



2008
Water Works Summary
Report

Large Municipal – Residential
Systems

v.1

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EXECUTIVE SUMMARY

The production and delivery of potable water in Ontario is regulated by the Ministry of Environment (MOE) under the **Safe Drinking Water Act, 2002, S.O. 2002, c. 32** (formerly the Ontario Water Resources Act). Regulated systems must meet the requirements of the **Safe Drinking Water Act, 2002, S.O. 2002, c. 32** and its regulations. Most notably: the Drinking Water Systems Regulation O.Reg. 170/03 sets out treatment and testing requirements for all categories of regulated water systems; O.Reg. 169/03 covers the Ontario Drinking Water Quality Standards; and O.Reg 128/04 covers the necessity for Certification of Drinking Water System Operators and Water Quality Analysts.

Since the implementation of the Act, several amendments to O. Reg. 170/03 have taken place. There are amendments requiring additional resources and costs, such as the Community Lead Testing initiative, while others streamlined legislative requirements to make the new regulations feasible for the vast majority of municipalities.

Among other obligations, O. Reg. 170/03 prescribes the need for all owners of licensed water works to produce an Annual Summary Report as indicated in Schedule 22. This Summary Report is filed annually for the previous calendar year and is required to contain the following information:

- List of requirements of the Safe Drinking Water Act (SDWA), the regulations, the owned systems compliance to the Act and Regulations;
- Any order from the MOE that the system failed to meet at any time during the period covered by the report, specify the duration of the failure and describe the measures taken to correct the situation;
- Summary of quantities and flow rates of the water supplied during the reporting period, including monthly averages, maximum daily flows, and daily instantaneous peak flow rates; and
- A comparison of the summary of quantities and flow to the rated capacities and flows approved in the systems certificates.

The City of Greater Sudbury is listed as the Owner of six municipal large, residential systems and four independent distribution systems. Eight of the ten systems have a Certificate of Approval issued by the MOE. Two distribution systems (Vermillion and Onaping) receive waters from “donor systems” which have the required Certificates of Approval that provides the authority to operate the systems. This

situation will be addressed through Municipal Licensing in the near future. The following reports are written to comply with the Condition that each of these facilities produces an Annual Summary Report as per schedule 22 of O. Reg. 170/03.

The City of Greater Sudbury is also supplied from other, privately owned, water providers, wherein water is purchased by the CGS and supplied to consumers through CGS owned distribution systems. Table 1 provides a summary of the various water systems throughout the City.

Table 1 - Overview of the City's Water Systems

Name	Owner	Type of Facility	Source of Water	Community Serviced
Wanapitei WTP and Distribution System	City of Greater Sudbury	Surface water Conventional treatment plant, Fluoridation, Corrosion control added	Wanapitei River	Sudbury, Coniston, Wanapitei, Markstay, Garson
David Street WTP and Distribution System	City of Greater Sudbury	Surface water Membrane Filtration and Ultraviolet irradiation, Fluoridation, Corrosion control added	Ramsey Lake	Sudbury
Capreol Wells and Distribution System	City of Greater Sudbury	Well with disinfection and Ultraviolet irradiation, Fluoridation, Corrosion control added	Groundwater	Capreol
Dowling Wells and Distribution System	City of Greater Sudbury	Well with disinfection and Ultraviolet irradiation, Fluoridation	Groundwater	Dowling
Garson Wells and Distribution System	City of Greater Sudbury	Well with disinfection, Fluoridation	Groundwater	Garson

Bleazard Valley Wells and Distribution System	City of Greater Sudbury	Well with disinfection and Ultraviolet irradiation, Fluoridation	Groundwater	Valley East, Azilda, Chelmsford
Levack Well Supply	Vale Inco	Wells with disinfection	Recharged groundwater	Levack
Levack Distribution System	City of Greater Sudbury	Fluoridation Station and Distribution System	Levack Well Supply	Levack
Falconbridge Water Works	Xstrata	Well with disinfection, Corrosion control added	Groundwater	Falconbridge
Falconbridge Distribution System	City of Greater Sudbury	Fluoridation Station and Distribution System	Falconbridge Water Works	Falconbridge
Onaping Potable Water Supply	Xstrata	Well with disinfection, Fluoridation	Groundwater	Onaping
Onaping Distribution System	City of Greater Sudbury	Distribution System	Onaping Potable Water Supply	Onaping
Vermillion River WTP	Vale Inco	Surface water conventional treatment plant, Fluoridation	River	Lively, Naughton, Whitefish, Copper Cliff, Walden Industrial Park
Vermillion Distribution System	City of Greater Sudbury	Distribution System	Vermillion River WTP	Lively, Naughton, Whitefish, Copper Cliff, Walden Industrial Park

Due to the significant impact of the new Drinking Water Protection Regulation and continuing Source Water Protection legislation, virtually all of the City's water works have had to undergo some level of upgrading. It should not be assumed that these upgrades are the result of any detected incidents of poor water quality. The upgrades at the City water works are necessary to reduce the risk of potable water contamination as deemed necessary by the MOE. The level of acceptable risk is stipulated through mandatory compliance with O. Reg. 170/03.

The City is well organized to manage their existing water works systems. Further, staff has been proactive to ensure all necessary measures are taken to achieve compliance with the Regulations and the various Certificates of Approval.

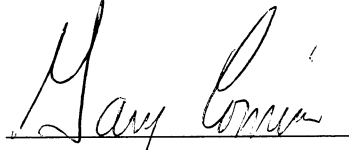
Certain upgrades are currently underway, or are being investigated at this time. In most cases, the studies have been completed and reports have been or are being reviewed by the MOE. The exact extent of upgrades varies along with individual deadline dates. It is important to understand that this is part of the required process of the new Regulations and the MOE's statutory Standard of Care to ensure all citizens have access and receive safe drinking water. The regulation stipulates that water works owners will continually monitor water works performance, and review levels of treatment versus current standards. The Ministry of the Environment is responsible for the enforcement of regulations and conducts regular, annual, announced and unannounced inspections of all of our facilities. MOE inspections "grading" has given the CGS water systems a 98% with most of the individual assessments being 100%. The public expects that responsible Owners will be diligent in their duty to care for public water supplies.

The Community Lead Testing Initiative was mandated by the MOE in 2007 and falls under O. Reg. 170/03, Sched. 15.1. Although there have been challenges in garnering enough volunteers for the program, the City is moving forward with the initiative. The City has conducted two periods of lead sampling to date. Results have been positive and demonstrated that lead is not a concern for the City of Greater Sudbury. To date 986 samples have been collected with only 12 private residences in excess of the standard. The initiative is scheduled to continue into 2009 and the City awaits further direction from the MOE on the continued requirements for sampling.

The water works owned and operated by the City have been managed with the standard of care expected by the public and as legislated by the government. All necessary upgrades are being planned and implemented in accordance with applicable standards.

Reviewed by:

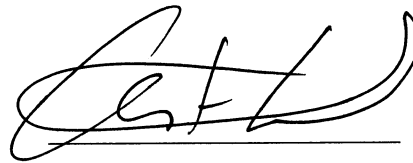
Date: MARCH 13 2009



Gary Comin
Water Supervisor III

Approved by:

Date: 16 Mar 09



for Nick Benkovich
Director, Water and Wastewater Services

SECTION 1 - PLANT SPECIFIC REVIEW

1. PLANT SPECIFIC REQUIREMENTS

This Section of the report provides details on measures taken by the City to ensure compliance with Terms and Conditions of the Certificates of Approvals, Acts, Regulations or any MOE orders the systems may have been under during the reporting period. This section of the report provides details on the specifics of the systems, any non-compliance issues along with actions taken by the City to rectify the situations, as well as flow data with comparison to allowable limits. This flow comparison is to allow for a basic overview of the systems performance and allows for review and planning of possible future expansions if required.

In this section, a more detailed description of the water works is also provided at the start of each subsection. The description is provided for reference purposes only, and to ensure that the compliance measures remain in context. All other non-compliance and actions taken are summarized in table format and appended to the particular plant section in this report. The Certificate of Approval that was valid at the time of this report is also listed in the particular plant section.

1.1 Wanapitei Water Treatment Plant and Distribution System

C of A No. 9252-7D4K2J
May 12, 2008

The Wanapitei WTP is a surface water plant, which draws water from the Wanapitei River. Proportionally, the plant services approximately 60% of the water for Sudbury; however, most of the water produced is delivered to New Sudbury, Coniston, Wahnapiatae, Markstay, and parts of downtown. Garson, west of Falconbridge Rd. and O'Neil Dr., is also supplied by this plant. The plant was constructed in the 1970's at the onset of Regional Government. Since the original construction, the plant has undergone upgrading to enhance treatment efficiency, increase production, and to reduce energy costs. The plant is currently undergoing further retrofits to ensure compliance with O. Reg. 170/03 and will be including ultraviolet irradiation to the process in 2009.

The water supply for the plant is the Wanapitei River. The raw water quality is reasonably reliable but is, however, subject to changes in water quality typical of most rivers. The watershed area for the Wanapitei River is vast with much in its natural state.

The river water quality varies depending on seasonal changes and local weather patterns. Some process parameters affected by these changes include:

- Temperature;
- Turbidity; and
- Colour.

The changing raw water quality requires careful observation by the water plant operators to ensure necessary process and chemical adjustments are made to effectively treat the water.

The Wanapitei WTP incorporates conventional technologies to treat the water. The raw water undergoes initial treatment with chlorine dioxide for taste and odour control and/or chlorine for pre-disinfection. Raw water is further subjected to chemical coagulation with alum to form a floc. The coagulated water passes through one of two settling tanks, referred to as reactivators or up-flow convertors, for the flocculation and sedimentation process. The water then passes through one of four, dual media, filter beds. The filtered water is treated with hydrated lime for pH /alkalinity adjustment; with chlorine to maintain disinfection; with fluoride to comply with Sudbury and District Health Unit requirements; and with polyphosphate to reduce corrosion in the distribution system. The plant is designed to be capable of achieving, at all times, at least 99.99% removal or inactivation of viruses by the time water enters the distribution system.

The distribution system incorporates a large diameter concrete pressure pipe to deliver water to Sudbury and Coniston. The communities are networked with an extensive distribution system including numerous booster stations. The system pressure is regulated by the water level in the Ellis Water Reservoir. Most of the pipes in the distribution system are less than 50 years old and much of the system is plastic pipe.

Water quality throughout the distribution system is monitored through regular sampling in accordance with O. Reg. 170/03.

Non-Compliance with Act, Regulations, Order or Approvals

Table 2 provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2008 reportable period.

Table 2 - Wanapitei Water Treatment Plant

Item	Non-Compliance	Measure Taken to Ensure Compliance
MOE Inspection Issues	Final detail and design for upgrades req'd to meet Cond. 8.2 of C of A not submitted by June 1, 2008 deadline.	Required documents submitted in compliance with Provincial Officer's Order. Continue to work towards completing improvements and upgrades.
MOE Orders	Provincial Officers Order #1-6VDA1.	As above.

2008 Adverse Water Quality Incident Report

210001111 Wanapitei Water Treatment Plant and Distribution System

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.

Table 3 - Adverse Water Quality Incidents

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2008/02/02				Pre-Chlorine Dioxide line broke, plant shutdown	2008/02/02
2008/11/24	Turbidity	2.00	NTU	Grab samples at Cl2 analyser and treated sample	2008/11/24

Annual Flow Summary

Table 4 provides a summary of the quantities of flow rates with a comparison to rated capacities as listed in the systems Certificate of Approval during the 2008 reportable period.

Table 4 - Annual Flow Summary (Sudbury Plants)

	Wanapitei Water Treatment Plant						David Street Water Treatment Plant					
	Total Flow m3	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	C of A Maximum Flow m3/d	% Capacity	Total Flow m3	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	C of A Maximum Flow m3/d	% Capacity
January	1,031,104	33,261	33,992.70	41,558.54	54,000	63	382,522	12,339	12,097.61	318.07	40,000	30
February	860,588	30,735	32,248.25	41,529.53	54,000	60	387,494	13,839	20,120.11	318.95	40,000	50
March	933,510	30,113	31,424.69	38,136.41	54,000	58	411,992	13,290	20,179.26	318.55	40,000	50
April	916,151	30,538	35,910.45	38,948.44	54,000	67	382,946	12,765	17,279.41	318.27	40,000	43
May	938,830	30,285	31,403.91	43,922.13	54,000	58	381,074	12,293	15,698.24	317.95	40,000	39
June	923,986	30,800	31,987.57	39,267.45	54,000	59	404,820	13,494	18,814.25	319.60	40,000	47
July	929,337	29,979	33,894.08	37,817.40	54,000	63	439,377	14,173	20,210.07	318.67	40,000	51
August	928,965	29,967	30,268.75	36,744.36	54,000	56	396,389	12,787	15,951.43	317.25	40,000	40
September	891,182	29,706	30,694.33	35,903.33	54,000	57	397,232	13,241	19,122.64	320.87	40,000	48
October	878,187	28,329	30,761.01	43,429.11	54,000	57	417,066	13,454	19,703.78	319.22	40,000	49
November	822,269	27,409	29,871.64	51,128.89	54,000	55	409,051	13,635	18,524.91	322.03	40,000	46
December	888,907	28,674	29,674.51	44,415.14	54,000	55	397,311	12,816	15,353.17	330.74	40,000	38
Total	10,943,016						4,807,274					

1.2 David Street Water Treatment Plant and Distribution System

C of A No. 2171-6VDLHP

Feb 2, 2007

The David St. WTP is a surface water plant, which draws water from Ramsey Lake. Proportionally, the plant services approximately 40% of Sudbury, however, most of the water produced at the David St. WTP is normally delivered to the south, west and downtown areas of Sudbury. The plant is over 100 years old and has undergone numerous upgrades to meet changing needs. The plant completed retrofits with Zenon membrane ultrafiltration technologies and ultraviolet irradiation in 2004 to ensure the treatment system meets the requirements in O. Reg. 170/03. The plant is designed to be capable of achieving, at all times, at least 99.99% removal or inactivation of viruses by the time water enters the distribution system.

The water supply for the David St. WTP is Ramsey Lake. Although this lake is seen as an excellent source of raw water, development around the lake has compromised the security of this water source. Although virtually all septic use has been removed from the watershed, further measures are being reviewed by City staff to maintain and improve the source water quality.

The City is planning to have the David St. plant remain an integral part of the water works system for many years. For this reason the City has made a significant financial investment in the upgrading of this plant. Maintenance on the Intake structure, replacement of two (2) compressors and a vacuum pump totaled approximately \$30,000.

The distribution system supplied by the David Street WTP includes parts of downtown Sudbury, the south and west ends of Sudbury. In addition, the Ellis Reservoir is part of the distribution network for Sudbury. As is common with many older distribution networks, the Sudbury pipe system is prone to line breaks, complaints of discoloured water, and difficulties maintaining adequate chlorine residual.

Water quality throughout the distribution system is monitored through regular sampling in accordance with O. Reg. 170/03.

Non-Compliance with Act, Regulations, Order or Approvals

Table 5 provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2008 reportable period.

Table 5 - David Street Water Treatment Plant

Item	Non-Compliance	Measure Taken to Ensure Compliance
MOE Inspection Issues	NONE	N/A
MOE Orders	NONE	N/A

2008 Adverse Water Quality Incident Report

220003537 David Street Water Treatment Plant and Distribution System

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.

Table 6 - Adverse Water Quality Incidents

Incident	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action
Date					Date
2008/02/02	UV Dosage	10.00	mJ/cm ²	Disinfectant Restored/Increased	2008/02/02
2008/04/08	Total Coliform (Distribution)	1.0	CFU/100ml	Resample/Retest	2008/04/11
2008/05/16	UV Dosage	7.70	mJ/cm ²	Disinfectant Restored/Increased	2008/06/16
2008/05/28	UV Dosage Below C of A	<10	mJ/cm ²	Disinfectant Restored/Increased	2008/05/28
2008/08/15	Total Coliform (Distribution)	1.0	CFU/100ml	Resample/Retest	2008/08/18
2008/10/31	Chlorine Residual (Distribution)	0.03	mg/L	Disinfectant Restored/Increased	2008/10/31

Annual Flow Summary

Table 7 provides a summary of the quantities of flow rates with a comparison to rated capacities as listed in the systems Certificate of Approval during the 2008 reporting period.

Table 7 - Annual Flow Summary

	Wanapitei Water Treatment Plant						David Street Water Treatment Plant					
	Total Flow m3	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	C of A Maximum Flow m3/d	% Capacity	Total Flow m3	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	C of A Maximum Flow m3/d	% Capacity
January	1,031,104	33,261	33,992.70	41,558.54	54,000	63	382,522	12,339	12,097.61	318.07	40,000	30
February	860,588	30,735	32,248.25	41,529.53	54,000	60	387,494	13,839	20,120.11	318.95	40,000	50
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June	923,986	30,800	31,987.57	39,267.45	54,000	59	404,820	13,494	18,814.25	319.60	40,000	47
July	929,337	29,979	33,894.08	37,817.40	54,000	63	439,377	14,173	20,210.07	318.67	40,000	51
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November	822,269	27,409	29,871.64	51,128.89	54,000	55	409,051	13,635	18,524.91	322.03	40,000	46
December	888,907	28,674	29,674.51	44,415.14	54,000	55	397,311	12,816	15,353.17	330.74	40,000	38
Total	10,943,016						4,807,274					

1.3 Capreol Wells and Distribution System

C of A No. 3829-6Z3M54

July 20, 2007

The Capreol Well System is a communal well system which draws water from two (2) wells to service the community of Capreol. The wells include:

- Well “J”; and
- Well “M”.

In the event that “J” and “M” wells fail, the Blezard Valley wells can supply water to the Capreol Boosters located onsite at “M” well. This system, started in 2004, was recently completed and commissioned in 2007, ensuring a continued water supply to Capreol. Completion costs to the pumphouse facility and Booster upgrades were approximately \$92,000.

The source of water for the Capreol system is groundwater wells. Well “J” and “M” draw from a common unconfined aquifer comprised mostly of sands and gravels. Although all of the wells have no record of bacteriological contamination, the unconfined nature of the aquifer required these wells to be characterized as potentially under the influence of surface water (potentially GUDI).

Well “J” and “M” are located within approximately 30 meters of each other on the east side of Greens Lake and west of M. R. No.84. Well “J” and “M” are housed in separate well houses and have vertical turbine well pumps. A common discharge from the wells undergoes treatment in the form of disinfection by gas chlorination, ultraviolet irradiation, and fluoridation, as mandated by the Sudbury and District Health Unit and corrosion control with a polyphosphate. Both facilities have automatic valving to waste raw water for a few minutes upon start-up of a well pump. Standby power with an automatic transfer switch for Wells “M” and “J” is available from a diesel generator located in Well “M” pumphouse. The Capreol Wells underwent required inspections and rehabilitation at a cost of approximately \$78,000.

The C of A for Capreol required further hydrogeological studies to be conducted in Capreol to determine if the wells were in fact under influence of surface water. The results of the study were necessary to determine if a filtration system would be required to ensure that the water quality remains in compliance with the ODWS at all times. The studies, referred to as GUDI studies, were completed for Wells “J” and “M” and submitted to the MOE on June 30, 2002. The response from a review by MOE found these wells to be potentially under influence of surface water and as such required upgrades to meet the Ontario

Drinking Water Standards disinfection and log removal criteria. Upgrades have been completed and the system achieves the required log removals and enhanced the disinfection process.

The distribution system in Capreol was developed in conjunction with the growth of the industrial development. Some of the pipe network is therefore, relatively old. The frost depths in Capreol extend to extreme depths during cold winters, which impose additional stresses on the integrity of the distribution system. A second line was added to the distribution system so now two 350 mm water mains run in parallel down MR- 84 to the Town of Capreol. The distribution system is comprised of PVC, cast iron and ductile piping and serves approximately 3700 residents.

Water quality throughout the distribution system is monitored through regular sampling in accordance with O. Reg. 170/03.

Non-Compliance with Act, Regulations, Order or Approvals

Table 8 provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2008 reportable period.

Table 8 - Capreol Wells and Distribution System

Item	Non-Compliance	Measure Taken to Ensure Compliance
MOE Inspection Issues	At the time of this writing the latest MOE inspection report had not been issued.	
MOE Orders	NONE	N/A

2008 Adverse Water Quality Incident Report

220003528 Capreol Wells and Distribution System

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

Table 9 - Adverse Water Quality Incidents

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2008/03/21	UV Dosage Below C of A	<40	mJ/cm ²	Disinfectant restored/increased	2008/03/21
2008/04/15	Microbiological samples not picked up			Microbiological sample not picked up but were taken	2008/04/23
2008/05/03	UV Dosage Below C of A	<40	mJ/cm ²	Disinfectant restored/increased	2008/05/12
2008/06/20	Fluoride	1.5	mg/L	Pump locked out from analyser, no further action	2008/06/20
2008/09/24	Chlorine Residual (Distribution)	0.16	mg/L	Flushing Mains/Pipes	2008/09/30

Annual Flow Summary

Table 10 provides a summary of the quantities of flow rates with a comparison to rated capacities as listed in the systems Certificate of Approval during the 2008 reportable period.

Table 10 - Annual Flow Summary (Capreol Wells)

	"J" Well						"M" Well					
	Total Flow m3	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	C of A Maximum Flow m3/d	% Capacity	Total Flow m3	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	C of A Maximum Flow m3/d	% Capacity
January	723	23	255.37	37.54	3,273	8	62,916	2,030	2,135.02	26.98	3,927	54
February	733	26	376.67	38.37	3,273	12	58,810	2,100	3,101.24	26.15	3,927	79
March	36,418	1,175	2,471.75	32.28	3,273	76	29,371	947	2,027.15	26.63	3,927	52
April	0	0	0.00	0.00	3,273	0	6,485	216	784.35	34.38	3,927	20
May	68,048	2,195	2,518.22	32.28	3,273	77	2,352	76	1,052.81	50.00	3,927	27
June	36,673	1,222	2,481.81	31.82	3,273	76	33,768	1,126	2,662.62	50.00	3,927	68
July	33,393	1,077	2,475.95	32.88	3,273	76	34,420	1,110	2,604.67	37.02	3,927	66
August	19,890	642	1,793.28	29.20	3,273	55	26,681	861	1,880.50	37.16	3,927	48
September	29,956	999	1,724.54	47.29	3,273	53	18,765	626	1,967.13	49.51	3,927	50
October	14,441	466	1,913.09	29.63	3,273	58	2,535	82	1,083.84	49.75	3,927	28
November	31,233	1,041	2,043.95	37.09	3,273	62	18,940	631	2,012.49	33.92	3,927	51
December	21,871	706	1,809.27	32.63	3,273	55	31,165	1,005	2,434.85	50.00	3,927	62
Total	293,379						326,208					

1.4 Dowling Wells and Distribution System

C of A No. 9374-6RLP45

July 17, 2006

The Dowling water works is a communal groundwater system, which supplies water to the community of Dowling. The water works includes two wells with well pumphouses, a distribution network of in-ground piping and an elevated water storage tank. The entire water system was developed with subsidy from the MOE in the 1970's. The ownership and operation of the water works was transferred to the Regional Municipality of Sudbury and it is now owned and operated by the City of Greater Sudbury.

The Riverside well and pumphouse includes a vertical turbine supply pump, disinfection with gas chlorine, ultraviolet irradiation along with fluoride injection as mandated by the Sudbury and District Health Unit. The Lionel well and pumphouse has similar facilities plus a diesel generator for standby power. Both facilities have automatic valving to waste raw water for a few minutes upon start-up of a well pump. Required inspections and rehabilitation of the wells amounted to approximately \$100,000.

The water supply source for the Dowling wells is an unconfined aquifer of sand and gravel deposits located within the Onaping river watershed. Due to the unconfined nature of the soils and the proximity to the river, the MOE has characterized the water source as potentially under the direct influence of surface water (potentially GUDI).

Studies were conducted in 2002 with the resulting submission of a GUDI study on July 1, 2002. This study was reviewed by the MOE and as a result, both wells were deemed to be GUDI and as such, additional treatment and disinfection would be required. The prior recommendations of the consultant included that, while the wells have met the MOE criteria for "potentially under the influence of surface water", adequate natural filtration of the water exists. Based on the conclusions by the MOE, the well systems have had ultraviolet irradiation added to enhance disinfection to comply with the treatment requirements of the ODWS.

The distribution network in Dowling has been relatively reliable and is not exposed to as severe frost depths as other areas of the City. Further, the elevated water storage provides a measure of security to the water system in the event of power interruptions and watermain breaks.

Water quality throughout the distribution system is monitored through regular sampling in accordance with O. Reg. 170/03.

Non-Compliance with Act, Regulations, Order or Approvals

Table 11 provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2008 reportable period.

Table 11 - Dowling Wells and Distribution System

Item	Non-Compliance	Measure Taken to Ensure Compliance
MOE Inspection Issues	NONE	N/A
MOE Orders	NONE	N/A

2008 Adverse Water Quality Incident Report

210001665 Dowling Wells and Distribution System

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.

Table 12 - Adverse Water Quality Incidents

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2008/03/02	UV Dosage Below C of A	<40	mJ/cm ²	Resample/Re-test	2008/03/04
2008/04/15	Microbiological samples not picked up			Microbiological sample not picked up but were taken	2008/04/23
2008/06/09	Chlorine Residual	0.16	mg/L	Disinfectant restored/increased	2008/06/09
2008/08/20	Total Coliform (Distribution)	2.0	CFU/100ml	Resample/Retest	2008/08/22
2008/10/29	Antimony	7.70	ug/L	Resample/Retest	2008/11/19

Annual Flow Summary

Table 13 provides a summary of the quantities of flow rates with a comparison to rated capacities as listed in the systems Certificate of Approval during the 2008 reportable period.

Table 13 - Flow Summary (Dowling Wells)

	Lionel Well						Riverside Well					
	Total Flow m3	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	C of A Maximum Flow m3/d	% Capacity	Total Flow m3	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	C of A Maximum Flow m3/d	% Capacity
January	5,321	172	742.95	31.97	3,600	21	7,342	237	759.03	34.90	3,600	21
February	4,466	160	694.24	31.70	3,600	19	7,468	267	754.47	33.47	3,600	21
March	7,604	245	906.74	31.60	3,600	25	4,632	149	733.07	33.00	3,600	20
April	4,940	165	746.66	32.58	3,600	21	6,485	216	784.35	34.38	3,600	22
May	3,440	111	768.08	31.88	3,600	21	8,747	282	758.35	35.30	3,600	21
June	5,992	200	727.25	32.08	3,600	20	7,569	252	760.77	37.01	3,600	21
July	4,357	141	758.80	31.48	3,600	21	8,647	279	741.01	35.00	3,600	21
August	5,152	166	709.69	31.48	3,600	20	6,739	217	741.35	32.42	3,600	21
September	4,251	142	688.44	31.01	3,600	19	7,789	260	782.16	33.16	3,600	22
October	6,038	195	791.85	31.19	3,600	22	5,595	180	729.19	33.53	3,600	20
November	9,762	325	824.62	37.78	3,600	23	1,495	50	715.64	46.13	3,600	20
December	11,983	387	754.06	26.16	3,600	21	150	5	108.46	45.83	3,600	3
Total	73,306						72,658					

1.5 Garson Wells and Distribution System

C of A No. 2733-6HLNSX Garson Wells No. 1 & 3)
November 23rd, 2005

C of A No. 8263-6LNM2C (INCO Garson Well)
April 24, 2006

The Garson water works is a communal groundwater system consisting of three wells, and servicing the community of Garson. The three wells are called:

- INCO Well No.1;
- Garson Well No.1; and
- Garson Well No.3.

INCO Well No.1 is now owned by the City of Greater Sudbury. Vale Inco transferred the ownership of the well to the City early in 2005. The well is situated within a pumphouse on the east side of Falconbridge Highway at Spruce Street. The system includes a vertical turbine well pump, disinfection with sodium hypochlorite and fluoride injection as mandated by the Sudbury and District Health Unit. There is no standby power at INCO Well No.1. The City of Greater Sudbury operated the well pumphouse on behalf of Vale Inco and now, as the sole owner/operator, the water is directly connected to the public distribution network. Garson INCO Well No. 1 underwent necessary upgrades, including the installation of a new variable frequency drive pump, at a cost of approximately \$80,000.

The other two wells in Garson, No. 1 and 3, are situated on the south side of Falconbridge Road at Orell Street. The two wells are in close proximity to each other but are housed in separate buildings, both of which contain the vertical turbine well pumps. The discharges from the well pumps enter a common building which houses the disinfection and fluoride injection equipment. Preliminary design for the replacement of the backup generator and facility has been completed. Required inspections and rehabilitation of Garson Well No. 3 totaled approximately \$50,000.

Prior to the passing of O. Reg. 459/00, the Garson Well System delivered non-chlorinated water to the community of Garson. In the fall of 2000 an upgrade to the system was completed to add chlorine disinfection. The disinfection system was designed in accordance with current MOE Standard B13-3. The disinfection at each well provides 15 minutes of detention/contact time with due consideration for baffling conditions.

The well supply historically provided very good quality water with no record of bacteriological contamination. During preparation of the First Engineers' Report, in March 2001, a hydrogeological assessment was made of each of the wells. It was concluded that it is unlikely that any of the wells are under the direct influence of surface water. The raw water was therefore found to be in general conformance with the ODWS.

Notwithstanding the historical good water quality, the aquifer used in the Garson well supply has a recharge area which includes the developed area of Garson. The hydrogeologists noted potential sources of contamination of the water supply that required further study and a plan to provide long-term protection of the groundwater sources. The Source Water Protection Committee has since been formed and the City awaits direction from the Committee.

The community of Garson extends from Skead Road at the north to Garson-Coniston Road at the south. The pipe network is connected to the water supply from Sudbury at the intersection of Falconbridge Road and O'Neil Drive West. It should be noted that the community is serviced from the Sudbury Distribution system West of Penman Avenue. In the event that all of the three wells were to fail, the Garson system is connected to the Sudbury Distribution System by way of a pressure valve and would have water supplied from Sudbury. The pipe network is a combination of new and older pipes and frost penetration can be an issue in Garson.

Water quality throughout the distribution system is monitored through regular sampling in accordance with O. Reg. 170/03.

Non-Compliance with Act, Regulations, Order or Approvals

Table 14 provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2008 reportable period.

Table 14 - Garson Wells and Distribution System

Item	Non-Compliance	Measure Taken to Ensure Compliance
MOE Inspection Issues	1. Measures not in place to protect the water source as per the C of A. 2. Chlorine residuals less than 0.05 mg/l four (4) times in the distribution.	1. Letter sent to remove this requirement from C of A . 2. Problems with distribution online analyzer corrected.
MOE Orders	NONE	N/A

2008 Adverse Water Quality Incident Report

220003485 Garson Wells and Distribution System

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.

Table 15 - Adverse Water Quality Incidents

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2008/10/23	Distribution system pressure	12.60	psi	Watermain break valved off and repaired	2008/10/23

Annual Flow Summary

Table 16 provides a summary of the quantities of flow rates with a comparison to rated capacities as listed in the systems Certificate of Approval during the 2008 reportable period.

Table 16 - Flow Summary (Garson Wells)

	Orell No. 1 Well						Orell No. 3 Well					
	Total Flow m3	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	C of A Maximum Flow m3/d	% Capacity	Total Flow m3	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	C of A Maximum Flow m3/d	% Capacity
January	9,913	320	731.72	15.00	1,572	47	21,121	681	1,464.06	33.07	3,274	45
February	9,255	331	455.39	15.24	1,572	29	9,061	324	1,338.39	32.10	3,274	41
March	5,582	180	451.70	15.02	1,572	29	24,320	785	1,620.22	34.16	3,274	49
April	0	0	0.00	0.00	1,572	0	25,545	852	1,484.01	32.74	3,274	45
May	3,937	127	492.51	16.27	1,572	31	14,881	480	1,408.66	31.94	3,274	43
June	6,603	220	437.61	16.54	1,572	28	14,062	469	1,489.93	33.42	3,274	46
July	6,549	211	344.06	14.89	1,572	22	21,894	706	1,326.62	33.45	3,274	41
August	6,133	198	290.97	14.80	1,572	19	20,559	663	1,078.51	33.41	3,274	33
September	5,290	176	303.08	15.10	1,572	19	22,543	751	1,298.64	35.00	3,274	40
October	2,701	87	287.28	16.10	1,572	18	9,943	321	1,373.65	35.00	3,274	42
November	5,660	189	468.16	15.00	1,572	30	18,190	606	1,276.73	31.53	3,274	39
December	5,370	173	384.62	14.65	1,572	24	19,690	635	1,197.83	31.35	3,274	37
Total	66,993						221,809					

INCO Garson Well						
	Total Flow m3	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	C of A Maximum Flow m3/d	% Capacity
January	12,537	404	1,479.71	29.97	2,981	50
February	30,363	1,084	1,427.42	26.79	2,981	48
March	15,413	497	1,184.77	29.97	2,981	40
April	15,313	510	1,627.53	30.00	2,981	55
May	27,907	900	1,705.10	30.00	2,981	57
June	24,781	826	1,414.93	30.00	2,981	47
July	17,254	557	1,241.01	32.86	2,981	42
August	17,875	577	1,289.38	31.29	2,981	43
September	17,711	590	1,673.19	34.31	2,981	56
October	35,096	1,132	1,731.13	39.95	2,981	58
November	19,486	650	1,222.52	31.41	2,981	41
December	20,601	665	111.66	31.27	2,981	4
Total	254,337					

1.6 Blezard Valley Wells and Distribution

C of A No. 4815-7A4MQK

January 30, 2008

The Blezard Valley Wells system is a multi-well groundwater system servicing the communities of Hanmer, Blezard Valley, Val Caron, McCrea Heights, Azilda and Chelmsford. Nine groundwater wells are situated throughout the Valley and each are located in well pumphouses. The communities are interconnected with distribution piping and three water storage tanks located in each of Val Caron, Azilda and Chelmsford.

The water works were originally constructed by the MOE in the 1970's then transferred to the Regional Municipality of Sudbury. Recently the ownership was transferred to the City of Greater Sudbury. All upgrades from the original MOE system were constructed by the City.

Each well pumphouse contains a vertical turbine well pump, gas chlorine disinfection equipment, and fluoride injection equipment as mandated by the Sudbury and District Health Unit. Some of the well pumphouses incorporate standby diesel generators, summarized as follows:

- Well A – Deschene;
- Well B – Kenneth;
- Well C – Phillipe;
- Well D – Frost;
- Well E - Notre Dame; and
- Well I – I Well.

The water supply source is a common groundwater aquifer characterized as a shallow sand and gravel aquifer. This well field extends approximately 7.5 km (west to east) from Val Therese to Hanmer. A preliminary hydrology study performed during the preparation of the First Engineers' Report classified all of the wells as not under the direct influence of surface water. Due to the shallow nature of the aquifer and the lack of a confining clay layer the MOE requested further study.

The GUDI study was submitted in August of 2002. An amended C of A was received on February 23, 2003. The amended C of A acknowledged the opinion of the hydrogeology study, which states that the

wells are not GUDI. As such, no additional filtration is required and the wells may supply water provided they meet MOE Procedures B13-3.

All of the wells in the Valley system did not meet chemical disinfection CT (Concentration (mg/L) x Time (minutes)) requirements except Well "F", Linden. Therefore, all the wells have been upgraded to incorporate ultraviolet irradiation to deal with CT issues. This project was completed in 2007 costing approximately \$30,000. Required chlorination equipment upgrades were completed at several well sites at a cost of approximately \$310,000.

The distribution system in the Valley is very extensive and contains many areas with dead-ends. System pressure is regulated by the level of the three reservoirs. During the reporting period the City operated the distribution system with good control of the chlorine residuals. This is due in part to the age of the distribution network, and the good source of raw water quality.

It should be noted that the Valley well system is a relatively shallow aquifer and the community has developed extensively around the wells. Some of the wells are located immediately adjacent to residential homes, commercial establishments and major arterial roadways. The water quality is beginning to show the effects of urban storm drainage. Further, existing zoning by-laws appear inadequate to protect the wells from further development within the well capture zones. For these reasons, options are being considered to preserve the quality of the water over the long-term. Hydrogeological reports are being completed. Preliminary test sites to add additional wells to satisfy the growing demands are underway. Costs to date are approximately \$450,000.

Water quality throughout the distribution system is monitored through regular sampling in accordance with O. Reg. 170/03.

Non-Compliance with Act, Regulations, Order or Approvals

Table 17 provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2008 reportable period.

Table 17 - Blezard Valley Wells and Distribution System

Item	Non-Compliance	Measure Taken to Ensure Compliance
MOE Inspection Issues	At the time of this writing the latest MOE inspection report had not been issued.	
MOE Orders	NONE	N/A

2008 Adverse Water Quality Incident Report

210000737 Blezard Valley Wells and Distribution System

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.

Table 18 - Adverse Water Quality Incidents

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2008/01/09	UV Dosage	0	mJ/cm ²	Resample/retest	2008/01/09
2008/01/22	UV Dosage	0	mJ/cm ²	Disinfectant restored/increased	2008/01/25
2008/01/31	UV Dosage	0	mJ/cm ²	Disinfectant restored/increased	2008/02/01
2008/02/27	UV Dosage	0	mJ/cm ²	Disinfectant restored/increased	2008/03/17
2008/02/28	UV Dosage	<40	mJ/cm ²	Disinfectant restored/increased	2008/02/28
2008/03/07	UV Dosage	0	mJ/cm ²	Disinfectant restored/increased Flushing Main/Pipes	2008/03/10
2008/03/11	UV Dosage	0	mJ/cm ²	Disinfectant restored/increased	2008/03/11
2008/03/11	UV Dosage	0	mJ/cm ²	Disinfectant restored/increased Flushing Main/Pipes	2008/03/11
2008/04/17	UV Dosage	0	mJ/cm ²	Disinfectant restored/increased	2008/04/17

2008/04/30	UV Dosage	0	mJ/cm ²	Well shut off	2008/04/30
2008/07/25	Total Coliform (Distribution)	1	CFU/100ml	Resample/retest Flushing Main/Pipes	2008/07/29
2008/08/11	Distribution system pressure	12	psi	Flushing Main/Pipes	2008/08/12
2008/08/20	Distribution system pressure	0	psi	Flushing Main/Pipes	2008/08/25
2008/09/08	Distribution system pressure	10	psi	Restored pressure	2008/09/08
2008/10/21	Distribution system pressure	11	psi	Restored pressure	2008/10/21
2008/10/30	Distribution system pressure	19.2	psi	Watermain break isolated and repaired	2008/10/31
2008/12/12	Distribution system pressure	10	psi	Flushing Main/Pipes	2008/12/15

Annual Flow Summary

Table 19 provides a summary of the quantities of flow rates with a comparison to rated capacities as listed in the systems Certificate of Approval during the 2008 reportable period.

Table 19 – Annual Flow Summary (Valley Wells)

	Well "A" Deschene						Well "B" Kenneth					
	Total Flow m ³	Average Daily Flow m ³ /d	Maximum Daily Flow m ³ /d	Instantaneous Peak Flow L/s	C of A Maximum Flow m ³ /d	% Capacity	Total Flow m ³	Average Daily Flow m ³ /d	Maximum Daily Flow m ³ /d	Instantaneous Peak Flow L/s	C of A Maximum Flow m ³ /d	% Capacity
January	24,174	780	957.16	17.20	1,797	53	26,641	859	1,303.58	24.20	2,288	57
February	27,733	990	1,139.12	17.92	1,797	63	33,001	1,179	1,360.49	21.95	2,288	59
March	29,828	962	1,216.90	17.87	1,797	68	37,724	1,217	1,436.35	23.34	2,288	63
April	28,778	959	1,266.63	18.05	1,797	70	34,046	1,135	1,566.01	26.00	2,288	68
May	26,214	846	1,138.27	17.96	1,797	63	24,140	779	1,058.85	22.95	2,288	46
June	29,654	988	1,292.67	17.90	1,797	72	22,811	760	1,533.83	27.59	2,288	67
July	27,234	879	1,067.08	17.68	1,797	59	13,709	442	1,160.27	24.94	2,288	51
August	15,091	487	940.46	17.76	1,797	52	30,456	982	1,226.74	25.81	2,288	54
September	15,875	529	922.72	17.69	1,797	51	27,942	931	1,137.17	25.64	2,288	50
October	22,557	728	1,012.61	18.13	1,797	56	29,383	948	1,218.20	26.20	2,288	53
November	21,269	709	855.43	18.03	1,797	48	27,655	922	1,151.97	26.58	2,288	50
December	22,355	721	877.85	18.08	1,797	49	28,093	906	1,183.00	27.05	2,288	52
Total	290,762						335,601					

	Well "C" Philippe						Well "D" Frost					
	Total Flow m3	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	C of A Maximum Flow m3/d	% Capacity	Total Flow m3	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	C of A Maximum Flow m3/d	% Capacity
January	31,323	1,010	1,253.05	21.27	2,288	55	35,814	1,155	1,596.22	21.90	2,288	70
February	25,847	923	1,195.00	21.05	2,288	52	37,747	1,348	1,523.82	21.67	2,288	67
March	25,532	824	966.62	18.83	2,288	42	44,178	1,425	1,669.22	21.80	2,288	73
April	24,001	800	994.81	19.41	2,288	43	36,173	1,206	1,692.34	23.06	2,288	74
May	24,947	805	956.38	19.01	2,288	42	38,675	1,248	1,498.75	22.45	2,288	66
June	29,345	978	1,458.59	21.90	2,288	64	36,334	1,211	1,671.51	23.58	2,288	73
July	31,603	1,019	1,368.63	22.13	2,288	60	35,907	1,158	1,393.65	21.38	2,288	61
August	30,940	998	1,209.08	21.98	2,288	53	30,086	971	1,220.18	24.83	2,288	53
September	28,814	960	1,152.37	21.89	2,288	50	27,701	923	1,138.44	21.65	2,288	50
October	29,685	958	1,189.63	21.68	2,288	52	29,566	954	1,300.27	22.49	2,288	57
November	24,372	812	1,074.72	21.80	2,288	47	27,379	913	1,136.70	21.28	2,288	50
December	24,334	785	1,130.29	21.92	2,288	49	35,814	1,155	1,596.22	21.90	2,288	70
Total	330,743						415,374					

Well "E" Notre Dame							Well "F" Linden					
	Total Flow m ³	Average Daily Flow m ³ /d	Maximum Daily Flow m ³ /d	Instantaneous Peak Flow L/s	C of A Maximum Flow m ³ /d	% Capacity	Total Flow m ³	Average Daily Flow m ³ /d	Maximum Daily Flow m ³ /d	Instantaneous Peak Flow L/s	C of A Maximum Flow m ³ /d	% Capacity
January	70,718	2,281	2,514.91	29.80	3,105	81	51,806	1,671	2,255.99	29.10	3,268	69
February	66,945	2,391	2,440.89	31.72	3,105	79	51,865	1,852	2,269.89	28.00	3,268	69
March	64,143	2,069	2,186.76	26.24	3,105	70	58,348	1,882	2,268.45	28.00	3,268	69
April	61,746	2,058	2,201.97	33.38	3,105	71	57,016	1,901	2,293.70	29.23	3,268	70
May	67,643	2,182	2,250.59	26.98	3,105	72	52,241	1,685	2,151.57	29.15	3,268	66
June	54,846	1,828	2,261.09	27.38	3,105	73	52,443	1,748	2,318.74	29.11	3,268	71
July	62,110	2,004	2,087.04	25.35	3,105	67	50,663	1,634	2,050.34	29.00	3,268	63
August	62,252	2,008	2,115.09	25.85	3,105	68	44,474	1,435	1,928.68	28.76	3,268	59
September	63,010	2,100	2,160.83	26.08	3,105	70	40,876	1,363	2,191.49	31.25	3,268	67
October	60,170	1,941	2,199.58	27.38	3,105	71	43,602	1,407	2,240.77	28.71	3,268	69
November	61,118	2,037	2,111.02	25.53	3,105	68	38,049	1,268	1,585.24	29.28	3,268	49
December	65,895	2,126	2,250.81	27.16	3,105	72	39,448	1,273	1,499.89	28.02	3,268	46
Total	760,596						580,831					
Well "G" Pharand							Well "H" Michelle					
	Total Flow m ³	Average Daily Flow m ³ /d	Maximum Daily Flow m ³ /d	Instantaneous Peak Flow L/s	C of A Maximum Flow m ³ /d	% Capacity	Total Flow m ³	Average Daily Flow m ³ /d	Maximum Daily Flow m ³ /d	Instantaneous Peak Flow L/s	C of A Maximum Flow m ³ /d	% Capacity
January	15,310	494	1,298.31	23.95	2,289	57	32,795	1,058	1,404.93	20.80	2,289	61
February	24,350	870	1,395.53	21.67	2,289	61	33,451	1,195	1,356.12	20.20	2,289	59
March	35,688	1,151	1,579.62	19.43	2,289	69	37,231	1,201	1,474.45	21.12	2,289	64
April	10,475	349	1,390.40	19.48	2,289	61	36,191	1,206	1,540.56	20.67	2,289	67
May	87	3	44.57	20.72	2,289	2	28,849	931	1,195.90	27.87	2,289	52
June	31,029	1,034	1,829.36	22.05	2,289	80	26,314	877	1,297.54	22.80	2,289	57
July	28,909	933	1,566.28	22.83	2,289	68	28,519	920	1,225.62	25.24	2,289	54
August	22,583	728	1,260.98	25.24	2,289	55	26,073	841	1,248.19	23.77	2,289	55
September	18,252	608	1,266.01	21.46	2,289	55	28,996	967	1,252.16	24.74	2,289	55
October	24,876	802	1,366.30	25.51	2,289	60	28,609	923	1,697.50	23.84	2,289	74
November	17,123	571	1,151.12	24.73	2,289	50	18,139	605	1,210.40	28.68	2,289	53
December	22,315	720	1,176.26	24.53	2,289	51	22,457	724	1,222.65	25.99	2,289	53

Total	250,997					347,624				
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"I" Well						
	Total Flow m3	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	C of A Maximum Flow m3/d	% Capacity
January	32,826	1,059	1,110.87	21.31	1,972	56
February	0	0	0.00	0.00	1,972	0
March	0	0	0.00	0.00	1,972	0
April	25,769	859	1,106.81	35.24	1,972	56
May	32,346	1,043	1,107.05	22.13	1,972	56
June	12,571	419	1,104.80	23.90	1,972	56
July	7,059	228	1,054.22	22.58	1,972	53
August	19,259	621	1,098.00	29.96	1,972	56
September	25,742	858	1,096.17	22.01	1,972	56
October	30,817	994	1,096.97	22.85	1,972	56
November	29,345	978	1,093.47	21.54	1,972	55
December	33,476	1,080	1,099.44	20.98	1,972	56
Total	249,210					

1.7 Levack Distribution System

C of A No. 3125-5TEN2Y

November 21, 2003

The Levack water system, as owned by the City, consists of a fluoride building and distribution network. The water is supplied to the fluoride building from the Vale Inco well pump house and treatment building in Levack. The water is treated to comply with O. Reg. 170/03 by Vale Inco then delivered to the community of Levack via the City fluoride building.

The Levack water supply system owned by Vale Inco is not the subject of this Summary Report, however, a brief explanation of the system is provided for continuity. The Levack system is a groundwater well situated adjacent to the Onaping river. To enhance the water quality, a recharge pit is located adjacent to the wells, and filled with water pumped from the Onaping river. The water treatment system includes alkalinity adjustments and liquid chlorine injection for disinfection. The water is used by Vale Inco at their mines in the Levack area and is also delivered to the City for communal public water supply.

The MOE has considered the well aquifer to be potentially under the direct influence of surface water, and has stipulated that Vale Inco must prepare a GUDI study. Vale Inco has since served notice late in 2003 that they intend to end the supply agreement.

The water works in Levack will invariably require upgrades to ensure full compliance with O. Reg. 170/03. In accordance with the Class Environmental Assessment completed on October 12, 2007, the City has decided to provide potable water to the residents of Levack and Onaping and to Xstrata Nickel's mining operations. The supply will come from the Wickwas pump house in Onaping and a combining of the two distribution systems of Levack and Onaping will be undertaken by the City of Greater Sudbury. System design and upgrades total approximately \$900,000 and are scheduled for completion and commissioning in 2009.

Water quality throughout the distribution system is monitored through regular sampling in accordance with O. Reg. 170/03.

Non-Compliance with Act, Regulations, Order or Approvals

Table 20 provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2008 reportable period.

Table 20 - Levack Fluoridation Station

Item	Non-Compliance	Measure Taken to Ensure Compliance
MOE Inspection Issues	NONE	N/A
MOE Orders	NONE	N/A

2008 Adverse Water Quality Incident Report

260006490 Levack Distribution System

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.

Table 21 - Adverse Water Quality Incidents

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2008/07/21	Fluoride (SCADA reading)		mg/L	Analyzer Probe replaced	2008/07/21
2008/07/26	Fluoride	1.98	mg/L	Shut off HFS pump	2008/07/26

Annual Flow Summary

Table 22 provides a summary of the quantities of flow rates with a comparison to rated capacities as listed in the systems Certificate of Approval during the 2008 reportable period.

Table 22 – Annual Flow Summary (Levack)

	Total Flow m ³	Average Daily Flow m ³ /d	Maximum Daily Flow m ³ /d	Instantaneous Peak Flow L/s	C of A Maximum Flow m ³ /d	% Capacity
January	19,691	635	706.55	22.00	1,056	67
February	19,196	686	737.77	22.00	1,056	70
March	22,289	719	768.89	22.00	1,056	73
April	20,149	672	748.14	26.51	1,056	71
May	19,148	618	665.63	24.66	1,056	63
June	19,347	645	677.53	30.64	1,056	64
July	16,632	537	666.25	43.96	1,056	63
August	14,870	480	545.75	21.23	1,056	52
September	16,058	535	741.33	25.09	1,056	70
October	21,776	702	771.56	17.49	1,056	73
November	20,877	696	749.33	27.84	1,056	71
December	22,294	719	870.67	18.13	1,056	82
Total	232,327					

1.8 Falconbridge Distribution System

C of A No. 3517-5VULKG

February 04, 2004

The Falconbridge water system, as owned and operated by the City, consists of a fluoridation building and distribution network. Water is supplied to the fluoride building from the newly developed deep-wells located northeast of the Sudbury Airport. The water is treated to comply with O. Reg. 170/03 by Xstrata then delivered to the community of Falconbridge via the City fluoride building and distribution system.

The Falconbridge well supply system that is owned by Xstrata is not the subject of this Summary Report, however, a brief explanation of the system is provided for continuity.

Xstrata has considered alternatives to upgrade the water works to ensure compliance with O. Reg. 170/03. Xstrata reviewed options such as alternative groundwater sources and ultimately developed a new well field near the Sudbury Airport. Ontario Clean Water Agency has been contracted to operate these new facilities for Xstrata, which currently feeds the town of Falconbridge. The old #4 well has been isolated from the distribution network and is used solely for the mines as fire protection and process water.

Although Xstrata provides chlorine disinfection of the water supply, the MOE has imposed a condition on the City to add a re-chlorination facility to the fluoride building. The City requested a change to this condition with a letter in Nov of 2003. The MOE cannot acknowledge receipt of said letter and as such the City resubmitted its request to amend the condition of the C of A.

The City is completing final phases with Xstrata to take over ownership of the water supply system. Takeover will be completed in the Spring of 2009. The City will then supply water to Xstrata's Nickel Rim and Smelter facilities.

The distribution network in the community of Falconbridge is owned by the City but was developed by Xstrata for the original town-site. The piping system is relatively old and exposed to severe frost depths.

Water quality throughout the distribution system is monitored through regular sampling in accordance with O. Reg. 170/03.

Non-Compliance with Act, Regulations, Order or Approvals

Table 23 provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2008 reportable period.

Table 23 - Falconbridge Fluoridation Station

Item	Non-Compliance	Corrective Measures Taken
MOE Inspection Issues	NONE	N/A
MOE Orders	NONE	N/A

2008 Adverse Water Quality Incident Report

260006477 Falconbridge Distribution System

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.

Table 24 - Adverse Water Quality Incidents

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2008/01/15	Fluoride	1.86	mg/L	Flushing onsite, pump was unplugged	2008/01/15
2008/06/30	Chlorine and Fluoride	5.00 and 2.00	mg/L	Disinfectant restored/increased, HFS pump off at time	2008/06/30
2008/07/16	Fluoride	1.88	mg/L	Shut off HFS pump	2008/07/17

Annual Flow Summary

Table 25 provides a summary of the quantities of flow rates with a comparison to rated capacities as listed in the systems Certificate of Approval during the 2008 reportable period.

Table 25 – Annual Flow Summary (Falconbridge)

	Total Flow m ³	Average Daily Flow m ³ /d	Maximum Daily Flow m ³ /d	Instantaneous Peak Flow L/s	C of A Maximum Flow m ³ /d	% Capacity
January	7,129	230	259.10	9.99	727	36
February	7,579	271	309.41	9.99	727	43
March	7,379	238	268.94	9.99	727	37
April	6,737	225	264.64	9.99	727	36
May	6,883	222	259.76	9.99	727	36
June	5,400	180	270.05	6.74	727	37
July	5,007	162	175.92	2.62	727	24
August	6,686	216	255.40	9.99	727	35
September	5,817	194	298.74	9.99	727	41
October	4,870	157	232.50	9.99	727	32
November	5,237	175	221.49	9.50	727	30
December	6,138	198	251.66	9.99	727	35
Total	74,862					

1.9 Other Distribution Systems (Onaping, Vermillion)

The distribution systems of Onaping and Vermillion do not have system specific certificates to operate but fall under the owner’s certificate for the treatment facilities. The owners of the Onaping and Vermillion treatment facilities are Xstrata and Vale Inco and as such, have responsibility for these systems and are not the subject of this report. The City owns and operates the distribution networks in the communities of Onaping, Copper Cliff, Lively, Naughton and Whitefish. The City has obligations to test, maintain and report on these distribution works as part of the new regulations.

Water quality throughout the distribution systems is monitored through regular sampling in accordance with O. Reg. 170/03.

1.9.1 Onaping Distribution System

The Onaping Distribution System includes a continuously monitored Free Chlorine analyser.

Non-Compliance with Act, Regulations, Order or Approvals

Table 26 provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2008 reportable period.

Table 26 - Onaping Distribution System

Item	Non-Compliance	Measure Taken to Ensure Compliance
MOE Inspection Issues	NONE	N/A
MOE Orders	NONE	N/A

2008 Adverse Water Quality Incident Report

260006503 Onaping Distribution System

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.

Table 27 - Adverse Water Quality Incidents

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2008/08/07	Total Coliform (Distribution)	1.0	CFU/100ml	Resample/retest Flushing Main/Pipes	2008/08/11

1.9.2 Vermillion Distribution System

The Vermillion Distribution System includes the Walden Water Storage Tank and Walden Metering Chamber. Required inspection of the Walden tank amounted to approximately \$10,000. Additional service was provided in 2005 to supply the Whitefish Lake First Nation Reserve.

Non-Compliance with Act, Regulations, Order or Approvals

Table 28 provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2008 reportable period.

Table 28 - Distribution System

Item	Non-Compliance	Measure Taken to Ensure Compliance
MOE Inspection Issues	NONE	N/A
MOE Orders	NONE	N/A

2008 Adverse Water Quality Incident Report

260006789 Vermillion Distribution System

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.

Table 29 - Adverse Water Quality Incidents

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2008	No Reported Incidents				