MCL's) which limit the amounts of certain contaminants in water provided by public water systems. Further information about EPA safe drinking water regulations can be obtained over the Internet at EPA's drinking water website, <http://www.epa.gov/safewater>. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

To date, the New Jersey Department of Environmental Protection - Bureau of Safe Drinking Water has not completed an assessment of the sources of drinking water for the Manasquan Water Supply System. Source water assessments will be completed for all sources of public drinking water by May 2003.

The New Jersey Department of Environmental Protection issues an individual Public Water System Identification Number (PWSID) to each water supply facility. The PWSID for the Manasquan Water Treatment Plant is **1352005**. You can use this PWSID number to assist you in obtaining local drinking water quality information on the Internet at the USEPA website at <http://www.epa.gov/safewater/dwinfo/nj.html>.

Interested individuals may participate in discussions of the operation of the Manasquan Water Supply System by attending the regular monthly meetings of the New Jersey Water Supply Authority or Monmouth County Improvement Authority.

- New Jersey Water Supply Authority: first working Monday of each month at the NJWSA headquarters, 1851 Route 31, Clinton, NJ 08809. Call 1-908-638-6121 for details. Information on the New Jersey Water Supply Authority can also be obtained over the Internet at <http://www.njwsa.org>.
- Monmouth County Improvement Authority: first or fourth Thursday of each month in the Freeholder's Meeting Room, Second Floor, Monmouth County Hall Of Records, Main Street, Freehold, NJ 07728. Call 1-732-308-2975 for specific meeting dates and times.