



POINT PLEASANT WATER TREATMENT PLANT

2025 ANNUAL REPORT

Drinking Water System Number: 220001851
Drinking Water System Owner: City of Kingston
Drinking Water System Category: Large Municipal Residential

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1 EXECUTIVE SUMMARY

Utilities Kingston is proud to present this annual report on drinking water quality. This report has been prepared in accordance with Section 11 of Ontario Regulation 170/03. Regulation 170/03 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. Free copies of this report and the Summary report prepared in accordance to Schedule 22 of Ontario Regulation 170/03, are available by public request at any City of Kingston offices, at our water plant locations, and at <http://www.utilitieskingston.com>. Notices of availability are generally made through social media and the Utilities Kingston website. More information on the Drinking Water Regulations can be found on the [Ministry of the Environment, Conservation and Parks](#) (MECP) website. For further information about this report or any questions regarding accessibility, contact Robert Cooney with email at rcooney@utilitieskingston.com, or call 613-546-1181 Ext 2291.

2 PLANT DESCRIPTION AND TREATMENT PROCESS

2.1 RAW WATER SOURCE

The source of water treated by this plant is Lake Ontario at the mouth of the St. Lawrence River. The 1.2 m diameter intake extends about 570 m and is located directly south of the treatment plant, at a depth of approximately 18 m.

2.2 ZEBRA MUSSEL CONTROL

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.

2.3 SCREENING

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

2.4 LOW LIFT PUMPS

Four low lift pumps draw water from the suction wells and lift that water from lake level through a common discharge header and then through two separate headers (750mm and 900mm) to the process building.

2.5 FLOC TANKS

Devices called flocculators agitate the water in these tanks allowing proper mixing of the chlorine and Poly Aluminum Chloride (PACl) with the water. The dirt particles in water will join together with the PACl to form larger particles called floc.

2.6 FILTERS

Eight dual media (95% granular activated carbon and 5% silica sand) filters operating in parallel remove the floc particles formed in the floc tanks, as well as compounds that may cause tastes and odours. Water flows through the filters to a clean water reservoir called the clear well.

2.7 BACKWASH

Filters are washed regularly to remove the particulates they have collected. The filter is air scoured to break up any large particles, and clean water from the clear well is pumped backwards through the filter to wash it.

2.8 PROCESS WASTE FACILITY

Effluent from the filter backwash process is directed to the process waste facility for further treatment. Supernatant from the process is de-chlorinated using a 30% Calcium Thiosulphate solution, and then directed back to Lake Ontario. The sludge is pumped to the sanitary sewer system for further treatment at the Cataraqui Bay Water Pollution Control Plant.

2.9 POST CHLORINATION

A chlorine solution is added to the water as it enters the contact tanks to ensure proper disinfection is achieved through adequate chlorine contact time, and to provide chlorine residual which remains in the distribution system. This ensures protection to the customers' tap.

2.10 CLEAR WELL/TREATED WATER RESERVOIR

Filtered water is stored in the clear well/treated water reservoir. From here it is pumped to the distribution system or used for filter washing. The reservoir at the plant site holds approximately 14.0 million litres.

2.11 HIGH LIFT PUMPS

The high lift pumping system at the Point Pleasant Water Treatment Plant (WTP) consists of five (5) high lift pumps which pump water from the high lift suction well to the distribution system, storage reservoirs and elevated tanks, through two (2) 900 m distribution headers.

2.12 STANDBY EQUIPMENT

A combination diesel/natural gas generator provides electricity to run the necessary operational components of the plant. In addition, one Low Lift Pump 1 is equipped with a dual drive system and diesel backup engine to allow continued low lift pumping when electrical power is not available. High Lift Pump 5 is equipped with a diesel drive system complete with a variable speed diesel engine and is used only as a backup pump upon electrical system failure within the facility. These 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.

Figure 1 – Point Pleasant Water Treatment Plant Process Flow Diagram

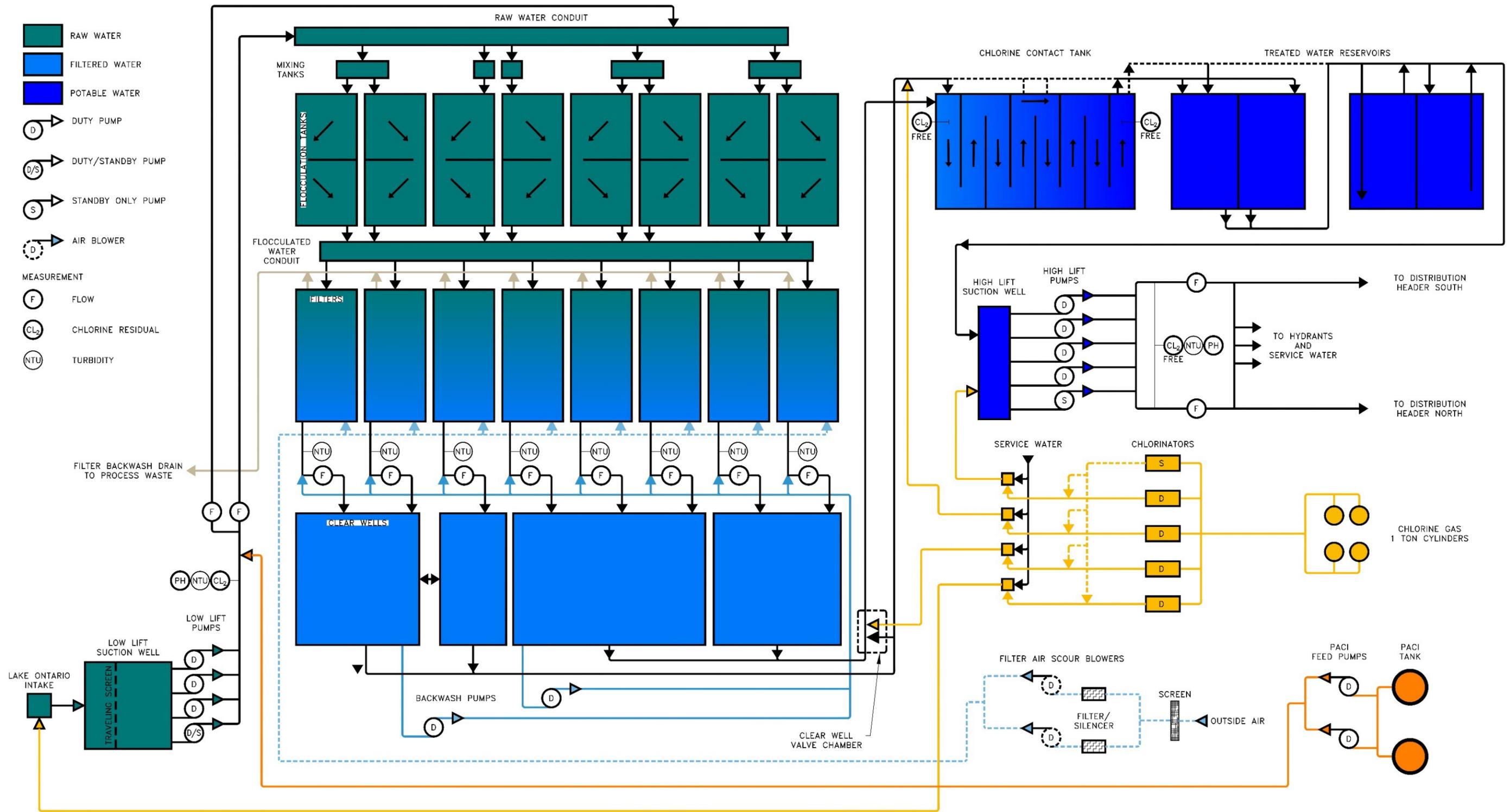
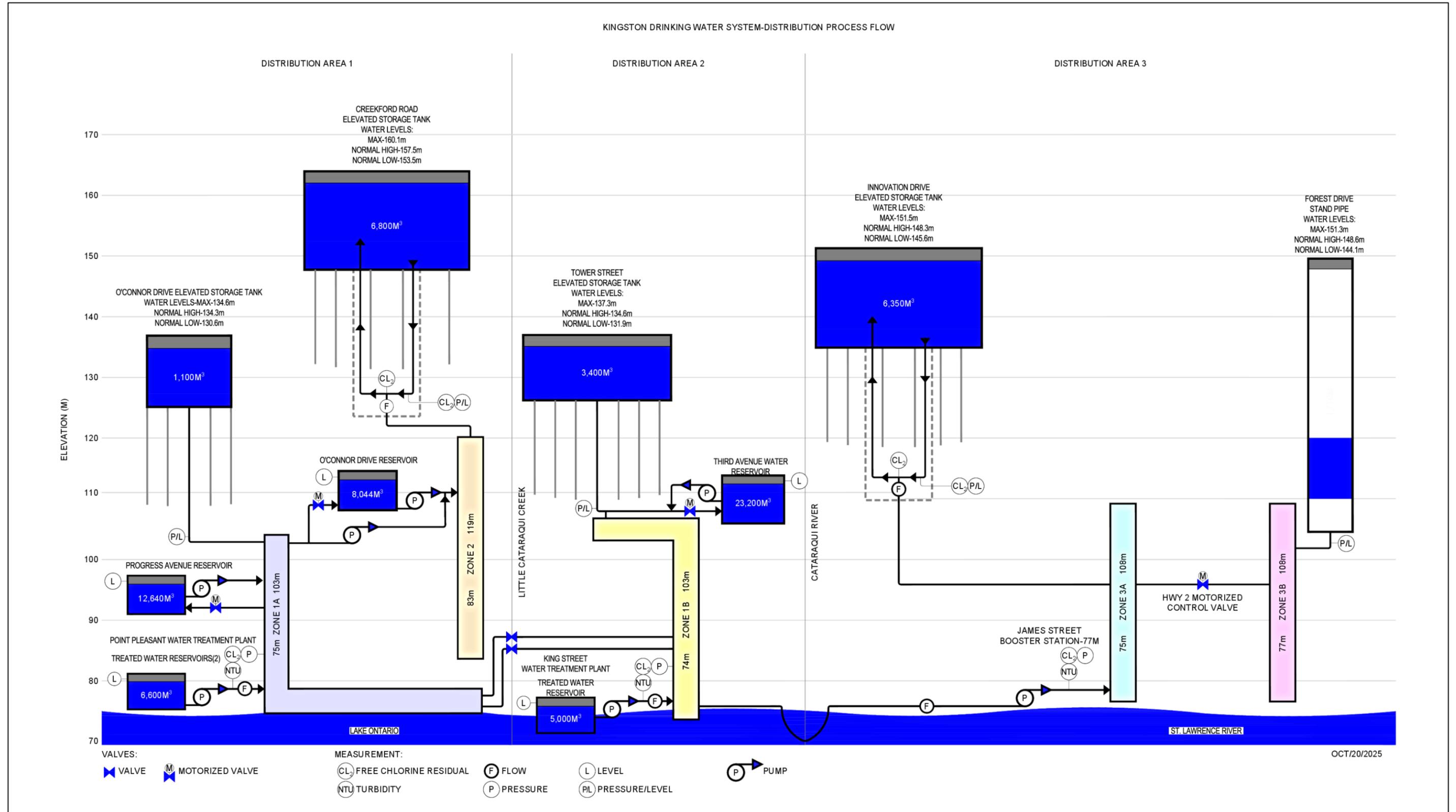


Figure 2 – Kingston Distribution System Process Flow Diagram



3 DISTRIBUTION SYSTEM

The Kingston Drinking Water System, which receives water from both the King Street WTP and the Point Pleasant WTP, has a service population of approximately 132,485 (population from Census data for 2021). The distribution system is divided into three distribution areas.

3.1 DISTRIBUTION AREA 1

Distribution Area 1 is that area west of the Little Cataraqui Creek, south of Highway 401 and east of Coronation Boulevard, and north of Highway 401 along Sydenham Road northward to Mildred Street and eastward from Sydenham Road along Sunnyside Road for approximately 1.2 kilometers.

Distribution Area 1 is comprised of approximately 220 km of water mains, 2 ground level reservoir/pumping stations, 2 elevated storage tanks, 4 booster stations, over 2,500 main line valves, and over 1,300 fire hydrants and their associated isolation valves.

Distribution Area 1 is divided into two distinct zones: Pressure Zone 1 and Pressure Zone 2.

Pressure Zone 1 is supplied by Point Pleasant WTP. This zone contains two storage facilities: O'Connor Drive Elevated Storage Tank and Progress Avenue Reservoir.

Pressure Zone 2 receives its water supply from Pressure Zone 1 via O'Connor Drive Reservoir and Booster Station. The Creekford Road Elevated Storage Tank is located within this zone.

3.2 DISTRIBUTION AREA 2

Distribution Area 2 is that area which is east of the Little Cataraqui Creek, west of the Cataraqui River, and south of Highway 401. A small area on the east side of the Cataraqui River upstream of the pumps at the James Street Booster Station is part of distribution Area 2. In addition, Collins Bay Institution, which is west of the Little Cataraqui Creek on Bath Road, is supplied with water from this area and from Area 1.

Distribution Area 2 is comprised of over 250km of water mains, 1 ground level reservoir/pumping station, 1 elevated storage tank, over 2,000 main line valves, and over 1,200 fire hydrants and their associated isolation valves. The King Street WTP provides water to Distribution Area 2. The Tower Street Elevated Storage Tank and the Third Avenue Reservoir are located within this distribution area.

3.3 DISTRIBUTION AREA 3

Distribution Area 3 is that area which is east of the Cataraqui River. Distribution Area 3 is comprised of over 70km of water mains, 1 water booster station, 2 elevated storage facilities, over 250 main line valves, and over 300 fire hydrants and their associated isolation valves.

Water is supplied to Distribution Area 3 from Distribution Area 2 through the James Street Booster Station. The Innovation Drive Elevated Storage Tank and the Forest Drive Standpipe are located within this pressure zone.

4 MONETARY EXPENSES

Under Section 11 of Ontario Regulation 170/03, a description of any major expenses incurred during this reporting period must be included in the annual report.

4.1 MAJOR EXPENSES:

- Ongoing water main replacement programs continued throughout the City of Kingston.
- Ongoing leak detection, hydrant maintenance, and valve operation programs were conducted throughout the distributions system.

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- The expired media for the chlorine gas scrubber was replaced.
- An air conditioning unit was installed for the maintenance shop.
- Upgrades were completed to the HVAC control system software.
- A service and overhaul was completed on the chlorine gas system including the installation of new regulators.
- Replacement parts for the flocculation tank mixers were purchased.
- The Granular Activated Carbon (GAC) was replaced in two filters.
- A spill containment level switch was installed at the James Street Booster Station.
- The emergency lighting at Creekford Elevated Tank was replaced.
- A chlorine analyzer was purchased to be installed at the Third Avenue Reservoir.
- Safety eyewash chemicals (Diphoterine) replaced at all facilities.
- Upgraded Davit arm, chain hoist and winch for the fall arrest equipment.
- Annual third-party analyzer and flow meter calibrations, and pump vibration analysis completed at all facilities.

5 NOTIFICATIONS

Under Ontario Regulation 170/03, notifications were required for any instances where a sample result indicated that a parameter used to measure water quality exceeded a Maximum Acceptable Concentration (MAC). Once a notification is received from a laboratory or an observation of any other incident of adverse water quality is made by operations personnel, corrective action as dictated by the regulations is initiated in an effort to confirm the initial result. If confirmed, further action may be recommended by the Medical Officer of Health. If not confirmed sampling will typically return to the normal schedule, or depending on the parameter, Utilities Kingston may choose to increase the sampling frequency to monitor the parameter more closely for a period of time.

5.1 EVENTS REQUIRING NOTIFICATIONS:

- An adverse water quality incident notification was received from Caduceon Environmental Laboratories regarding a treated water sample collected on **June 16th, 2025**, which was determined to have a Total Coliform (TC) count of **14 cfu/100mL**. The free chlorine residual at the time of sampling was **1.85 mg/L**. Notifications were made to the Spills Action Centre and to the Environmental Health Division of the local Ministry of Health. Resamples were collected from the same location, upstream and downstream and sent to the lab for analysis. With the free chlorine residual present in the original sample and the subsequent re-samples not indicating any adverse conditions, a contaminated sample bottle or sampling error is suspected.

6 GLOSSARY

TCU – True Colour Units

mg – Milligram

N/A – Not Applicable

N/D – Non-Detectable

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

mg/L – Milligrams per litre. This is a measure of the concentration of a parameter in water, also called parts per million (ppm).

µg/L – Micrograms per litre, also called parts per billion.

ng/L – Nanograms per litre, also called parts per trillion.

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

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

OG – Operational guideline. Set to ensure efficient treatment and distribution of 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

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7 WATER QUALITY TEST RESULTS

Table 1 – Microbiological Testing

(Performed Under Regulation 170/03)

| Type | MAC (E. Coli & Total Coliforms) | Number of Samples | Range of E. Coli Results (Min - Max) | Range of Total Coliform Results (Min - Max) | Number of HPC Samples | Range of HPC Results (Min - Max) |
|--------------------------------|---------------------------------|-------------------|--------------------------------------|---|-----------------------|----------------------------------|
| Raw | N/A | 52 | 0 - 6 | 0 - 32 | N/A | N/A |
| Treated | 0 | 54 | 0 | 0 - 14 | 52 | Under 10 - 160 |
| Kingston Drinking Water System | 0 | 1356 | 0 | 0 - 123 | 722 | Under 10 - 860 |

Note: Total Coliforms are an indicator of adverse water quality if detected

Table 2 – Operational Testing

(Performed under Schedule 7, 8, or 9 of Regulation 170/03)

| Parameter | MAC | Number of Samples | Range of Results (min - max) | Parameter Description |
|---|---------------------------|-------------------|------------------------------|---|
| Raw Water Turbidity (NTU) | N/A | Continuous | 0.068 - 5.04 | Turbidity is a measure of particles in water |
| Treated Water Turbidity (NTU) | N/A | Continuous | 0.01 - 0.273 | Turbidity is a measure of particles in water |
| Treated Chlorine Residual (mg/L) | See Parameter Description | Continuous | 1.47 - 2.38 | Recommended level of at least 0.20 mg/l in distribution system to maintain microbiological quality. 0.05 mg/l minimum required. |
| Kingston Drinking Water System Chlorine Residual (mg/L) | See Parameter Description | Continuous | 0.10 - 3.0 | Recommended level of at least 0.20 mg/l in distribution system to maintain microbiological quality. 0.05 mg/l minimum required. |

Note: Turbidity range determined through in house lab testing

Table 3 – Filter Operational Testing

| Parameter | MAC | Number of Samples | Range of Results (min - max) | Results Average |
|------------------------------------|-------------------------|-------------------|------------------------------|-----------------|
| Filter #1 Effluent Turbidity (NTU) | 1.0 for Over 15 minutes | Continuous | 0.022 - 0.410 | 0.052 |
| Filter #2 Effluent Turbidity (NTU) | 1.0 for Over 15 minutes | Continuous | 0.024 - 0.258 | 0.052 |
| Filter #3 Effluent Turbidity (NTU) | 1.0 for Over 15 minutes | Continuous | 0.021 - 0.616 | 0.045 |
| Filter #4 Effluent Turbidity (NTU) | 1.0 for Over 15 minutes | Continuous | 0.020 - 1.568 | 0.051 |
| Filter #5 Effluent Turbidity (NTU) | 1.0 for Over 15 minutes | Continuous | 0.017 - 0.392 | 0.046 |
| Filter #6 Effluent Turbidity (NTU) | 1.0 for Over 15 minutes | Continuous | 0.020 - 0.882 | 0.064 |
| Filter #7 Effluent Turbidity (NTU) | 1.0 for Over 15 minutes | Continuous | 0.025 - 0.419 | 0.060 |
| Filter #8 Effluent Turbidity (NTU) | 1.0 for Over 15 minutes | Continuous | 0.011 - 0.640 | 0.036 |

Table 4 – Process Waste Facility Effluent Testing and Sampling

| Parameter | MAC | Number of Samples | Results Average | Parameter Description |
|-------------------------------|-----------|-------------------|-----------------|---|
| Total Suspended Solids (mg/L) | 25 | 12 | 3 | A measure of the particulates collected in the filtration process. |
| Chlorine Residual (mg/L) | Over 0.02 | 12 | 0.0108 | Residual of 0.04 mg/L as required by the drinking water license for this facility |

Note: Testing and sampling in accordance with the requirements of the Municipal Drinking Water Licence

Table 5 – Additional Process Waste Facility Effluent Testing and Sampling

| Parameter | MAC | Number of Samples | Results Average | Parameter Description |
|-----------------|-----|-------------------|-----------------|--------------------------------------|
| BOD5 (mg/L) | N/A | 12 | Under 3 - 4 | Biological Oxygen Demand |
| Aluminum (mg/L) | N/A | 12 | 0.48 | Residual from treatment process |
| pH | N/A | 12 | 7.74 | An indicator of the acidity of water |

Table 6 – Raw Water Testing (Analyzed by Accredited Laboratories)

| Parameter | MAC | Number of Samples | Results Range (min - max) | MAC Exceedance (Yes or No) | Parameter Description |
|--|-----|-------------------|---------------------------|----------------------------|---|
| Alkalinity as CaCO ₃ (mg/L) | N/A | 4 | 94 - 101 | N/A | A measure of the resistance of the water to the effects of acids. Expressed as calcium carbonate. |
| Aluminum (mg/L) | N/A | 2 | 0.02 | N/A | May be naturally present. |
| Ammonia Nitrogen (mg/L) | N/A | 2 | Under 0.05 - 0.07 | N/A | Occurs naturally from organic nitrogen containing compounds. |
| Antimony (mg/L) | N/A | 0 | N/A | N/A | Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder |
| Arsenic (mg/L) | N/A | 2 | 0.0007 - 0.0008 | N/A | Naturally occurring in surface waters / mine drainage |
| Barium (mg/L) | N/A | 0 | N/A | N/A | Erosion of natural deposits. Discharge from metal refineries, oil drilling wastes. |
| Boron (mg/L) | N/A | 0 | N/A | N/A | Erosion of natural deposits, industrial waste effluents. |
| Cadmium (mg/L) | N/A | 0 | N/A | N/A | Industrial discharge |
| Calcium (mg/L) | N/A | 4 | 31.0 - 36.6 | N/A | Naturally occurring. |
| Chloride (mg/L) | N/A | 2 | 23.2 - 24.4 | N/A | A common naturally occurring non-toxic material that may produce a salty taste in water. |
| Chromium (mg/L) | N/A | 0 | N/A | N/A | Industrial residues |

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| Parameter | MAC | Number of Samples | Results Range (min - max) | MAC Exceedance (Yes or No) | Parameter Description |
|---------------------------------|------------|--------------------------|----------------------------------|-----------------------------------|---|
| Colour (TCU) | N/A | 12 | Under 2 - 4 | N/A | Typically, the result of organic matter in surface waters. |
| Conductivity (Us / cm) | N/A | 2 | 307 - 316 | N/A | A measure of ability of water to carry an electric current due to the presence of ions. |
| Copper (mg/L) | 1 OG | 2 | Under 0.002 | N/A | Domestic plumbing (Aesthetic objective) |
| Dissolved Organic Carbon (mg/L) | N/A | 4 | 3.2 - 3.6 | N/A | High DOC is an indicator of potential for chlorination by-product problems. |
| Fluoride (mg/L) | N/A | 4 | Under 0.1 | N/A | Naturally occurring. |
| Hardness (mg/L) | N/A | 4 | 114 - 127 | N/A | Naturally occurring from dissolved calcium and magnesium. |
| Iron (mg/L) | N/A | 2 | Under 0.005 | N/A | Leaching from natural deposits and plumbing materials, industrial wastes. (Aesthetic objective) |
| Lead (mg/L) | N/A | 10 | Under 0.00002 - 0.00004 | N/A | Internal corrosion of household plumbing, erosion of natural deposits. |
| Manganese (mg/L) | N/A | 3 | Under 0.001 - 0.003 | N/A | Erosion of natural deposits. |
| Microcystin (µg/L) | N/A | 22 | Under 0.15 | N/A | Naturally occurring (released from blooms of blue-green algae) |
| Nitrate (mg/L) | N/A | 4 | 0.13 - 0.35 | N/A | Runoff from fertilizer use, erosion of natural deposits |
| Nitrite (mg/L) | N/A | 4 | Under 0.05 | N/A | A natural component of water at this level. |
| Nitrioltriactic Acid (mg/L) | 0.4 | 0 | N/A | N/A | A human made organic compound |
| N-Nitrosodimethylamine (mg/L) | 0.0009 | 0 | N/A | N/A | An organic chemical often found as an industrial biproduct |
| pH | N/A | 12 | 7.09 - 8.39 | N/A | An indicator of the acidity of water. |
| Selenium (mg/L) | N/A | 0 | N/A | N/A | Discharge from refineries, mines, chemical manufacture |
| Sodium (mg/L) | 20 | 4 | 12.5 - 14.8 | No | Occurs naturally in the earth's crust. |
| Sulphate (mg/L) | N/A | 4 | 18 - 23 | N/A | An inorganic constituent that may cause tastes at high levels. |

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| Parameter | MAC | Number of Samples | Results Range (min - max) | MAC Exceedance (Yes or No) | Parameter Description |
|--------------------------------|------------|--------------------------|----------------------------------|-----------------------------------|---|
| Total Kjeldahl Nitrogen (mg/L) | N/A | 4 | 0.3 - 0.6 | N/A | Indicator of organic contamination or the potential for taste and odour problems. |
| Total Phenols (mg/L) | N/A | 4 | Under 0.001 | N/A | A chemical compound found in nature and used in a wide variety of products. |
| Uranium (mg/L) | N/A | 0 | N/A | N/A | Erosion of natural deposits. |
| Zinc (mg/L) | N/A | 2 | Under 0.005 | N/A | An inorganic constituent that may cause tastes. |

Table 7 – Treated Water Schedule 23 Inorganic Parameters

| Parameter | MAC | Number of Samples | Results Range (min - max) | MAC Exceedance (Yes or No) | Parameter Description |
|------------------|------------|--------------------------|----------------------------------|-----------------------------------|---|
| Antimony (mg/L) | 0.006 | 2 | 0.0001 | No | Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder |
| Arsenic (mg/L) | 0.025 | 3 | 0.0005 - 0.0006 | No | Naturally occurring in surface waters / mine drainage |
| Barium (mg/L) | 1 | 2 | 0.021 - 0.025 | No | Erosion of natural deposits. Discharge from metal refineries, oil drilling wastes. |
| Boron (mg/L) | 5 | 2 | 0.018 - 0.021 | No | Erosion of natural deposits, industrial waste effluents. |
| Cadmium (mg/L) | 0.005 | 2 | Under 0.000015 | No | Industrial discharge |
| Chromium (mg/L) | 0.05 | 2 | Under 0.001 | No | Industrial residues |
| Mercury (mg/L) | 0.001 | 2 | Under 0.00002 | No | Erosion of natural deposits, industrial discharges. |
| Selenium (mg/L) | 0.01 | 2 | Under 0.001 | No | Discharge from refineries, mines, chemical manufacture |
| Uranium (mg/L) | 0.02 | 1 | 0.0002 - 0.00026 | No | Erosion of natural deposits. |

Table 8 – Treated Water Schedule 24 Inorganic Parameters

| Parameter | MAC | Number of Samples | Results Range (min - max) | MAC Exceedance (Yes or No) | Parameter Description |
|---|------------|--------------------------|----------------------------------|-----------------------------------|------------------------------|
| Alachlor (µg/L) | 5 | 2 | Under 0.3 | No | Agricultural herbicide |
| Atrazine + N-Dealkylated Metabolites (µg/L) | 5 | 2 | Under 0.5 | No | Agricultural herbicide |
| Azinphos-methyl (µg/L) | 20 | 2 | Under 1 | No | Insecticide |

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| Parameter | MAC | Number of Samples | Results Range (min - max) | MAC Exceedance (Yes or No) | Parameter Description |
|--|------------|--------------------------|----------------------------------|-----------------------------------|--|
| Benzene (µg/L) | 5 | 2 | Under 0.5 | No | Discharge from plastics manufacturing, leaking fuel tanks |
| Benzo(a)pyrene (µg/L) | 0.01 | 2 | Under 0.006 | No | Formed from the incomplete burning of organic matter. |
| Bromoxynil (µg/L) | 5 | 2 | Under 0.5 | No | Agricultural herbicide |
| Carbaryl (µg/L) | 90 | 2 | Under 3 | No | Agricultural/Forestry/ Household insecticide |
| Carbofuran (µg/L) | 90 | 2 | Under 1 | No | Agricultural insecticide |
| Carbon Tetrachloride (µg/L) | 5 | 2 | Under 0.2 | No | Discharge from chemical and industrial activities |
| Chlorpyrifos (µg/L) | 90 | 2 | Under 0.5 | No | Agricultural/ Household insecticide |
| Diazinon (µg/L) | 20 | 2 | Under 1 | No | Agricultural/ Livestock Operation/ Residential insecticide |
| Dicamba (µg/L) | 120 | 2 | Under 1 | No | Agricultural herbicide |
| 1,2-Dichlorobenzene (µg/L) | 200 | 2 | Under 0.5 | No | Discharge from industrial chemical factories |
| 1,4-Dichlorobenzene (µg/L) | 5 | 2 | Under 0.5 | No | Discharge from industrial chemical factories |
| 1,2-Dichloroethane (µg/L) | 5 | 2 | Under 0.5 | No | Discharge from industrial chemical factories |
| 1,1-Dichloroethylene (µg/L) | 14 | 2 | Under 0.5 | No | Discharge from industrial chemical factories |
| Dichloromethane (µg/L) | 50 | 2 | Under 5 | No | Discharge from pharmaceutical and chemical factories |
| 2,4-Dichlorophenol (µg/L) | 900 | 2 | Under 0.2 | No | Industrial contamination/ reaction with chlorine |
| 2,4-Dichlorophenoxy Acetic Acid (µg/L) | 100 | 2 | Under 1 | No | Agricultural/ Residential herbicide |
| Diclofop-methyl (µg/L) | 9 | 2 | Under 0.9 | No | Agricultural herbicide |
| Dimethoate (µg/L) | 20 | 2 | Under 1 | No | Agricultural/ Livestock Operation/ Forestry insecticide |
| Diquat (µg/L) | 70 | 2 | Under 5 | No | Agricultural/ Aquatic herbicide |
| Diuron (µg/L) | 150 | 2 | Under 5 | No | Agricultural/ Industrial/ herbicide |
| Glyphosate (µg/L) | 280 | 2 | Under 25 | No | Agricultural/Forestry/ Household herbicide |
| Malathion (µg/L) | 150 | 2 | Under 5 | No | Fruit & Vegetable / pest control insecticide |

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| Parameter | MAC | Number of Samples | Results Range (min - max) | MAC Exceedance (Yes or No) | Parameter Description |
|---|-----|-------------------|---------------------------|----------------------------|--|
| 2-methyl-4-chloro-phenoxyacetic Acid (mg/L) | 280 | 2 | Under 25 | No | Leaching and/or runoff from agricultural and other uses |
| Metolachlor (µg/L) | 190 | 2 | Under 5 | No | Agricultural herbicide |
| Metribuzin (µg/L) | 100 | 2 | Under 0.01 | No | Agricultural herbicide |
| Monochloro-benzene (µg/L) | 50 | 2 | Under 3 | No | Discharge from industrial and agricultural chemical factories and dry cleaning facilities |
| Paraquat (µg/L) | 80 | 2 | Under 3 | No | Agricultural/ Aquatic herbicide |
| Pentachloro-phenol (µg/L) | 80 | 2 | Under 0.5 | No | Pesticide/ wood preservative residue |
| Phorate (µg/L) | 10 | 2 | Under 1 | No | Agricultural insecticide |
| Picloram (µg/L) | 60 | 2 | Under 0.2 | No | Industrial herbicide |
| Polychlorinated Biphenyls (µg/L) | 3 | 2 | Under 0.05 | No | Residue from various industrial uses |
| Prometryne (µg/L) | 1 | 2 | Under 0.1 | No | Agricultural herbicide |
| Simazine (µg/L) | 10 | 2 | Under 0.5 | No | Agricultural herbicide or its residue |
| Terbufos (µg/L) | 1 | 2 | Under 0.5 | No | Agricultural insecticide |
| Tetrachloro-ethylene (µg/L) | 30 | 2 | Under 0.5 | No | Leaching from PVC pipes; discharge from factories, dry cleaners and auto shops (metal degreaser) |
| 2,3,4,6-Tetrachloro-phenol (µg/L) | 100 | 2 | Under 0.2 | No | Wood preservative |
| Triallate (µg/L) | 230 | 2 | Under 10 | No | Agricultural herbicide |
| Trichloroethylene (µg/L) | 5 | 2 | Under 0.5 | No | Discharge from metal degreasing sites and other factories |
| 2,4,6-Trichlorophenol (µg/L) | 5 | 2 | Under 0.2 | No | Pesticide manufacturing |
| Trifluralin (µg/L) | 45 | 2 | Under 0.5 | No | Agricultural herbicide |
| Vinyl Chloride (µg/L) | 2 | 3 | Under 0.2 | No | Leaching from PVC pipes; discharge from plastics factories |

Table 9 – Other Regulatory Treated Water Parameters

| Parameter | MAC | Number of Samples | Results Range (min - max) | MAC Exceedance (Yes or No) | Parameter Description |
|-----------------|-----|-------------------|---------------------------|----------------------------|---|
| Fluoride (mg/L) | 1.5 | 4 | Under 0.1 | No | Naturally occurring. |
| Nitrite (mg/L) | 1 | 12 | Under 0.05 | No | A natural component of water at this level. |
| Nitrate (mg/L) | 10 | 12 | 0.10 - 0.47 | No | Runoff from fertilizer use, erosion of natural deposits |
| Sodium (mg/L) | 20 | 12 | 12.4 - 15.2 | No | Occurs naturally in the earth's crust. Notification is required every 60 months if greater than 20 mg/L |

Table 10 – Treated Water Testing

(Analyzed by Accredited Laboratories)

| Parameter | MAC | Number of Samples | Results Range (min - max) | MAC Exceedance (Yes or No) | Parameter Description |
|-------------------------------------|-----------------------|--------------------------|----------------------------------|-----------------------------------|---|
| Alkalinity CaCO ₃ (mg/L) | N/A | 4 | 91 - 99 | N/A | Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder |
| Aluminum (mg/L) | 0.1 OG | 12 | 0.03 - 0.13 | N/A | Naturally occurring in surface waters / mine drainage |
| Ammonia Nitrogen (mg/L) | N/A | 4 | Under 0.05 - 0.05 | N/A | Erosion of natural deposits. Discharge from metal refineries, oil drilling wastes. |
| Calcium (mg/L) | N/A | 4 | 31.9 - 37.8 | N/A | Erosion of natural deposits, industrial waste effluents. |
| Chloride (mg/L) | 250 | 4 | 25.7 - 26.9 | No | Industrial discharge |
| Colour (TCU) | 5 | 12 | Under 2 | No | Industrial residues |
| Conductivity (Us/cm) | N/A | 4 | 307 - 317 | N/A | Erosion of natural deposits, industrial discharges. |
| Cyanide (mg/L) | N/A | 0 | N/A | N/A | Discharge from refineries, mines, chemical manufacture |
| Dissolved Organic Carbon (mg/L) | N/A | 4 | 2.5 - 2.8 | N/A | Erosion of natural deposits. |
| Gross Alpha (bg/L) | 0.5 | 0 | N/A | No | Measure of radioactivity |
| Gross Beta (bg/L) | 1 | 0 | N/A | No | Measure of radioactivity |
| Total Haloacetic Acids (mg/L) | 0.08 (Annual Average) | 12 | 0.005 - 0.0218 | No | By-product of drinking water disinfection with chlorine. Based on a running annual average |
| Hardness (mg/L) | 100 OG | 4 | 117 - 129 | No | Naturally occurring from dissolved calcium and magnesium. |
| Iron (mg/L) | 0.3 AO | 2 | Under 0.005 | N/A | Leaching from natural deposits and plumbing materials, industrial wastes. (Aesthetic objective) |
| Lead (mg/L) | 0.01 | 10 | Under 0.00002 | No | Internal corrosion of household plumbing, erosion of natural deposits. |
| Manganese (mg/L) | 0.05 AO | 4 | Under 0.001 | N/A | Erosion of natural deposits. |
| Microcystin (µg/L) | 1.5 | 0 | N/A | No | Naturally occurring (released from blooms of blue-green algae) |

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| Parameter | MAC | Number of Samples | Results Range (min - max) | MAC Exceedance (Yes or No) | Parameter Description |
|--------------------------------|-------------------|--------------------------|----------------------------------|-----------------------------------|--|
| Nitriiotriacetic acid/NTA | N/A | 0 | N/A | N/A | A human made organic compound |
| N-Nitrosodimethylamine (µg/L) | 0.0009 | 0 | N/A | No | An organic chemical often found as an industrial biproduct |
| pH | N/A | 12 | 7.68 - 8.04 | N/A | An indicator of the acidity of water. |
| Sulphate (mg/L) | 500 OG | 4 | 18 - 23 | N/A | An inorganic constituent that may cause tastes at high levels. |
| Total Trihalomethanes (µg/L) | 100 (Annual avg.) | 13 | 8 - 34 | No | By-product of chlorination. * The MAC for THMs of 100 µg/L is based on a running annual average. |
| Total Kjeldahl Nitrogen (mg/L) | N/A | 4 | 0.1 - 0.3 | N/A | Indicator of organic contamination or the potential for taste and odour problems. |
| Tritium (bg/L) | 7000 | 0 | N/A | No | A form of hydrogen |
| Zinc (mg/L) | 5 | 2 | Under 0.005 | No | An inorganic constituent that may cause tastes. |

Table 11 – Distribution Water Testing

| Parameter | MAC | Number of Samples | Results Range (min - max) | MAC Exceedance (Yes or No) | Parameter Description |
|-------------------------------|--------------------|--------------------------|----------------------------------|-----------------------------------|--|
| Total Haloacetic Acids (mg/L) | 0.08 (Annual avg.) | 12 | 0.0053 - 0.0406 | No | By-product of drinking water disinfection with chlorine. Based on a running annual average |
| Total Trihalomethanes (µg/L) | 100 (Annual avg.) | 21 | 9.0 - 89.0 | No | By-product of chlorination. * The MAC for THMs of 100 µg/L is based on a running annual average. |

Table 12 – Lead Testing

| Parameter | MAC mg/L | Number of Sample Locations | Results Exceeding 0.01 mg/L | Results Range mg/L (min - max) | pH Range (min - max) | Alkalinity (CaCO3) Range mg/L (min - max) |
|------------------|-----------------|-----------------------------------|------------------------------------|---------------------------------------|-----------------------------|--|
| Residential | 0.01 | 23 | 0 | 0.00002 - 0.00988 | 7.1 - 8.15 | N/A |
| Non-Residential | 0.01 | 9 | 0 | 0.00002 - 0.00132 | 7.10 - 7.98 | 91 - 103 |

Table 13 – Regulatory Distribution Water Testing

(Analyzed by Accredited Laboratories)

| Parameter | MAC | Number of Samples | Results Range (min - max) | MAC Exceedance (Yes or No) | Parameter Description |
|-------------------------------------|------------|--------------------------|----------------------------------|-----------------------------------|---|
| Alkalinity CaCO ₃ (mg/L) | N/A | 18 | 91 - 103 | N/A | A measure of the resistance of the water to the effects of acids. Expressed as calcium carbonate. |
| Aluminum (mg/L) | 0.1 OG | 8 | 0.04 - 0.12 | N/A | May be naturally present or a residual from the coagulation process. |
| Ammonia Nitrogen (mg/L) | N/A | 8 | Under 0.05 - 0.06 | N/A | Occurs naturally from organic nitrogen containing compounds. |
| Arsenic (mg/L) | 0.025 | 2 | 0.0004 - 0.0005 | No | Naturally occurring in surface waters / mine drainage |
| Benzo(a)pyrene (µg/L) | N/A | 0 | N/A | N/A | Formed during the combustion of organic matter |
| Calcium (mg/L) | N/A | 8 | 32.6 - 37.5 | N/A | Naturally occurring. |
| Chloride (mg/L) | 250 | 6 | 26.6 - 27.7 | No | A common naturally occurring non-toxic material that may produce a salty taste in water. |
| Colour (TCU) | 5 | 2 | Under 2 | No | Typically the result of organic matter in surface waters. |
| Conductivity (Us/cm) | N/A | 8 | 312 - 323 | N/A | A measure of ability of water to carry an electric current due to the presence of ions. |
| Copper (mg/L) | 1 OG | 8 | 0.0005 - 0.0031 | N/A | Domestic plumbing (Aesthetic objective) |
| Cyanide (mg/L) | 0.2 | 0 | N/A | N/A | Compound used in a variety of industrial processes |
| Dissolved Organic Carbon (mg/L) | 5 AO | 8 | 1.3 - 3.1 | N/A | High DOC is an indicator of potential for chlorination by-product problems. |
| Fluoride (mg/L) | 1.5 | 2 | Under 0.1 | No | Naturally occurring. |
| Gross Alpha (bg/L) | 0.5 | 0 | N/A | N/A | Measure of radioactivity |
| Gross Beta (bg/L) | 1 | 0 | N/A | N/A | Measure of radioactivity |
| Hardness (mg/L) | 100 OG | 8 | 119 - 128 | N/A | Naturally occurring from dissolved calcium and magnesium. |
| Iron (mg/L) | 0.3 AO | 8 | Under 0.005 - 0.006 | N/A | Leaching from natural deposits and plumbing materials, industrial wastes. (Aesthetic objective) |
| Manganese (mg/L) | 0.05 AO | 8 | Under 0.001 - 0.001 | N/A | Erosion of natural deposits. |

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| Parameter | MAC | Number of Samples | Results Range (min - max) | MAC Exceedance (Yes or No) | Parameter Description |
|--------------------------------|---------------|-------------------|---------------------------|----------------------------|---|
| Nitrite (mg/L) | 1 | 2 | Under 0.05 | No | A natural component of water at this level. |
| Nitrate (mg/L) | 10 | 2 | 0.27 - 0.28 | No | Runoff from fertilizer use, erosion of natural deposits |
| Nitriiotriacetic Acid (mg/L) | 0.4 | 0 | N/A | N/A | A human made organic compound |
| Nitrosodi-methylamine (µg/l) | 0.0009 | 0 | N/A | N/A | An organic chemical often found as an industrial byproduct |
| pH | 6.5-8.5 OG | 8 | 7.49 - 8.11 | N/A | An indicator of the acidity of water. |
| Sodium (mg/L) | 20 | 8 | 14.4 - 17.4 | No | Occurs naturally in the earth's crust. |
| Sulphate (mg/L) | 500 OG | 8 | 18 - 23 | N/A | An inorganic constituent that may cause tastes at high levels. |
| Total Kjeldahl Nitrogen (mg/L) | N/A | 8 | Under 0.1 - 0.2 | N/A | Indicator of organic contamination or the potential for taste and odour problems. |
| Tritium (bg/L) | 7000 | 0 | N/A | N/A | A form of hydrogen |
| Zinc (mg/L) | 5 | 8 | Under 0.005 - 0.045 | No | An inorganic constituent that may cause tastes. |

Table 14 – Raw Water Testing

(Analyzed by In House Laboratory)

| Parameter | MAC | Number of Samples | Average Results | MAC Exceedance (Yes or No) | Parameter Description |
|-------------------------------|-----|-------------------|-----------------|----------------------------|---|
| Alkalinity (mg/L) | N/A | 46 | 89 | N/A | A measure of the resistance of the water to the effects of acids. Expressed as calcium carbonate. |
| Hardness (mg/L) | N/A | 38 | 111 | N/A | Naturally occurring from dissolved calcium and magnesium. |
| pH | N/A | 364 | 7.81 | N/A | An indicator of the acidity of water |
| Temperature (Degrees Celsius) | N/A | 365 | 13.03 | N/A | Intensity of heat present in a substance or object |

Table 15 – Treated Water Testing

(Analyzed by In House Laboratory)

| Parameter | MAC | Number of Samples | Average Results | MAC Exceedance (Yes or No) | Parameter Description |
|-------------------|--------|-------------------|-----------------|----------------------------|---|
| Alkalinity (mg/L) | N/A | 44 | 86 | N/A | A measure of the resistance of the water to the effects of acids. Expressed as calcium carbonate. |
| Aluminum (mg/L) | 0.1 OG | 318 | 0.06 | N/A | May be naturally present or a residual from the coagulation process. |

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| Parameter | MAC | Number of Samples | Average Results | MAC Exceedance (Yes or No) | Parameter Description |
|------------------|--------------|--------------------------|------------------------|-----------------------------------|---|
| Hardness (mg/L) | 100 OG | 37 | 113 | N/A | Naturally occurring from dissolved calcium and magnesium. |
| pH | 6.5 - 8.5 OG | 362 | 7.621 | N/A | An indicator of the acidity of water. |
| Temperature (°C) | N/A | 364 | 11.3 | N/A | Intensity of heat present in a substance or object |