

# O. Reg. 170 SECTION 11 ANNUAL REPORT

## Part III Form 2

### Section 11. ANNUAL REPORT Amended 09 April 2007.

This report has been amended to include an adverse reports that occurred on the 27 June 2007 and 16 November 2007, to note in the plant description that the chemical used for pH adjustment was switched from soda ash to sodium hydroxide in 2007, to reflect changes in the descriptions of equipment at the Candore pumping station and CFB reservoir/pump house and also to include listing major work done to replace 200 meters of 100 mm water main on Lakeshore Dr. between Mowatt Rd. and Thelma Rd. with 400 mm water main.

<b>Drinking-Water System Number:</b>	220000460
<b>Drinking-Water System Name:</b>	North Bay WTP
<b>Drinking-Water System Owner:</b>	City of North Bay
<b>Drinking-Water System Category:</b>	Large Municipal Residential
<b>Period being reported:</b>	January 01, 2007 to December 31, 2007

<p><b><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></b></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [<input checked="" type="checkbox"/>] No [ ]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [<input checked="" type="checkbox"/>] No [ ]</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">                 The Corporation of the City of North Bay                  P.O. Box 360                  200 McIntyre Street East                  North Bay, Ontario                  P1B 8H8             </div>	<p><b><u>Complete for all other Categories.</u></b></p> <p>Number of Designated Facilities served:  <input style="width: 100px; height: 20px;" type="text"/></p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve?                  Yes [ ] No [ ]</p> <p>Number of Interested Authorities you report to: <input style="width: 100px; height: 20px;" type="text"/></p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?                  Yes [ ] No [ ]</p>
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**Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report**

List all Drinking-Water Systems, which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
NA	

**Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?**

Yes  No

**Indicate how you notified system users that your annual report is available, and is free of charge.**

- Public access/notice via the web**  
 **Public access/notice via Government Office**  
 **Public access/notice via a newspaper**  
 **Public access/notice via Public Request**  
 **Public access/notice via a Public Library**  
 **Public access/notice via other method** [Noted on Utility billing.](#)

**Describe your Drinking-Water System**

**The North Bay Water Treatment Plant is a pumping station which partially treats water from Trout Lake which is part of the Mattawa River watershed. It was originally placed in service in 1929. The process consists of pH adjustment (Sodium Carbonate/Sodium Hydroxide), fluoridation Hydrofloursilicic Acid) and disinfection (Sodium Hypochlorite). Sodium Carbonate (Soda Ash) was used for pH adjustment until 07 Jan 2007 and then a transition over to using Sodium Hydroxide was made as of 22 Feb 2007.**

**The chemical treatment facilities are housed in a separate building completed in 1984.**

**The Permit to Take Water permits consumption up to 79,500 cubic meters per day. The North Bay Water Treatment Plant serves a population of approximately 56,000. There is a 12 kW standby diesel gen set at the plant to power emergency lighting and the chemical feed pumps. There is also a 1000 kW portable gen set with a manual switch over to provide partial standby power to the facility during power outages.**

**The intake structure is a 1200 mm diameter series 45 polyethylene pipe, with the capacity of 80,000 m<sup>3</sup>/day, which extends approximately 300 meters into Delaney Bay of Trout Lake. The intake was constructed in 1973 and includes an intake crib in approximately 21.5 meters of water at low water level. The intake has a 90 degree elbow terminating with fiber reinforced plastic (FRP) cage. At the shore the polyethylene pipe connects to a concrete pressure pipe which runs to an intake chamber and then a junction chamber. The intake then discharges into a 1.8 m by 1.35 m high reinforced concrete channel to the screen area located inside the pumping station. The North Bay WTP is also equipped with another intake pipe and structure described as follows: a 900 mm iron intake**

(not in service) extending 122 m into Delaney Bay of Trout Lake at a depth of 7.6 meters meters off the lake bottom with a capacity of 50,000 m<sup>3</sup>/day.

Raw water is fed through the WTP without the aid of a low lift pumping station. Raw water is chlorinated at the intake structure. Water then enters the plant and passes through two stainless steel 6 mm mesh FRP framed screens in series followed immediately by the fluoride application point. The sodium hydroxide addition point for pH adjustment is also made at the screen well. The plant is also equipped with a 100 m<sup>3</sup> wet well and four electrically driven high lift pumps, operating at the rated head of 83.8 m, with a firm capacity of 79,500 m<sup>3</sup>/d (with the largest pump - pump #3- out of service). The suction connections for each high lift pump are connected directly to the wet well. The water is also disinfected with the aid of ultraviolet disinfection units, located at the discharge of each high lift pump before being directed into the distribution system.

The treated water is pumped to the distribution system, which incorporates the following storage and pumping facilities:

The Canadian Forces Base (CFB) Reservoir and Re-chlorination Facility is an 1820 m<sup>3</sup> capacity reservoir equipped with a sodium hypochlorite re-chlorination system. The facility is also comprised of an on-line, continuous water quality analyzer for free chlorine and a standby gen set added in 2007 to provide emergency power during power outages.

The Birches Road Standpipe and Re-chlorination Station is an 11,775 m<sup>3</sup> capacity steel un-baffled treated water standpipe equipped with a sodium hypochlorite re-chlorination system. The facility is also comprised of an on-line, continuous water quality analyzers for free chlorine and turbidity, a fixed 7.5 kW, 120/240 Volt, single phase, diesel powered gen set to power the standpipe systems and communications during prolonged power outages.

The Judge Avenue Valve Chamber and Re-chlorination Station is equipped with a sodium hypochlorite re-chlorination system. The facility is also comprised of an on-line, continuous water quality analyzers for free chlorine and turbidity, a fixed 7.5 kW, 120/240 Volt, single phase, diesel powered gen set to power the re-chlorination and SCADA communications during prolonged power outages.

The Ellendale Reservoir (also known as the High Lift Pumping Station) is a double cell 18,200 m<sup>3</sup> capacity reservoir equipped with a sodium hypochlorite re-chlorination system. The facility is also has on-line continuous water quality analyzers for free chlorine and turbidity and a standby gen set to operate the entire facility during power outages.

The Canadore Pumping Station is a facility equipped with high lift pumps and pressurized cushion tanks maintain to pressure in a pressurized zone of the distribution system servicing Canadore College and Nipissing University. There is an on-line continuous water quality analyzer to monitor free chlorine residual and a standby gen set to provide emergency power during power outages.

Although the North Bay WTP draws water from a surface water source and currently only provides disinfection with Cl<sub>2</sub> and UV, the owner has been granted regulatory relief to install chemically assisted filtration, or equivalent. Subject to Section 9.1 of the C of A, the owner is not required to comply with the provisions listed in Schedule 1 of Ontario Regulation 170/03 until March 31, 2008. Construction of a new membrane filtration water plant is underway.

**List all water treatment chemicals used over this reporting period**

Sodium Carbonate  
 Sodium Hydroxide  
 Sodium Hypochlorite  
 Hydrofluosilicic Acid

**Were any significant expenses incurred to?**

- Install required equipment
- Repair required equipment
- Replace required equipment

## Describe

- Major overhaul of all 4 UV reactor units at Trout Lake Pumping Station
- The UPS for No.3 UV reactor controller at Trout Lake Pumping Station was replaced
- Trout Lake Pumping Station No.3 high lift pump was overhauled
- The sodium hypochlorite feed pumps at TLPS were both overhauled
- Secondary containment and insulated walls were constructed around the sodium hydroxide tank at Trout Lake Pumping Station
- The on-line fluoride analyzer at TLPS was overhauled
- The MCC panel at TLPS was inspected and cleaned at TLPS and the main breakers were overhauled, Control fusing upgrades and the overloads replaced
- The sump pumps in the dry pump well at TLPS were replaced
- Computer trending screen enhancements and additional alarming were installed at TLPS
- The high speed modems and UPS batteries for the SCADA computers at TLPS were replaced
- New larger capacity emergency generator @ Canadore Booster Pumping Station
- New variable frequency drive installed on P#2 pump at Canadore Pumping Station
- New pressure modulating valve and controls installed at Canadore Pumping Station
- New battery chargers installed on the Canadore PS fire pump battery banks
- New pressure modulating valve and controls installed at CFB Pumping Station
- Installed new discharge valve on diesel fire pump @ CFB Booster Station
- Replaced controls and installed new discharge valve for diesel fire pump @ Canadore PS
- Installed generator and diesel pump salvaged from Canadore PS at CFB Booster Station
- Automatic Rotork Valve for No.3 at Ellendale Reservoir Pumping Station replaced
- Major overhaul of No. 2 pump including pump body replacement at Ellendale PS
- A VFD was installed at Ellendale Pumping Station to allow control pressure while CFB reservoir is isolated from the grid

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- **Two new valves chambers (Kenrita) were installed to control pressure on airport hill**
- **Installed a pressure regulating valve on the bypass @ the Judge Ave. Control Station**
- **Replacement of the water main on Fisher St. from 2<sup>nd</sup> Ave to Main St. (4 blocks)**
- **Replacement of the water main on Jane St. from Rock to Birchwood (3 blocks)**
- **Replacement of the water main on Algonquin Ave. from Copeland to Jane (1 block)**
- **Replacement of the water main on Oak from Foren to Algonquin (2 blocks)**
- **Replacement of 200 meters of 100 mm water main with 400 mm water main on Lakeshore Dr. from Mowatt towards Thelma**

**Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre**

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
22-Jan-2007	Virus removal	< 4	log	#3 pump/UV- failure #3 lamp on shut down of #3 pump. Giardia and crypto dropped below provincial regulations for more than 2 minutes. #3 reactor, #2 ballast replaced. #3 reactor pump back online. AWQI #69867	24-Jan-2007
26-Mar-2007	Turbidity	1.41	ntu	Turbidity caused by spring run-off. Disinfectant was increased to 1.5 mg/L free leaving plant. Bacti samples collected on March 27, 28 and 29, 2007. Please note that this issue and resolution is linked to AWQI #70647.	1-Apr-2007
28-Mar-2007	Turbidity	1.15	ntu	Disinfectant increased to 1.5 mg/L free. Bacti samples collected on March 27, 28 and 29, 2007. All samples came back good. Turbidity issue caused by spring run-off. AWQI # 70682 link AWQI #70647	1-Apr-2007
31-Mar-2007	Virus removal	< 4	log	Did not achieve total disinfection for giardia and crypto for 124 seconds. Giardia > 3.0 MJ/cm2 and crypto > 2.0 MJ/cm2. Replaced lamp #1 and quartz sleeve in reactor #4. Repair 01-Apr-2007. No faults on reactor up to 03-Apr-2007. AWQI # 70725	1-Apr-2007
20-May-2007	Fluoride	3.29	mg/L	Fluoride spiked during pump change over max 3.29 mg/L (over 1.5 mg/L for 2 min 41 sec). Reviewed trends, tested fluoride 0.62 mg/L. Trending shows short 2 min 41 sec spike in fluoride around the time a pump change over took place. I've reduced the dosage rate somewhat and all seems normal. I'm sure this was an instrumentation issue. AWQI # 71389	20-May-2007
22-May-2007	UV dosage	< 40	mj/cm2	#3 reactor tripped out on low dosage (below 40 mj/cm2) from 16:17:05 to 16:19:28 (2 min 23 sec). Switched to #2 reactor. Will have Trojan technician to check problem with #3 reactor. 23-May-2007 Trojan tech/electrician #3 reactor back online. AWQI # 71411	23-May-2007
22-May-2007	Fluoride	0.47	mg/L	Fluoride ABB instrument not calibrating properly causing alarms. 07:42 fluoride ABB 0.47 mg/L. 07:45 fluoride ABB finished calibration 4.0 mg/L alarmed. 07:57 fluoride ABB 0.65 mg/L. 08:24 fluoride ABB 0.58 mg/L - tested result 0.49 mg/L. 11:20 instrumentation checked out problem. Fluoride ABB system was flushed out and recalibrated. 12:04 fluoride ABB back online. AWQI # 71392	22-May-2007

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11-Jun-2007	Virus removal	< 4	log	Virus alarms exceed 2 minutes. TLPS tested #1 hypo pump failed; air locked. TLPS raw chlorine residual 0 mg/L. Treated chlorine lowest 0.20 mg/L. Switched back to #2 hypo pump immediately. 10:30:56 to 10:33:56 (3 minutes) virus alarm. Will leave #2 chlorine pump as duty until tubing is replaced/repared. AWQI # 71855	11-Jun-2007
23-Jun-2007	Chlorine			Loss of CT for virus removal due to chlorine pump failure. Spiked clearwells and intake with 12% sodium hypo. Treated cl2 0.33 mg/L at it's lowest raw. Plant back online at 09:15. Raw cl2 at 1.38 mg/L and treated at 1.9 mg/L. AWQI # 72132	23-Jun-2007
25-Jun-2007	Virus removal	< 4	log	Virus adverse 2 minutes 53 seconds. After confirming that #2 hypo pump diaphragm is damaged. Virus alarm from 10:06:03 to 10:08:56. Treated chlorine residual lowest point cl2F 0.30 mg/L. Ordered new diaphragm for #2 hypo pump. AWQI # 72150	3-Jul-2007
27-Jun-2007	Total Coliform	>200	cfu/100 ml	Adverse from main repair in the distribution system. Water mains flushed and re-sampled on June 28 <sup>th</sup> and 29 <sup>th</sup> . Re-sample results came back clear. AWQI # 72248	3-Jul-2007
15-Jul-2007	Turbidity	> 1.0	ntu	System was restored to surge which stopped distribution water from returning to WTP wells. Turbidity was below 1.0 ntu after 18 minutes of running pumps and no turbidity thereafter. Turbidity was below 1.0 ntu at 10:53 July-15-2007. AWQI # 72671	15-Jul-2007
30-Jul-2007	Virus removal	< 4	log	Log removal for virus was not met for 2 min 24 sec. Turned on carrier water for sodium hydroxide system. Lowest CL2F 0.13 mg/L. Sodium hydroxide back online. AWQI #73045	30-Jul-2007
12-13 Nov 2007	UV Dose	< 40	mj/cm2	#2 low dosage (below 40 mj/cm2) from 23:10:58 to 23:13:28 (2 min 22 sec) 12 Nov 07. #2 low dosage (below 40 mj/cm2) from 05:31:04 to 05:33:30(2 min 22 sec). 13 Nov 07 Unit #2 UV reactor was taken out of service until an inspection could be completed. 16 Nov 2007 unit inspected and new quartz sleeves and gaskets installed - reactor put back online. AWQI #76677	16-Nov-2007
16-Nov-2007	Loss of system pressure in Zone 2	< 25	psi	System pressure restored and water mains flushed. Bacti sampling completed on 16-17 Nov 2008 and results came back clear from both sets. AWQI # 76734	19-Nov-2007
2-Dec-2007	Turbidity	2.68	ntu	Treated turbidity analyzer not working properly. Tested treated turbidity analyzer. 02-Dec-2007 22:43 Analyzer 2.68 ntu / Measured 0.542 ntu 02-Dec-2007 23:00 flushed recalibrated analyzer 02-Dec-2007 23:36 Analyzer 2.67 ntu / Measured 0.486 ntu 03-Dec-2007 01:52 Analyzer 2.57 ntu / Measured 0.527 ntu 03-Dec-2007 14:00 New treated turbidity meter installed. AWQI #76940	3-Dec-2007

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20-Dec-2007	Chlorine UV Dose			UPS batteries were replaced & tested. This caused a fuse in our instrumentation panel to fail. We lost several meters & faults were created throughout our SCADA system. Raw chlorine residual was below 0.05 mg/L free. Most of the problems related to the system failure were systematically addressed & resolved by 17:50. Events included: 13:19 - low raw cl2 residual 5 min \ 13:40 low UV dose 5 min \ 14:02 low raw cl2 residual 6 min \ 14:30 low raw cl2 residual 7 min \ 15:26 low UV dose 4 min \ 15:42 low UV dose 4 min \ 15:56 low raw cl2 residual 8 min \ 16:28 low raw cl2 residual 3 min \ 17:06 low UV dose 4 min. Electrician replaced fuses affecting meters & instruments. Instrument Tech restarted "fix" program & SCADA. Electrician reset faulty wiper mechanism on #2 drive. UV dosage was manually set to 100% to ensure no fault over the weekend. All trends, disinfection graphs & excel reporter data is on hand & available. AWQI # 77167	20-Dec-2007
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### Microbiological testing done under section 8-2 during this reporting period.

	Number of Samples	Range of E.Coli Results (#-#)	Range of Total Coliform Results (#-#)	Number of Samples Back-ground Colony Counts	Range of Results Background Colony Counts (#-#)	Number of Samples HPC Counts	Range of Results HPC Counts (#-#)
<b>Raw</b>	54	0 - 17	0 - 200	54	2 - >200	NA	NA
<b>Treated</b>	54	0 - 0	0 - 0	54	0 - 2	54	0 - 4
<b>Distribution</b> Fixed Sites (reservoirs & rechlorination)	340	0 - 0	0 - 0	340	0 - >200	120	0 - >500
<b>Distribution</b> Random Sites	510	0 - 0	0 - 0	510	0 - 23	154	0 - 28

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

### POE Grab Samples

	Number of Grab Samples	Range of Results (min #)-(max #)
<b>Turbidity</b>	230	0.314- 1.546 NTU
<b>Chlorine</b>	249	1.1 - 1.6 mg/L
<b>Fluoride</b> (If the DWS provides fluoridation)	53	0.42 - 0.63 mg/L

*NOTE: For continuous monitors use 8760 as the number of samples.*

*NOTE: Record the unit of measure if it is not milligrams per litre.*

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## Distribution Grab Samples

	Number of Grab Samples	Range of Results (min #)-(max #)
Chlorine Fixed Sites	365	0.18 – 2.00 mg/L
Chlorine Random Sites	510	0.07 – 1.3 mg/L

*NOTE: For continuous monitors use 8760 as the number of samples.*

## POE On-line Continuous Analyzers

	Number of Grab Samples	Range of Results (min #)-(max #)
Turbidity	8760	0.3 – 2.7 NTU
Free Chlorine Residual	8760	1.1 – 1.6 mg/L
Fluoride (If the DWS provides fluoridation)	8760	0.3 – 0.73 mg/L

*NOTE: For continuous monitors use 8760 as the number of samples.*

Summary of additional testing and sampling carried out in accordance with the requirement of an approval or order.

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
NA				

Summary of Inorganic parameters tested during this reporting period or the most recent

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	28 Feb 07	<0.001	mg/L	
	04 Jul 07	<0.0005		
Arsenic	28 Feb 07	<0.001	mg/L	
	04 Jul 07	<0.001		
Barium	28 Feb 07	0.014	mg/L	
	04 Jul 07	0.014		
Boron	28 Feb 07	<0.010	mg/L	
	04 Jul 07	<0.011		
Cadmium	28 Feb 07	<0.0001	mg/L	
	04 Jul 07	<0.0001		



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<b>Chromium</b>	28 Feb 07	<0.005	mg/L	
	04 Jul 07	<0.005		
<b>Lead</b>	13 Feb 07	<0.9 to 4.2	mg/L	
	04 Jul 07	<0.0005	mg/L	
<b>Mercury</b>	28 Feb 07	<0.0001	mg/L	
<b>Selenium</b>	28 Feb 07	<0.002	mg/L	
<b>Sodium</b>	25 Jan 06	12	mg/L	
	04 Jul 07	13		
<b>Uranium</b>	28 Feb 07	<0.0002	mg/L	
	04 Jul 07	<0.0002		
<b>Fluoride</b>	25 Jan 06	0.7	mg/L	
<b>Nitrite</b>	13 Feb 07	<0.01	mg/L	
	17 May 07	<0.01	mg/L	
	15 Aug 07	<0.01	mg/L	
	<u>15 Nov 07</u>	<u>&lt;0.01</u>	<u>mg/L</u>	
	Average	0.06	mg/L	
<b>Nitrate</b>	13 Feb 07	0.1	mg/L	
	17 May 07	0.1	mg/L	
	15 Aug 07	0.2	mg/L	
	<u>15 Nov 07</u>	<u>&lt;0.1</u>	<u>mg/L</u>	
	Average		mg/L	

**Summary of Organic parameters sampled during this reporting period or the most recent**

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	28 Feb 07	<0.5	ug/L	
Aldicarb	28 Feb 07	<5	ug/L	DL > ½ MAC
Aldrin + Dieldrin	28 Feb 07	<0.012	ug/L	
Atrazine + N-dealkylated metabolites	28 Feb 07	<1	ug/L	
Azinphos-methyl ( <b>Guthion</b> )	28 Feb 07	<2	ug/L	
Bendiocarb	28 Feb 07	<2	ug/L	
Benzene	28 Feb 07	<0.1	ug/L	
Benzo(a)pyrene	28 Feb 07	<0.0090	ug/L	DL > ½ MAC
Bromoxynil	28 Feb 07	<0.5	ug/L	
Carbaryl	28 Feb 07	<5	ug/L	
Carbofuran	28 Feb 07	<5	ug/L	
Carbon Tetrachloride	28 Feb 07	<0.1	ug/L	
Chlordane (Total)	28 Feb 07	<0.012	ug/L	
Chlorpyrifos	28 Feb 07	<1	ug/L	
Cyanazine	28 Feb 07	<1	ug/L	
Diazinon	28 Feb 07	<1	ug/L	
Dicamba	28 Feb 07	<1	ug/L	
1,2-Dichlorobenzene	28 Feb 07	<0.2	ug/L	
1,4-Dichlorobenzene	28 Feb 07	<0.2	ug/L	
Dichlorodiphenyltrichloroethane (DDT) + metabolites	28 Feb 07	<0.024	ug/L	
1,2-Dichloroethane	28 Feb 07	<0.1	ug/L	
1,1-Dichloroethylene (vinylidene chloride)	28 Feb 07	<0.2	ug/L	

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Dichloromethane	28 Feb 07	<0.5	ug/L	
2-4 Dichlorophenol	28 Feb 07	<0.5	ug/L	
2,4-Dichlorophenoxy acetic acid (2,4-D)	28 Feb 07	<1	ug/L	
Diclofop-methyl	28 Feb 07	<0.9	ug/L	
Dimethoate	28 Feb 07	<2.5	ug/L	
Dinoseb	28 Feb 07	<1	ug/L	
Diquat	28 Feb 07	<7	ug/L	
Diuron	28 Feb 07	<10	ug/L	
Glyphosate	28 Feb 07	<10	ug/L	
Heptachlor + Heptachlor Epoxide	28 Feb 07	<0.012	ug/L	
Lindane (Total)	28 Feb 07	<0.006	ug/L	
Malathion	28 Feb 07	<5	ug/L	
Methoxychlor	28 Feb 07	<0.024	ug/L	
Metolachlor	28 Feb 07	<0.5	ug/L	
Metribuzin	28 Feb 07	<5	ug/L	
Monochlorobenzene	28 Feb 07	<0.1	ug/L	
Paraquat	28 Feb 07	<1	ug/L	
Parathion	28 Feb 07	<1	ug/L	
Pentachlorophenol	28 Feb 07	<0.5	ug/L	
Phorate	28 Feb 07	<0.5	ug/L	
Picloram	28 Feb 07	<5	ug/L	
Polychlorinated Biphenyls(PCB)	28 Feb 07	<0.05	ug/L	
Prometryne	28 Feb 07	<0.25	ug/L	
Simazine	28 Feb 07	<1	ug/L	
THM	13 Feb 07	63.4	ug/L	
(NOTE: show latest annual average)	17 May 07	63.4	ug/L	
* not included in average	15 Aug 07	71.1	ug/L	
(only the highest value for	<u>15 Nov 07</u>	<u>78.3</u>	<u>ug/L</u>	
each quarter is used for the average	Average	69.1	ug/L	
Temephos	28 Feb 07	<10	ug/L	
Terbufos	28 Feb 07	<0.7	ug/L	DL > ½ MAC
Tetrachloroethylene	28 Feb 07	<0.1	ug/L	
2,3,4,6-Tetrachlorophenol	28 Feb 07	<0.5	ug/L	
Triallate	28 Feb 07	<1	ug/L	
Trichloroethylene	28 Feb 07	<0.1	ug/L	
2,4,6-Trichlorophenol	28 Feb 07	<0.5	ug/L	
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	28 Feb 07	<1	ug/L	
Trifluralin	28 Feb 07	<1	ug/L	
Vinyl Chloride	28 Feb 07	<0.2	ug/L	

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Result Value	Unit of Measure	½ MAC VALUE	Date of Sample
Aldicarb	<5 lab detection level	ug/L	4.5 ug/L	28 Feb 07
Benzo(a)pyrene	<0.01 lab detection level	ug/L	0.005 ug/L	28 Feb 07
Tebufos	<0.7 lab detection level	ug/L	0.5 ug/L	28 Feb 07

**Note! In all three cases above the analysis result value was less than the lab detection limit. However the lab detection limit is above the  $\frac{1}{2}$  MAC value.**

## SUMMARY REPORTS FOR THE NORTH BAY WATER TREATMENT PLANT

### 2007 Report

This report is a summary of water quality information for the [North Bay Water Treatment Plant](#), published in accordance with Schedule 22 of Ontario's Drinking-Water Systems Regulation for the reporting period of [January 1, 2007 to December 31, 2007](#). This report is based on all information received within the stated reporting period and items that remained outstanding in the last reporting periods that have been carried forward.

The [North Bay Water Treatment Plant](#) is categorized as a Large Municipal Residential Drinking Water System.

This report was prepared by The Ontario Clean Water Agency on behalf of [The Corporation of the City of North Bay](#).

The following table lists the requirements that the system failed to meet and the measures taken to correct the failure:

Drinking Water Legislation	List the requirement(s) the system failed to meet	Specify the duration of the failure (i.e. date(s))	Describe the measures taken to correct the failure	Status (complete or outstanding)
Exceedance with C of A & the standards prescribed in O. Reg. 169/03 (ODWQS)	The following is a list of the adverse sampling results from the North Bay WTP & DS over 2007.		Adverse Sample Notifications were made to the MOE and Health Unit as required and corrective actions were taken by the operations staff.	<b>complete</b>
	UV Inactivation log removals not met for 2 minutes	22 Jan 07	#3 pump/UV failure #3 lamp on shut down of #3 pump. #3 reactor, #2 ballast replaced. #3 reactor pump back online. Adverse notification AWQI 69867	
	Treated Water Turbidity > 1.0 ntu for 15 minutes	26 Mar 2007	Turbidity caused by spring run-off. Disinfectant was increased to 1.5 mg/L free leaving plant. Bacti samples collected on March 27, 28 and 29, 2007. Adverse notification AWQI #70647.	
	Treated Water Turbidity > 1.0 ntu for 15 minutes	28 Mar 2007	Disinfectant increased to 1.5 mg/L free. Bacti samples collected on March 27, 28 and 29, 2007. All samples came back good. Turbidity issue caused by spring run-off. Adverse notification AWQI #70682	
	UV Inactivation log removals not met for 124 seconds	31 Mar 2007	Replaced lamp #1 and quartz sleeve in reactor #4. Repair 01-Apr-2007. No faults on reactor up to 03-Apr-2007. Adverse notification Adverse notification AWQI # 70725	
	Fluoride spiked during pump change over max 3.29 mg/L (over 1.5 mg/L for 2 min 41 sec).	20 May 2007	Reviewed trends, tested fluoride 0.62 mg/L. Trending shows a 2 min 41 sec spike in fluoride around the time a pump change over took place. Reduced the dosage rate. Suspect that this was an instrumentation issue. Adverse notification AWQI # 71389	

Drinking Water Legislation	List the requirement(s) the system failed to meet	Specify the duration of the failure (i.e. date(s))	Describe the measures taken to correct the failure	Status (complete or outstanding)
	<p>Fluoride ABB instrument not calibrating properly causing alarms.  07:42 fluoride ABB 0.47 mg/L.  07:45 fluoride ABB finished calibration 4.0 mg/L alarmed.  07:57 fluoride ABB 0.65 mg/L.  08:24 fluoride ABB 0.58 mg/L - tested result 0.49 mg/L. 11:20</p>	22 May 2007	<p>Instrumentation tech checked out problem. Fluoride ABB system was flushed out and recalibrated. 12:04 fluoride ABB back online.  Adverse notification AWQI 71392</p>	
	<p>UV Inactivation log removals not met for 2 min 23 sec (below 40 mj/cm2) from 16:17:05 to 16:19:28</p>	22 May 2007	<p>#3 reactor tripped out on low dosage. Switched to #2 reactor. Will have Trojan technician to check problem with #3 reactor. 23-May-2007 Trojan tech/electrician #3 reactor back online.  Adverse notification AWQI # 71411</p>	
	<p>Loss of CT for virus removal due to chlorine pump failure for 3 minutes (10:30:56 to 10:33:56) virus alarm TLPS tested #1 hypo pump failed; air locked. TLPS raw chlorine residual 0 mg/L. Treated chlorine lowest 0.20 mg/L.</p>	11 Jun 2007	<p>Switched to #2 hypo pump immediately. #2 chlorine pump selected as duty pump until defective tubing is replaced on #1 hypo pump.  Adverse notification AWQI # 71855</p>	
	<p>Loss of CT for virus removal due to chlorine pump failure.</p>	23 Jun 2007	<p>Spiked clearwells and intake with 12% sodium hypo. Treated Cl<sub>2</sub> 0.33 mg/L at it's lowest raw. Plant back online at 09:15. Raw cl<sub>2</sub> at 1.38 mg/L and treated at 1.9 mg/L  Adverse notification AWQI # 72132</p>	
	<p>Loss of CT for virus removal due to chlorine pump failure. Virus alarm from 10:06:03 to 10:08:56. Virus adverse 2 minutes 53 seconds.</p>	25 Jun 2007	<p>Switched to # 1 hypo pump after determining that #2 hypo pump diaphragm is damaged. Treated chlorine residual lowest point cl<sub>2</sub>F 0.30 mg/L. Ordered new diaphragm for #2 hypo pump.  Adverse notification AWQI # 72150</p>	
	<p>Treated Water Turbidity &gt; 1.0 ntu</p>	15 Jul 2007	<p>System was restored to surge which stopped distribution water from returning to WTP wells. Turbidity was below 1.0 ntu after 18 minutes of running pumps and no turbidity thereafter. Turbidity was below 1.0 ntu at 10:53 15 Jul 07.  Adverse notification AWQI #72631</p>	
	<p>CT Log removal for virus not met for 2 min 24 sec. (09:24 – 09:27)</p>	30 Jul 2007	<p>Turned on carrier water to start sodium hydroxide system which resulted in a dip in the chlorine residual. Lowest free Cl<sub>2</sub> 0.13 mg/L. Sodium hydroxide back online.</p>	

Drinking Water Legislation	List the requirement(s) the system failed to meet	Specify the duration of the failure (i.e. date(s))	Describe the measures taken to correct the failure	Status (complete or outstanding)
	<p>UV Inactivation log removals Not met. #2 reactor failing on low dosage (below 40 mJ/cm<sup>2</sup>) for (2 min 23 sec) 12 Nov 2007 from 23:10:58 to 23:13:28 and from 05:31:04 to 05:33:30 (2 min 26 sec) 13 Nov 2007</p> <p>Treated Water Turbidity &gt; 1.0 ntu Treated turbidity analyzer not working properly.</p> <p>UPS batteries were replaced &amp; tested at approx 10:30 hrs. This caused a fuse in our instrumentation panel to fail. We lost several meters &amp; faults were created throughout our SCADA system. Raw chlorine residual was below 0.05 mg/L free. Events included: 13:19 - low raw cl2 residual 5 min \ 13:40 low UV dose 5 min \ 14:02 low raw cl2 residual 6 min \ 14:30 low raw cl2 residual 7 min \ 15:26 low UV dose 4 min \ 15:42 low UV dose 4 min \ 15:56 low raw cl2 residual 8 min \ 16:28 low raw cl2 residual 3 min \ 17:06 low UV dose 4 min.</p>	<p>12-13 Nov 07</p> <p>02 Dec 2007</p> <p>20 Dec 2007</p>	<p>Adverse notification AWQI #73045 Switched UV reactors. #2 UV reactor unit taken out of service until inspection completed. UV reactor inspected. New sleeves and gaskets ordered to repair unit. AWQI # 76677</p> <p>Tested treated turbidity analyzer. 02-Dec-2007 22:43 Analyzer 2.68 ntu / Measured 0.542 ntu 02-Dec-2007 23:00 flushed recalibrated analyzer. 02-Dec-2007 23:36 Analyzer 2.67 ntu / Measured 0.486 ntu 03-Dec-2007 01:52 Analyzer 2.57 ntu / Measured 0.527 ntu 03-Dec-2007 14:00 New treated turbidity meter installed. Adverse notification AWQI #76940</p> <p>Most of the problems related to the system failure were systematically addressed &amp; resolved by 17:50. Electrician replaced fuses affecting meters &amp; instruments. Instrument Tech restarted "fix" program &amp; SCADA. Electrician reset faulty wiper mechanism on #2 drive. UV dosage was manually set to 100% to ensure no fault over the weekend. All trends, disinfection graphs &amp; excel reporter data is on hand &amp; available. Adverse notification AWQI #77167</p>	

A Ministry of the Environment Drinking Water System compliance inspection of the water treatment facility and water distribution system conducted 23-24 April 2007 did not identify any non-compliance with regulatory requirements.

Also no Provincial Officers Orders were issued for the water treatment facility or water distribution system in 2007.

The following information presents the Annual Record of Water Taking for the North Bay Water Treatment Plant.

[Raw Water](#)

In overview some [13,928,611](#) cubic meters of water were taken in [2007](#). The average taking was [38,161 cubic meters per day](#). The maximum taking per day was [54,684 cubic meters](#) in [August](#) and this was [70%](#) of the maximum 79,500 m<sup>3</sup>/day allowed under the Permit to Take Water.

The full year's data is tabulated on the following pages.

Report prepared by:

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Process & Compliance Technician  
OCWA - North Bay Hub

### North Bay WTP Treated Water Production

#### 2007 Treated Water

Jan	Q1	Mar	Apr	Q2	Jun	Jul	Q3	Sep	Oct	Q4	Dec
	Feb			May			Aug			Nov	

<b>Year To Date</b>
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#### Cubic Meters

<b>Month Tot.</b>	1135743	1041801	1151787	1088622	1245368	1326429	1295199	1359985	1144227	1074724	1040041	1024685	13928611
<b>Avg. Day</b>	36637	37207	37154	36287	40173	44214	41781	43870	38141	34669	34668	33054	38155
<b>Min Day</b>	32994	35304	32159	33964	34328	35947	35014	35583	34236	31536	32965	29523	29523
<b>Max Day</b>	40831	39947	40800	39396	49294	53196	54693	55684	48623	37425	42788	36334	55684
<b>Rated Capacity</b>	79500	79500	79500	79500	79500	79500	79500	79500	79500	79500	79500	79500	79500
<b>% Rated Capacity</b>	51	50	51	50	62	67	69	70	61	47	54	46	70

