QUARTERLY REPORT ON DRINKING WATER QUALITY

JULY-SEPT. 2002. KINGSTON **CENTRAL** WATER PLANT - SERVING AREAS EAST OF LITTLE CATARAQUI CREEK.

Cé rapport contient des information importantes concernant votre eau potable.
Veuillez traduire, ou parlez avec quelqu' un qui peut le comprendre.

Drinking Water Quality

Ontario Drinking Water Protection Regulations.

Utilities Kingston is proud to present this quarterly report on drinking water quality. This report has been prepared in response to Operation Clean Water, an initiative of Ontario's Ministry of the Environment to ensure high quality drinking water for the residents of Ontario. The regulations put into law what was formerly the Ontario Drinking Water Objectives (ODWO), and sets requirements for public waterworks with regard to sampling and testing, levels of treatment, licensing of staff, and notification of authorities and the public about water quality. Further information on the Drinking Water Regulations can be found on the Ministry of the Environment web site at www.ene.gov.on.ca.

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Plant Description & Treatment Processes

Raw Water Source.

The source of water treated by this plant is Lake Ontario at the mouth of the St. Lawrence River. Our intake is located 1km directly south of the treatment plant, 4m off the lake bottom, at a depth of approximately 18m. A great deal of testing was carried out in choosing the location for the intake. This has ensured that the treatment process begins by using the best and most consistent quality source water available, and reduces it's susceptibility to contamination. Known sources of potential problems are few, and contingency plans are in place in the event of raw water contamination.

Zebra Mussel Control.

When the water temperature rises above 10^0 C (above this temperature zebra mussels are active), pre-chlorination takes place at the mouth of the intake. This protects the intake from becoming encrusted with zebra mussels, which would restrict the flow of water through the intake.

Pre Chlorination.

The purpose of chlorination is to provide disinfection. 12% Sodium Hypochlorite is applied to the raw water in solution form.

Screening.

A revolving screen in the suction well of the low lift building removes any large debris such as weeds, fish, etc.

Low Lift Pumps.

These pumps lift the water from lake level to the main plant. There are two headers from the low lift building

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directing the water to the mixing chambers.

Coagulation / Flocculation.

Aluminum Sulphate (alum) is added to the water as it leaves the low lift building. Particles in the water are attracted to the alum.

Mixing tanks.

Water flows rapidly in these tanks in a spiral motion, allowing proper mixing of the chlorine and alum with the water. The particles of dirt and alum will collide and come together to form larger particles called floc.

Settling tanks.

These are large tanks designed to reduce the velocity of water allowing the heavier floc particles to settle out. They also provide detention time, allowing the chlorine time to achieve disinfection.

Filters.

Six 'rapid sand' filters with Granular Activated Carbon (GAC) and anthracite remove the particles that did not settle out in the settling tanks, as well as compounds that may cause tastes and odours. Water flows through the filters to a clean water reservoir called the clearwell.

Backwash.

Filters are washed daily to remove the particulates they have collected over the previous 24 hrs. Clean water from the clearwell is pumped backwards through the filter, and the top layer of the filter is agitated to break up any large particles.

Post Chlorination.

Sodium hypochlorite is added to the water as it enters the clearwell to provide a 'chlorine residual' which remains throughout the distribution system. This ensures protection to the point of the customers' tap.

Clearwell.

Filtered water is stored here before being pumped to the distribution system or used for filter washing.

High Lift Pumps.

Five high lift pumps move treated water from the clearwell into the distribution system.

Standby Equipment.

Diesel driven pumps are maintained to provide a continuous supply of water during power failures. These provide enough capacity to meet fire-fighting requirements as well as normal flows during power outages. A diesel generator provides electricity to run metering equipment and lighting in the water plant.

Reservoir and Pumping Station.

This reservoir has a capacity of 22,700 m^3. It also contains two electric pumps, and one diesel pump. Water is pumped into this reservoir during the night and out of it during the day.

James St. Booster Station.

This station is supplied by a water main running from the city central, under the Cataraqui River, to James St. in Barriefield village. Three electric pumps are available to pump water into the distribution system east of the Cataraqui River, including Canadian Forces Base (CFB) Kingston. Fluoride is added at the James St. station for CFB Kingston, as a requirement of the Department of National Defense, to help prevent tooth decay. As well, sodium hypochlorite is added to ensure adequate chlorine residuals in this part of the system. The city east system has three elevated tanks for storage, and two control valves to regulate flows to and from the towers.

Central Elevated Tank.

Built in 1955 this steel tank is used for storage, to provide system pressure, and to act as a buffer to pressure fluctuations.

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Quality Control

This plant provides multiple barriers against bacteriological contamination. Four different chlorine application points are available, and the coagulation/flocculation process along with filtration provides additional barriers. Bacteriological

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Distribution System.

Approximately 80,000 people are supplied with water from the Kingston Central Water Treatment Plant. There are approximately 250 km of water mains, and over 1200 fire hydrants in the system. Average daily flows are approximately 50,000 m^3/day, with summer time peaks of 72,000 m^3/day.

DEFINITIONS & TERMS

^oC - *degrees Celsius*

^oF - *degrees Fahrenheit*

kg - *kilogram*

l - *litre*

m - *meter*

m^3 - *cubic meter, 1 m^3 =1000 litres.*

TCU - *True Colour Units*

$CaCO_3$-*Calcium carbonate*

mg - *milligram*

psi - *pounds per square inch*

mg/l - *Milligrams per litre. This is a measure of the concentration of a parameter in water, also called parts per million. (PPM)*

ug/l - *Micrograms per litre. This is a measure of the concentration of a parameter in water, also called parts per billion.*

ng/l - *Nanograms per litre. This is a measure of the concentration of a parameter in water, also called parts per trillion.*

NTU - *Nephelometric Turbidity Units - A measure of the amount of particles in water.*

AO- *Aesthetic objective. AOs are not health related, but may affect the taste, odour, colour or clarity of the water*

MAC - *Maximum Acceptable Concentration. This is a health-related drinking water standard established for contaminants having known or suspected adverse health effects when above a certain concentration. The length of time the MAC can be exceeded without injury to health will depend on the nature and concentration of the parameter.*

IMAC - *Interim Maximum Acceptable Concentration. This is a health related drinking water standard established for contaminants when there is insufficient toxicological data to establish a MAC with reasonable certainty, or when it is not practical to establish a MAC at the desired level.*

OG- *Operational guideline. Set to ensure efficient treatment and distribution of water.*

Parameter-*A substance that we sample and analyze for in the water.*

testing is carried out on raw water, mid process, treated water and distribution samples on a daily basis. On-line analyzers for chlorine residuals and turbidity ensure safe, clear water leaving the plant. Chlorine levels in the distribution system are checked daily. More specialized testing occurs monthly and quarterly, and includes parameters such as pesticides, heavy metals, disinfection by-products, volatiles and organics.

Required Testing

The Ontario Drinking Water Regulations and our Certificates of Approval (COA) set sampling requirements for this plant. The COAs for the Central Water Treatment Plant specify only that Trihalomethanes (THMs) be sampled on a monthly basis during the time the zebra mussel control system is in use. All other sampling conforms to the Drinking Water Protection Regulation schedule for sampling and analysis.

What is in your water?

Some parameters may be present in source water before it is treated. Here is a description of the various groups of parameters.

Microbiological parameters such as bacteria may come from wastewater treatment plants, livestock operations, septic systems and wildlife. Microbiological quality is the most important aspect of drinking water quality because of its association with dangerous water-borne diseases which can strike quickly.

Inorganic parameters such as salts and metals can be naturally occurring or as a result of urban storm runoff, industrial or domestic wastewater discharges, mining or agriculture. Some may be the result of the treatment and distribution of water (for example, lead from solder in plumbing).

Organic parameters can be naturally occurring, but most organics of concern are synthetic. They originate from industrial discharges, urban storm runoff and other sources. Included in this group are pesticides that originate from both rural and urban areas. Some may originate from treatment of drinking water (for example, chlorination byproducts such as trihalomethanes). *Volatile organics* such as solvents and certain industrial chemicals are often the result of vehicle emissions or industrial discharges.

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CHARACTERISTICS OF

KINGSTON WATER

(Average values)
Turbidity - 0.08 NTU
Colour - 2.1 TCU
Alkalinity- 95 mg/l as $CaCO_3$
pH - 7.5 - 7.7
Hardness - 120 mg/l $CaCO_3$ or 7.3 grains per gal.
Fluoride - 0.15 mg/l of naturally occurring fluoride.
Fluoride is added to Kingston East water as a requirement of CFB Kingston.

CHARACTERISTICS OF WATER.
Specific Gravity: 1.00 Water reaches its highest density at 4 degrees Celsius. It becomes less dense at higher and lower temperatures.

Water weighs: 1 kg/l, 1000 kg/m^3,
10 lb/imperial gallon,
62.4 lb/ft^3 at 4 ^{o} C.
Pressure: 1 psi = 2.31 ft of water,
1 ft of water = 0.433 psi,
1 m of water = 1.42 psi
1 psi = 6.895 KiloPascals
Water boils at: 100 ^{o} C / 212 ^{o} F,
freezes at : 0 ^{o} C. / 32 ^{o} F

Vulnerable Populations

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as those who may have cancer and are 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.

Many homes built in Kingston prior to 1945 may have a lead service (the pipe that runs from the water-main in the street to your home). Although many of these have been replaced, some are still in use. It is possible that lead levels at your home may be higher than at other homes in the community as a result of this pipe or the materials used in your home's plumbing. Infants and young children are typically more vulnerable to lead in drinking water than the general population. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and/or flush your tap for 30 seconds to 2 minutes before using tap water.

Results of Testing

The Tables below summarize the results from monitoring we were required (by the regulations) to do for this quarter, as well as testing required in our COA. Also listed are results for additional testing which was carried out during this quarter.

The presence of some of these substances in drinking water does not necessarily mean that the water poses a health risk. It is important that this information be reviewed carefully to determine if there are any risks involved in using this water supply. A summary of these results follows to help you determine any risks.

The frequency for monitoring different parameters varies, so some of the data in this table may be several months old. However, the sampling requirements have been set to ensure a representative picture of water quality.

Did We Exceed the Standards?

Of the 403 microbiological tests carried out during this quarter, 1 indicated an adverse water quality condition (Total coliform present), as defined in the Regulation. A free chlorine residual of 0.54 mg/l was present at the time the sample was taken and the initial result was not confirmed with subsequent samples. All other sample results for health related parameters met the regulations.

Summary of Results

The data presented in the tables below lists the results of testing that was done to meet the regulations, as well as additional testing that was carried out. Our interpretation of these results is that good quality water which is safe to drink was produced by this plant during this reporting period. To review this information yourself, look in the exceedance column to determine if there are any parameters to be concerned about. Then compare the result to the MAC/IMAC or AO/OG value. At that point you should investigate the particular parameters' potential health or aesthetic effects, and then, considering your own health situation, decide if there is cause for concern. Contact us at the numbers listed on page one if you have any questions, or talk to your doctor if you have specific health concerns.

QUESTIONS AND ANSWERS

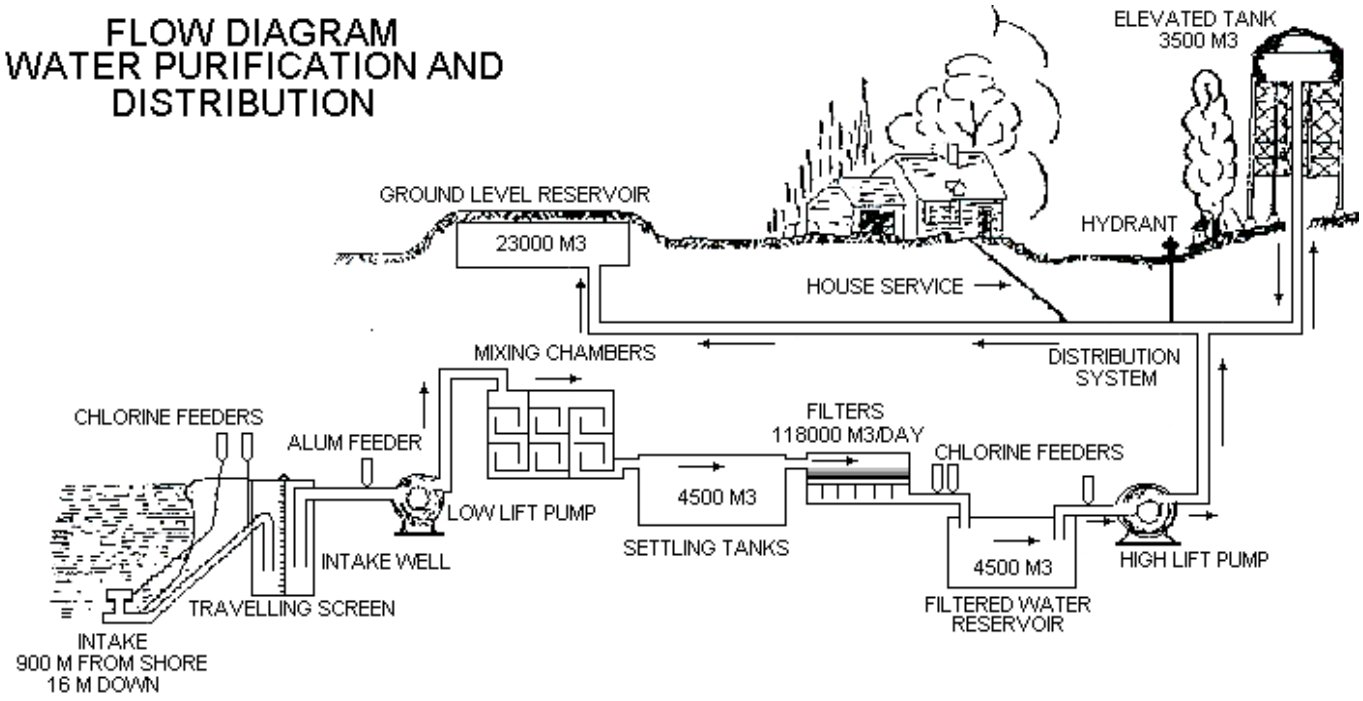
Q. How can the public be sure the water they drink from a commercial establishment is safe?
A. Owners/operators of waterworks subject to the regulation are now legally bound to keep the public informed on drinking water quality by posting public notices for untested or unsafe water. The regulation is broad-based and applies to all municipalities, as well as many owners/operators of waterworks across the province. The regulation sets out tough rules and standards to safeguard the quality of Ontario's drinking water. For waterworks that are not subject to the regulation, the safest course of action for consumers is to inquire with the owner of the establishment about the quality of the drinking water.

Q: Who sets the Drinking Water Standards, and how are they determined?

A. Standards for drinking water quality are developed nationally under the auspices of Health Canada. A risk assessment process is used to set drinking water limits, looking at risks from exposure to a chemical in drinking water by measuring how much of a chemical could be in the water, and estimating how much of the chemical the average person is likely to drink. For example, a risk assessment estimate (for a suspected cancer- causing agent) is a measure of the chances that someone may get cancer because he or she has been exposed to a drinking water contaminant. Limits are set at levels that will limit a person's risk of getting cancer from that contaminant to between one in 10,000 and one in 1,000,000 over a lifetime. For non-cancer effects, the risk assessment estimates an exposure level below which no adverse effects are expected to occur.

Q. What parameters must be tested for?
A. The regulation outlines exactly what needs to be tested. The regulation may be found on the ministry's Web site at www.ene.on.ca.

Q. How often must the water be tested?
A. Requirements for frequency of testing for waterworks vary depending on the number of people served by the waterworks. Owners/operators of waterworks should check the regulation to find out how often they are required to test. The regulation may be found on the ministry's Website at www.ene.gov.on.ca.



The Results for This Quarter are Listed Below

Symbols used below may include: (N/A) - Not Applicable; (N/D, <) - Not Detected or, less than the value shown - this typically means the parameter was below detectable levels.

Microbiological Parameters	MAC or IMAC	AO or OG	Number of Samples	Number of Positive Results	Sampling Dates			Max. Result *	Exceedance?	Typical Source of Contaminant
Plant Effluent Total Coliform (counts/100ml)	*		62	0	7/2/02	-	9/30/02	N/A	No	Indicates possible presence of fecal matter.
Plant Effluent Escherichia coliform (counts/100ml)	*		62	0	7/2/02	-	9/30/02	N/A	No	Definite indicator of fecal contamination.
Plant Effluent heterotrophic plate count (counts/100ml)	>500		62	0	7/2/02	-	9/30/02	N/A	No	Indicator of Deteriorating water quality.

** Indicator of adverse water quality if detected*

Microbiological Parameters	MAC or IMAC	AO or OG	Number of Samples	Number of Positive Results	Sampling Dates			Max. Result *	Exceedance?	Typical Source of Contaminant
Distribution System Total Coliform (counts/100ml)	*		403	1	7/2/02	-	9/30/02	Present	Yes	Indicates possible presence of fecal matter.
Distribution System Escherichia coliform (counts/100ml)	*		403	0	7/2/02	-	9/30/02	N/A	No	Definite indicator of fecal contamination.
Distribution System heterotrophic plate count (counts/100ml)	>500		232	0	7/2/02	-	9/30/02	N/A	No	Indicator of Deteriorating water quality.

** Indicator of adverse water quality if detected. The positive result listed above was not confirmed with repeat sampling.*

Parameters Related to Microbiological Quality	MAC or IMAC	AO or OG	Number of Samples	Number of Detectable Results	Sampling Dates			Range	Exceedance?	Typical Source of Contaminant
Turbidity (NTU)	1		Continuous	Continuous	7/1/02	-	9/30/02	0.03 - 0.12	No	Turbidity is a measure of particles in water.
Free chlorine - Plant effluent (mg/l)	-		Continuous	Continuous	7/1/02	-	9/30/02	1.16 - 1.47	N/A	See below
Free chlorine - Distribution system (mg/l)	-		411	411	7/2/02	-	9/30/02	0.21 - 1.45	N/A	Recommended level of at least 0.20 mg/l in distribution system to maintain microbiological quality. Min. level of 0.05 mg/l

Table B - Volatile Organics (ug/l)	MAC or IMAC	AO or OG	Number of Samples	Number of Detectable Results	Sampling Dates	Max. Result *	Exceedance?	Typical Source of Contaminant
Benzene (ug/l)	5		1	0	7/3/02	<0.5	No	Discharge from plastics manufacturing, leaking fuel tanks
Carbon tetrachloride (ug/l)	5		1	0	7/3/02	<0.2	No	Discharge from chemical plants and other industrial activities
1,2-dichlorobenzene (ug/l)	200		1	0	7/3/02	<0.1	No	Discharge from industrial chemical factories
1,4-dichlorobenzene (ug/l)	5		1	0	7/3/02	<0.2	No	Discharge from industrial chemical factories
1,2-dichloroethane (ug/l)	5		1	0	7/3/02	<0.1	No	Discharge from industrial chemical factories
1,1-dichloroethene (ug/l)	14		1	0	7/3/02	<0.1	No	Discharge from industrial chemical factories
Dichloromethane (ug/l)	50		1	0	7/3/02	<3.0	No	Discharge from pharmaceutical and chemical factories; insecticide
Ethylbenzene (ug/l)	24		1	0	7/3/02	<0.5	No	Discharge from petroleum refineries; industrial chemical factories
Monochloroben-zene (ug/l)	80		1	0	7/3/02	<0.2	No	Discharge from industrial and agricultural chemical factories and dry cleaning facilities
Tetrachloroethy-lene (ug/l)	30		1	0	7/3/02	<0.2	No	Leaching from PVC pipes; discharge from factories, dry cleaners and auto shops (metal degreaser)
Toluene (ug/l)	24		1	0	7/3/02	<0.5	No	Discharge from petroleum and chemical factories, leaking fuel tanks
Trihalomethanes: Plant Effluent Annual average (ug/l)	100		12	12	7/3/02 - 10/2/01	11.1	No	By-product of chlorination
Bromodichloromethane: Plant Effluent (ug/l)			12	12	7/3/02 - 10/2/01	3.5	N/A	By-product of chlorination
Bromoform: Plant Effluent (ug/l)			12	6	7/3/02 - 10/2/01	0.4	N/A	By-product of chlorination
Chloroform: Plant Effluent (ug/l)			12	12	7/3/02 - 10/2/01	5.5	N/A	By-product of chlorination
Dibromochloromethane: Plant Effluent (ug/l)			12	11	7/3/02 - 10/2/01	1.8	N/A	By-product of chlorination
Trihalomethanes: Distribution System Annual Average (ug/l)	100		5	5	7/3/02 - 10/2/01	28.9	No	By-product of chlorination
Bromodichloromethane: Distribution System (ug/l)			5	5	7/3/02 - 10/2/01	8.7	N/A	By-product of chlorination
Bromoform: Distribution System (ug/l)			5	3	7/3/02 - 10/2/01	0.3	N/A	By-product of chlorination
Chloroform: Distribution System (ug/l)			5	5	7/3/02 - 10/2/01	16.0	N/A	By-product of chlorination
Dibromochloromethane: Distribution System (ug/l)			5	5	7/3/02 - 10/2/01	3.8	N/A	By-product of chlorination
Trichloroethylene (ug/l)	50		1	0	7/3/02	<0.1	No	Discharge from metal degreasing sites and other factories
Chloroethene (Vinyl chloride) (ug/l)	2		1	0	7/3/02	<0.3	No	Leaching from PVC pipes; discharge from plastics factories
Xylenes (ug/l)	300		1	0	7/3/02	<2.0	No	Discharge from petroleum and chemical factories; fuel solvent

** The MAC for THMs is based on a running annual average. The numbers listed are average results for data from the last 4 quarters.*

Table C - Inorganic Parameters	MAC or IMAC	AO or OG	Number of Samples	Number of Detectable Results	Sampling Dates	Max. Result	Exceedance?	Typical Source of Contaminant
Arsenic (ug/l)	25		1	0	7/3/02	<1	No	Naturally occurring in surface waters / mine drainage
Barium (ug/l)	1000		1	1	7/3/02	25.00	No	Erosion of natural deposits. Discharge from metal refineries, oil drilling wastes.
Boron (ug/l)	5000		1	1	7/3/02	30.00	No	Erosion of natural deposits, industrial waste effluents.
Cadmium (ug/l)	5		1	0	7/3/02	<0.1	No	Industrial discharge
Chromium (ug/l)	50		1	0	7/3/02	<10	No	Industrial residues
Copper (ug/l)	1000		1	0	7/3/02	<10	No	Domestic plumbing (Aesthetic objective)
Iron (ug/l)		300	1	1	7/3/02	20.00	No	Leaching from natural deposits and plumbing materials, industrial wastes. (Aesthetic objective)
Lead (ug/l) Treated Water	10		1	0	7/3/02	<0.2	No	Leaching from domestic plumbing materials
Lead (ug/l) Distribution system	10		1	0	7/3/02	<0.2	No	Internal corrosion of household plumbing, erosion of natural deposits.
Manganese (ug/l)		50	1	0	7/3/02	<10	No	Erosion of natural deposits.
Mercury (ug/l)	0.1		1	0	7/3/02	<0.1	No	Erosion of natural deposits, industrial discharges.
Nitrogen, Nitrite (mg/l)	1		3	0	7/3/02 - 9/4/02	<0.1	No	Runoff from fertilizer use, erosion of natural depoits
Nitrate (mg/l)	10		3	2	7/3/02 - 9/4/02	0.70	No	A natural component of water at this level.
Selenium (ug/l)	10		1	1	7/3/02	1.00	No	Discharge from refineries, mines, chemical manufacture
Uranium (ug/l)	20		1	0	7/3/02	<1	No	Erosion of natural deposits.

Table D - Pesticides & PCB (ug/l)	MAC or IMAC	AO or OG	Number of Samples	Number of Detectable Results	Sampling Dates	Max. Result	Exceedance?	Typical Source of Contaminant
Alachlor (Lasso) (ug/l)	5		1	0	7/3/02	<0.5	No	Agricultural herbicide
Aldicarb (ug/l)	9		1	0	7/3/02	<6	No	Agricultural insecticide
Aldrin+dieldrin (ug/l)	0.7		1	0	7/3/02	<0.05	No	Residue from banned insecticide
Atrazine (ug/l)	5		1	0	7/3/02	<1	No	Agricultural herbicide
Azinphos-methyl (Guthion) (ug/l)	20		1	0	7/3/02	<2	No	Insecticide
Bendiocarb (ug/l)	40		1	0	7/3/02	<5	No	Insecticide
Bromoxynil (ug/l)	5		1	0	7/3/02	<0.5	No	Agricultural herbicide
Carbaryl (ug/l)	90		1	0	7/3/02	<5	No	Agricultural/Forestry/ Household insecticide
Carbofuran (ug/l)	90		1	0	7/3/02	<2	No	Agricultural insecticide
Chlordane (Total) (ug/l)	7		1	0	7/3/02	<0.6	No	Residue from banned insecticide
Chlorpyrifos (Dursban) (ug/l)	90		1	0	7/3/02	<1	No	Agricultural/ Household insecticide
Cyanazine (Bladex) (ug/l)	10		1	0	7/3/02	<1	No	Agricultural/ Residential herbicide
Diazinon (ug/l)	20		1	0	7/3/02	<2	No	Agricultural/ Livestock Operation/ Residential insecticide
Dicamba (ug/l)	120		1	0	7/3/02	<10	No	Agricultural herbicide
2,4-dichlorophenol (ug/l)	900		1	0	7/3/02	<0.2	No	Industrial contamination/ reaction with chlorine
DDT (ug/l)	30		1	0	7/3/02	<1	No	Residue from banned insecticide
2,4-dichloro-phenoxyacetic acid (2,4-D) (ug/l)	100		1	0	7/3/02	<10	No	Agricultural/ Residential herbicide

Table D - Pesticides & PCB (ug/l)	MAC or IMAC	AO or OG	Number of Samples	Number of Detectable Results	Sampling Dates	Max. Result	Exceedance?	Typical Source of Contaminant
Diclofop-methyl (ug/l)	9		1	0	7/3/02	<0.9	No	Agricultural herbicide
Dimethoate (ug/l)	20		1	0	7/3/02	<2	No	Agricultural/ Livestock Operation/ Forestry insecticide
Dinoseb (ug/l)	10		1	0	7/3/02	<1	No	Herbicide residue
Diquat (ug/l)	70		1	0	7/3/02	<5	No	Agricultural/ Aquatic herbicide
Diuron (ug/l)	150		1	0	7/3/02	<10	No	Agricultural/ Industrial/ herbicide
Glyphosate (ug/l)	280		1	0	7/3/02	<25	No	Agricultural/Forestry/ Household herbicide
Heptachlor+ heptachlor-epoxide (ug/l)	3		1	0	7/3/02	<0.1	No	Residue from banned insecticide
Lindane (Total) (g-BHC Hexachloro-cyclohexane) (ug/l)	4		1	0	7/3/02	<0.1	No	Agricultural/ Pharmaceutical insecticide
Malathion (ug/l)	190		1	0	7/3/02	<10	No	Fruit & Vegetable / pest control insecticide
Methoxychlor (ug/l)	900		1	0	7/3/02	<10	No	Agricultural/ Livestock Operation/ Residential insecticide
Metolachlor (ug/l)	50		1	0	7/3/02	<5	No	Agricultural herbicide
Metribuzin (Sencor) (ug/l)	80		1	0	7/3/02	<5	No	Agricultural herbicide
Paraquat (ug/l)	10		1	0	7/3/02	<1	No	Agricultural/ Aquatic herbicide
Parathion (ug/l)	50		1	0	7/3/02	<5	No	Agricultural insecticide
Pentachloro-phenol (ug/l)	60		1	0	7/3/02	<0.2	No	Pesticide/ wood preservative residue
Phorate (Thimet) (ug/l)	2		1	0	7/3/02	<0.5	No	Agricultural insecticide
Picloram (ug/l)	190		1	0	7/3/02	<10	No	Industrial herbicide
PCB; total (ug/l)	3		1	0	7/3/02	<0.3	No	Residue from various industrial uses
Prometryne (ug/l)	1		1	0	7/3/02	<0.2	No	Agricultural herbicide
Simazine (ug/l)	10		1	0	7/3/02	<1	No	Agricultural herbicide or its residue
Temephos (ug/l)	280		1	0	7/3/02	<25	No	Insecticide for Mosquito/Blackfly control
Terbufos (ug/l)	1		1	0	7/3/02	<0.7	No	Agricultural insecticide
2,3,4,6-tetra-chlorophenol (ug/l)	100		1	0	7/3/02	<0.1	No	Wood preservative
Triallate (ug/l)	230		1	0	7/3/02	<20	No	Agricultural herbicide
2,4,6-trichlorophenol (ug/l)	5		1	0	7/3/02	<0.2	No	Pesticide manufacturing
Trifluralin (ug/l)	45		1	0	7/3/02	<1	No	Agricultural herbicide
2,4,5-trichloro-phenoxyacetic acid (2,4,5-T) (ug/l)	280		1	0	7/3/02	<22	No	Industrial herbicide residue

Chemical/ Physical Parameters Non Health Related	MAC or IMAC	AO or OG	Number of Samples	Number of Detectable Results	Sampling Dates	Max. Result	Exceedance?	Parameter Description
Alkalinity (mg/l as $CaCO_3$)		500	1	1	7/3/02	88.0	No	A measure of the resistance of the water to the effects of acids. Expressed as calcium carbonate.
Aluminum (ug/l)		100	3	3	7/3/02 - 9/4/02	100	No	May be naturally present or a residual from the coagulation process.
Ammonia N (mg/l)			1	0	7/3/02	<0.05	No	Occurs naturally from organic nitrogen containing compounds.
Benzo(a)pyrene (ug/l)	0.01		0	0		N/A	No	Formed from the incomplete burning of organic matter.
Calcium (mg/l)			1	1	7/3/02	36.7	N/A	Naturally occurring.
Chloride (mg/l)		250	1	1	7/3/02	21.2	No	A common naturally occurring non-toxic material that may produce a salty taste in water.
Colour (TCU)		5	3	1	7/3/02 - 9/4/02	4	No	Typically the result of organic matter in surface waters.
Conductivity (Us/cm)			1	1	7/3/02	299	N/A	A measure of ability of water to carry an electric current due to the presence of ions.
Cyanide (mg/l)	0.2		0	0		N/A	No	Industrial discharge
Dioxin and Furan (pg/l)	15		0	0		N/A	No	Formed in very small amounts in combustion processes
Dissolved Organic Carbon (mg/l)		5	1	1	7/3/02	1.6	No	High DOC is an indicator of potential chlorination by-product problems.
Fluoride (mg/l) (City Central)	1.5		1	1	7/3/02	0.20	No	* Added to prevent tooth decay, but may be naturally occurring.
Fluoride (mg/l) (City East)	1.5		Continuous	Continuous	7/1/02 - 9/30/02	0.60	No	* Added to prevent tooth decay, but may be naturally occurring.
Gross Alpha (Bq/l)			0	0		N/A	No	Decay of natural deposits.
Gross Beta (Bq/l)			0	0		N/A	No	Decay of natural deposits.
Hardness (mg/l)		100	1	1	7/3/02	125	AO Exceedance	Naturally occurring from dissolved calcium and magnesium.
Nitrilitriacetic acid -NTA (ug/l)	400		0	0		N/A	No	Used in laundry detergents.
Nitrosodimethylamine -NDMA (ug/l)	0.009		0	0		N/A	No	Rarely used industrially but has been used as an antioxidant, and an additive for lubricants
Orthophosphate (mg/l)			1	0	7/3/02	<0.010	No	From agricultural runoff or as a result of residential use.
pH		8.5	3	3	7/3/02 - 9/4/02	7.92	No	An indicator of the acidity of water.
Silica (mg/l)			1	1	7/3/02	0.71	N/A	Naturally occurring.
Sodium (mg/l)		200	3	3	7/3/02 - 9/4/02	13.3	No	Occurs naturally in the earth's crust.
Sulphate (mg/l)		500	1	1	7/3/02	28.4	No	An inorganic constituent that may cause tastes at high levels.
Tritium (Bq/l)	7000		1	1	7/3/02	0.1	No	Decay of Natural & man made deposits.
Total Kjeldahl Nitrogen (mg/l)			1	1	7/3/02	0.10	N/A	Indicator of organic contamination or the potential for taste and odour problems.
Zinc (ug/l)	5000		1	0	7/3/02	<10	No	An inorganic constituent that may cause tastes.

** Fluoride is added to city east water only. City central water contains only naturally occurring fluoride.*

Where testing is not required on a quarterly basis, some of the levels shown above may be results from a previous quarter. The most recent results are typically shown. The table immediately above lists some of the sampling done for this quarter which is above and beyond that required in the regulations. Under this table there is one exceedance of the aesthetic objective for hardness. This means there may be some effect from the parameter that you may find inconvenient. For hardness this typically means more soap may be required to form suds or lather, or some scaling may appear on fixtures or in kettles. There is no health affect associated with this. There is also one exceedance for the operational guideline for Aluminum, for which there is also no known health effect.