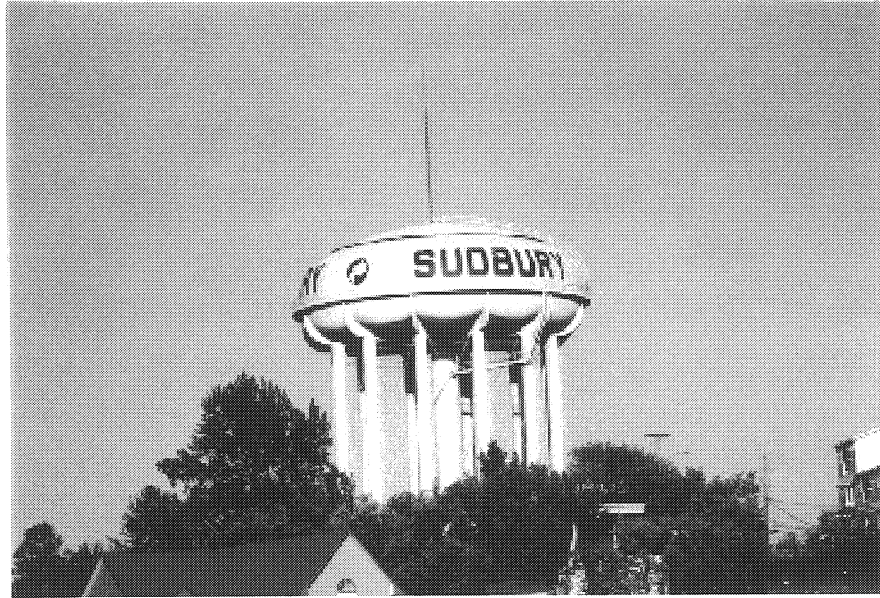


2004 Annual Water Works Summary Report For:



City of Greater Sudbury Large Municipal - Residential Systems



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 (formerly the Ontario Water Resources Act). Following the tragedy in Walkerton, the government passed O. Reg. 459/00, the Drinking Water Protection Regulation. This regulation established new rules, and imposed significant duties of care upon owners and operators of public water systems. On June 1, 2003 O. Reg. 170/03 came into effect. This regulation prescribes requirements for owners and operators of municipal and regulated non-municipal drinking water systems. It replaces Ontario regulations 459/00 and 505/01 made under the Ontario Water Resources Act and extends its application to other drinking water systems including small systems that serve drinking water to the public.

Among other obligations, the new O. Reg. 170/03 still prescribes the need for all owners of licenced water works to produce an Annual Summary Report as indicated in Schedule 22. The Report is required to contain the following information:

- List of requirements of the Act, regulations, the systems approval and any order that the system failed to meet at any time during the period covered by the report and specify the duration of the failure and describe the measures taken to correct the situation.
- Summary of quantities and flow rates including monthly averages, max daily flows, and daily instantaneous peak flow rates.
- 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 eight (8) municipal large, residential systems and two (2) independent distribution systems. Each of the eight (8) municipal large residential water works have a Certificate of Approval issued by the MOE. 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 serviced with numerous water systems. Some of these systems are owned by private companies. The following Table E-1 provides a summary of the various water systems throughout the City.

Table E-1 - Overview of the City's Water System

NAME	Owner	Type of Facility	Source of Water	Community Serviced
Wanapitei WTP	City of Greater Sudbury	Surface water conventional treatment plant	Wanapitei River	Sudbury, Coniston, Wanapitei, Markstay
David Street WTP	City of Greater Sudbury	Membrane Filtration and Ultraviolet irradiation	Ramsey Lake	Sudbury
Inco Well No. 1	Inco	Well with disinfection	Groundwater	Garson
Garson Well 1 & 3	City of Greater Sudbury	Well with disinfection	Groundwater	Garson
Falconbridge Well	Falconbridge	Well with disinfection	Recharged groundwater	Falconbridge
Falconbridge Fluoride	City of Greater Sudbury	Fluoridation Station	Falconbridge Well	Falconbridge
Levack Wells	Inco	Wells with disinfection	Recharged groundwater	Levack
Levack Fluoride	City of Greater Sudbury	Fluoridation Station	Levack Wells	Levack
Onaping Wells	Falconbridge	Well with disinfection	Groundwater	Onaping
Capreol Wells	City of Greater Sudbury	Well with disinfection	Groundwater	Capreol
Valley Wells	City of Greater Sudbury	Well with disinfection	Groundwater	Valley East, Azilda, Chelmsford
Dowling Wells	City of Greater Sudbury	Well with disinfection	Groundwater	Dowling
Vermilion River WTP	Inco	Surface water conventional treatment plant	Vermilion River	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 are having 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 have been proactive to ensure all necessary measures are taken to achieve compliance with the Regulation and the various Certificates.

Having said that, certain upgrades are currently underway, or are being investigated at this time. In most cases, the studies have been completed, and reports have been 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 Regulation and the MOE's statutory Standard of Care to ensure all citizens have access and receive safe reliable water. The regulation assumes that water works owners will continually monitor water works performance, and review levels of treatment versus current standards. As time passes, general knowledge of potential water borne diseases increases. The public expects that responsible Owners will be diligent in their duty to care for public water supplies.

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.

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SECTION 1 - PLANT SPECIFIC REVIEW

1.0 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 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 the reporting period is also listed in the particular plant section.

1.1 Wanapitei Water Treatment Plant

C of A No. 0330-5V7P9Q
Date: February 23, 2004

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. 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.

The water supply for the plant is the Wanapitei River. The River has sufficient quantities of water to meet the needs of Sudbury, however, water taking is limited by agreement with Ontario Power Generation for their use in the production of hydro-electric power. 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 of the watershed 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
- Colour

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

The Wanapitei Plant incorporates conventional technologies to treat the water. Raw water is treated with chemicals to form a floc. The coagulated water passes through one of two settling tanks, referred to as reactivators, then through one of four dual media filter beds. The filtered water is treated with lime for pH /alkalinity adjustment; with chlorine for disinfection; with fluoride to comply with Health Unit requirements; and with polyphosphate to reduce corrosion in 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

The following table provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2004 reportable period.

**Table 1-1
Wanapitei Water Treatment Plant**

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

2004 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

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2004/07/15	Total Coliform Background	>200	counts/10 0mL	Resample/Re-test;	2004/07/19
2004/08/04	Total Coliform	1	counts/10 0mL	Resample/Re-test;	2004/08/05
2004/08/12	Total Coliform	2	counts/10 0mL	Resample/Re-test;	2004/08/15
2004/09/21	Pressure	50	PSI	Resample/Re-test;	2004/09/21

Annual Flow Summary

The following table 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 2004 reportable period.

		Wanapitei Water Treatment Plant					David Street Water Treatment Plant					
		m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow	% Capacity	m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow
January	862,257	27,815	32,392	409.84	54,000	60	561,430	18,111	27,158	475.46	40,000	68
February	825,664	28,471	33,596	417.56	54,000	62	548,346	18,908	26,431	337.70	40,000	66
March	842,735	27,185	34,461	428.97	54,000	64	523,863	16,899	22,719	336.33	40,000	57
April	862,976	28,776	35,240	438.37	54,000	65	528,541	17,618	29,088	348.85	40,000	73
May	949,730	30,636	39,954	507.02	54,000	74	512,972	16,547	18,894	328.36	40,000	47
June	1,023,409	34,114	39,778	505.50	54,000	74	519,911	17,330	19,529	371.40	40,000	49
July	1,048,717	33,830	39,546	511.55	54,000	73	522,655	16,860	19,682	318.57	40,000	49
August	1,116,257	36,008	40,444	514.57	54,000	75	478,103	15,423	23,998	478.30	40,000	60
September	838,391	27,946	35,157	498.12	54,000	65	574,867	19,162	27,189	366.15	40,000	68
October	806,923	26,030	34,296	441.39	54,000	64	453,108	14,616	26,705	475.02	40,000	67
November	863,668	28,789	38,525	476.13	54,000	71	411,516	13,717	26,013	338.90	40,000	65
December	992,416	32,013	39,579	492.25	54,000	73	480,337	15,495	27,285	465.53	40,000	68
Total	11,033,143						6,115,649					

1.2 David Street Water Treatment Plant
C of A No. 4170-62TGXE
Date: October 5, 2004

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 has just completed undergoing retrofits with Zenon membrane technologies and UV irradiation to ensure the treatment system meets the requirements in O. Reg. 170/03.

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 as 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 during this reporting period.

The distribution system supplied by the David Street WTP includes parts of downtown Sudbury, the South End and the West End of Sudbury. In addition, the Ellis Reservoir is part of the distribution network for Sudbury. As common with many older distribution networks, the Sudbury pipe system is plagued with numerous 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

The following table provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2004 reportable period.

Table 1-2
David Street Water Treatment Plant

Item	Non-Compliance	Measure Taken to Ensure Compliance
MOE Inspection Issues	<ul style="list-style-type: none"> In June of 2003, monthly trihalomethane sampling as required by the certificate of approval was not conducted. The problem was identified by plants staff during a review of data and immediately reported to the MOE in early 2004. 	In response to the issue, the certificate of approval requirements were reviewed with staff, and sampling schedules were provided for 2004.
MOE Orders	NONE	N/A

2004 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

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2004/01/05	Turbidity	1.97	NTU	Resample/Re-test;	2004/01/05
2004/03/03	Turbidity	1.02	NTU	Resample/Re-test;	2004/03/05
2004/03/09	Turbidity	1.04	NTU	Resample/Re-test;	2004/03/09
2004/03/11	Turbidity	1.03	NTU	Resample/Re-test;	2004/03/12
2004/03/12	Turbidity	1.01	NTU	Resample/Re-test;	2004/03/12
2004/03/13	Turbidity	1.01	NTU	Resample/Re-test;	2004/03/14
2004/03/14	Turbidity	1.01	NTU	Resample/Re-test;	2004/03/15
2004/03/15	Turbidity	1.14	NTU	Resample/Re-test;	2004/03/15
2004/03/16	Turbidity	1.26	NTU	Resample/Re-test;	2004/03/16
2004/03/17	Turbidity	1.33	NTU	Resample/Re-test;	2004/03/17
2004/03/18	Turbidity	1.56	NTU	Resample/Re-test;	2004/03/18
2004/03/19	Turbidity	1.62	NTU	Resample/Re-test;	2004/03/19
2004/03/20	Turbidity	1.75	NTU	Resample/Re-test;	2004/03/20
2004/03/21	Turbidity	1.50	NTU	Resample/Re-test;	2004/03/21
2004/03/22	Turbidity	1.77	NTU	Resample/Re-test;	2004/03/22
2004/03/23	Turbidity	1.62	NTU	Resample/Re-test;	2004/03/23
2004/03/24	Turbidity	1.57	NTU	Resample/Re-test;	2004/03/24
2004/03/25	Turbidity	1.47	NTU	Resample/Re-test;	2004/03/25

2004/03/26	Turbidity	1.38	NTU	Resample/Re-test;	2004/03/26
2004/03/27	Turbidity	1.34	NTU	Resample/Re-test;	2004/03/27
2004/03/28	Turbidity	1.38	NTU	Resample/Re-test;	2004/03/28
2004/03/29	Turbidity	1.04	NTU	Resample/Re-test;	2004/03/29
2004/03/30	Turbidity	1.13	NTU	Resample/Re-test;	2004/03/30
2004/03/31	Turbidity	1.06	NTU	Resample/Re-test;	2004/03/31
2004/04/01	Turbidity	1.06	NTU	Resample/Re-test;	2004/04/01
2004/04/02	Turbidity	1.04	NTU	Resample/Re-test;	2004/04/02
2004/04/03	Turbidity	1.06	NTU	Resample/Re-test;	2004/04/03
2004/04/04	Turbidity	1.06	NTU	Resample/Re-test;	2004/04/05
2004/04/05	Turbidity	1.01	NTU	Resample/Re-test;	2004/04/05
2004/04/08	Turbidity	1.24	NTU	Resample/Re-test;	2004/04/08
2004/04/19	Turbidity	1.15	NTU	Resample/Re-test;	2004/04/19
2004/04/20	Turbidity	1.05	NTU	Resample/Re-test;	2004/04/20
2004/04/21	Turbidity	1.18	NTU	Resample/Re-test;	2004/04/21
2004/04/22	Turbidity	1.02	NTU	Resample/Re-test;	2004/04/22
2004/04/23	Turbidity	1.22	NTU	Resample/Re-test;	2004/04/23
2004/04/24	Turbidity	1.23	NTU	Resample/Re-test;	2004/04/24
2004/04/25	Turbidity	1.13	NTU	Resample/Re-test;	2004/04/25
2004/04/26	Turbidity	1.10	NTU	Resample/Re-test;	2004/04/26
2004/04/27	Turbidity	1.11	NTU	Resample/Re-test;	2004/04/27
2004/04/28	Turbidity	1.15	NTU	Resample/Re-test;	2004/04/28
2004/04/29	Turbidity	1.37	NTU	Resample/Re-test;	2004/04/29
2004/04/30	Turbidity	1.04	NTU	Resample/Re-test;	2004/04/30
2004/05/03	Turbidity	1.68	NTU	Resample/Re-test;	2004/05/03
2004/05/04	Turbidity	1.09	NTU	Resample/Re-test;	2004/05/04
2004/05/05	Turbidity	1.19	NTU	Resample/Re-test;	2004/05/05
2004/05/06	Turbidity	1.02	NTU	Resample/Re-test;	2004/05/06
2004/05/07	Turbidity	1.10	NTU	Resample/Re-test;	2004/05/07
2004/05/08	Turbidity	1.06	NTU	Resample/Re-test;	2004/05/08
2004/05/09	Turbidity	1.01	NTU	Resample/Re-test;	2004/05/09
2004/05/10	Turbidity	1.05	NTU	Resample/Re-test;	2004/05/10
2004/05/11	Turbidity	1.23	NTU	Resample/Re-test;	2004/05/11
2004/05/12	Turbidity	1.02	NTU	Resample/Re-test;	2004/05/12
2004/05/13	Turbidity	1.05	NTU	Resample/Re-test;	2004/05/13
2004/05/14	Turbidity	1.04	NTU	Resample/Re-test;	2004/05/14
2004/05/15	Turbidity	1.01	NTU	Resample/Re-test;	2004/05/17
2004/05/17	Turbidity	1.02	NTU	Resample/Re-test;	2004/05/17
2004/05/18	Turbidity	1.26	NTU	Resample/Re-test;	2004/05/18
2004/05/19	Turbidity	1.03	NTU	Resample/Re-test;	2004/05/19
2004/05/20	Turbidity	1.13	NTU	Resample/Re-test;	2004/05/20
2004/05/21	Turbidity	1.15	NTU	Resample/Re-test;	2004/05/21
2004/05/22	Turbidity	1.04	NTU	Resample/Re-test;	2004/05/22

2004/05/23	Turbidity	1.01	NTU	Resample/Re-test;	2004/05/23
2004/05/24	Turbidity	1.01	NTU	Resample/Re-test;	2004/05/24
2004/05/25	Turbidity	1.14	NTU	Resample/Re-test;	2004/05/25
2004/05/26	Turbidity	1.32	NTU	Resample/Re-test;	2004/05/26
2004/05/27	Turbidity	1.07	NTU	Resample/Re-test;	2004/05/27
2004/05/28	Turbidity	1.07	NTU	Resample/Re-test;	2004/05/28
2004/05/29	Turbidity	1.08	NTU	Resample/Re-test;	2004/05/29
2004/05/30	Turbidity	1.07	NTU	Resample/Re-test;	2004/05/30
2004/05/31	Turbidity	1.10	NTU	Resample/Re-test;	2004/05/31
2004/06/01	Turbidity	1.04	NTU	Resample/Re-test;	2004/06/01
2004/06/02	Turbidity	1.04	NTU	Resample/Re-test;	2004/06/02
2004/06/03	Turbidity	1.01	NTU	Resample/Re-test;	2004/06/03
2004/06/04	Turbidity	1.20	NTU	Resample/Re-test;	2004/06/04
2004/06/05	Turbidity	1.02	NTU	Resample/Re-test;	2004/06/07
2004/06/07	Turbidity	1.15	NTU	Resample/Re-test;	2004/06/07
2004/06/07	Turbidity	1.03	NTU	Resample/Re-test;	2004/06/07
2004/06/08	Turbidity	1.05	NTU	Resample/Re-test;	2004/06/08
2004/06/09	Turbidity	1.01	NTU	Resample/Re-test;	2004/06/09
2004/06/10	Turbidity	1.05	NTU	Resample/Re-test;	2004/06/11
2004/06/11	Turbidity	2.65	NTU	Resample/Re-test;	2004/06/11
2004/06/12	Turbidity	1.06	NTU	Resample/Re-test;	2004/06/12
2004/07/07	Turbidity	1.50	NTU	Resample/Re-test;	2004/07/07
2004/07/27	Total Coliform	1	counts/100mL	Resample/Re-test;	2004/07/30
2004/08/07	Turbidity	1.12	NTU	Resample/Re-test;	2004/08/07
2004/08/13	Turbidity	1.14	NTU	Resample/Re-test;	2004/08/13
2004/08/16	Turbidity	1.12	NTU	Resample/Re-test;	2004/08/16
2004/08/17	Turbidity	1.13	NTU	Resample/Re-test;	2004/08/17
2004/08/18	Turbidity	1.02	NTU	Resample/Re-test;	2004/08/18
2004/08/22	Turbidity	1.17	NTU	Resample/Re-test;	2004/08/22
2004/09/21	Pressure	37	PSI	Resample/Re-test;	2004/09/21
2004/09/21	Total Coliform	19	counts/100mL	Resample/Re-test;	2004/09/24
2004/10/15	Fluoride	1.59	mg/L	Resample/Re-test;	2004/10/15
2004/12/03	Fluoride	2.07	mg/L	Resample/Re-test;	2004/12/03
2004/12/22	Free Chlorine Residual	0.04	mg/L	Resample/Re-test;	2004/12/22

Annual Flow Summary

The following table 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 2004 reportable period.

		Wanapitei Water Treatment Plant					David Street Water Treatment Plant						
		m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow	% Capacity	m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow	% Capacity
January		862,257	27,815	32,392	409.84	54,000	60	561,430	18,111	27,158	475.46	40,000	68
February		825,664	28,471	33,596	417.56	54,000	62	548,346	18,908	26,431	337.70	40,000	66
March		842,735	27,185	34,461	428.97	54,000	64	523,863	16,899	22,719	336.33	40,000	57
April		862,976	28,776	35,240	438.37	54,000	65	528,541	17,618	29,088	348.85	40,000	73
May		949,730	30,636	39,954	507.02	54,000	74	512,972	16,547	18,894	328.36	40,000	47
June		1,023,409	34,114	39,778	505.50	54,000	74	519,911	17,330	19,529	371.40	40,000	49
July		1,048,717	33,830	39,546	511.55	54,000	73	522,655	16,860	19,682	318.57	40,000	49
August		1,116,257	36,008	40,444	514.57	54,000	75	478,103	15,423	23,998	478.30	40,000	60
September		838,391	27,946	35,157	498.12	54,000	65	574,867	19,162	27,189	366.15	40,000	68
October		806,923	26,030	34,296	441.39	54,000	64	453,108	14,616	26,705	475.02	40,000	67
November		863,668	28,789	38,525	476.13	54,000	71	411,516	13,717	26,013	338.90	40,000	65
December		992,416	32,013	39,579	492.25	54,000	73	480,337	15,495	27,285	465.53	40,000	68
Total		11,033,143						6,115,649					

1.3 Capreol Well Supply

CofA No. 6979-5YNJR3

Date: June 4, 2004

The Capreol Well System is a communal well system which draws water from three (3) wells to service the community of Capreol. The wells include:

- Well #6
- Well “J”
- Well “M”

Well # 6 includes a Vertical Turbine well pump, disinfection with gas chlorine, and fluoride injection for public health. Standby power is available for Well #6 with a diesel generator. Well #6 is located on the bank of the Vermilion River opposite Lakeshore Drive.

Well “J” and “M” are located within approximately 30 metres of each other on the east side of Greens Lake and west of M. R. #84. Well J and M also have vertical turbine well pumps and have disinfection

with gas chlorination and, fluoride injection for public health. Standby power for Wells “M” and “J” are available from a diesel generator located in Well ”M” pumphouse.

The water system in Capreol is interconnected through piping with Blezard Valley Water System, through a pressure relief valve. The water system in Capreol operates at a similar hydraulic gradient to the Blezard Valley System. The interconnection is for emergency purposes only when the system pressure in Blezard Valley drops below acceptable levels.

The source of water for the Capreol system is groundwater wells. Well #6 draws from gravel and sand aquifer characterized as unconfined. Well “J” and “M” draw from a common aquifer, which is also unconfined, and of sands and gravels. Although all of the wells have no record of bacteriological contamination, their proximity to the Vermilion River and the unconfined nature of the aquifer required these wells to be characterized as potentially under the influence of surface water (potentially GUDI).

Well #6 is also located north of the existing sewage lagoon in Capreol. Extensive groundwater studies have shown no impact from the lagoon on the water quality at Well #6.

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 required disinfection and log removal standards of the ODWS. Upgrades are underway by the consultant to achieve the required log removals and enhance the disinfection process.

A GUDI study was not completed for Well #6 for the following reasons:

- The well pumphouse is situated below the flood plain of the river and would require extensive upgrades to be flood-proofed;
- The well is located in close proximity to the existing sewage lagoon; and
- The well is located close to the Vermilion River and is recharged with water from the river.

Rather than committing to costly upgrades to ensure compliance with O. Reg. 170/03, the City has notified the MOE of its intention to abandon Well #6. The City is actively considering options for the replacement of the Well #6 supply source.

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.

Although, the well supply system incorporates standby power, there is no elevated storage in Capreol. Therefore, during power outages, system pressures drop until the diesel generators are activated. This process is automatic, however, there is some risk of low pressures inherent with this type of system.

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

The following table provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2004 reportable period.

Table 1-3
Capreol Wells and Distribution System

Item	Non-Compliance	Measure Taken to Ensure Compliance
MOE Inspection Issues	<ul style="list-style-type: none"> • The facility and equipment do not appear to be maintained or in a fit state of repair • Up-to-date as-built plans of the water system are not available and/or subsequent modifications, if any, have not been noted on the drawings • The concentration of fluoride is not in accordance with the regulations 	<p>A roof leak at the #6 well during the inspection was immediately addressed and fixed by the city.</p> <p>Immediately subsequent to the inspection, the missing units were added and it was indicated that all subsequent changes will be made on the drawings in ink and sent periodically to the city's Engineering Department for updating.</p> <p>The city has taken steps to correct and control this issue. Several modifications and adjustments have proven effective. CGS will continue to optimize as required.</p>
MOE Orders	NONE	N/A

2004 Adverse Water Quality Incident Report

220003528 Capreol Wells and Distribution System

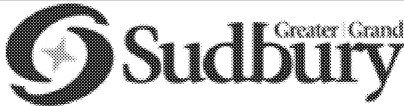
Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2004/09/15	Low Pressure	8.9	PSI	Resample/Re-test;	2004/09/15
2004/12/20	Fecal Streptococci	2	counts/100ml	Resample/Re-test;	2004/12/20
2004/12/20	Free Chlorine Residual	0.00	mg/L	Resample/Re-test;	2004/12/20
2004/12/22	Pressure	8	psi	Resample/Re-test;	2004/12/22
2004/12/26	Pressure	<9	psi	Resample/Re-test;	2004/12/26

Annual Flow Summary

The following table 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 2004 reportable period.

		"J" Well						"M" Well					
		m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow	% Capacity	m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow	% Capacity
January	20,932	675	2,092	29.78	3,273	64	43,860	1,415	2,322	45.35	3,927	59	
February	8,349	288	2,089	31.86	3,273	64	61,301	2,114	2,615	44.68	3,927	67	
March	19,487	629	1,774	28.54	3,273	54	58,434	1,885	2,407	36.15	3,927	61	
April	27,276	909	1,402	30.30	3,273	43	12,495	417	2,482	39.23	3,927	63	
May	38,167	1,231	2,747	25.59	3,273	84	11,540	372	1,423	34.00	3,927	36	
June	27,912	930	1,883	27.37	3,273	58	24,199	807	2,200	47.50	3,927	56	
July	26,345	850	2,078	31.70	3,273	63	36,742	1,185	2,511	40.53	3,927	64	
August	67	2	26	29.12	3,273	1	75,990	2,451	2,601	40.63	3,927	66	
September	402	13	245	29.75	3,273	7	68,142	2,271	2,467	42.18	3,927	63	
October	1,015	33	538	29.65	3,273	16	64,313	2,075	2,389	40.72	3,927	61	
November	14,221	474	1,552	29.81	3,273	47	34,844	1,161	1,952	40.26	3,927	50	
December	24,420	788	1,784	34.40	3,273	55	25,372	818	2,028	39.52	3,927	52	
Total	208,594						517,232						

		2004 Annual Summary Capreol Wells				
		Vermillion # 6 Well				
	m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow	% Capacity
January	53,597	1,729	1,833	29.10	2,946	62
February	47,761	1,647	1,859	28.75	2,946	63
March	24,322	785	1,450	23.86	2,946	49
April	52,792	1,760	1,896	27.44	2,946	64
May	57,174	1,844	1,892	22.97	2,946	64
June	53,564	1,785	1,841	23.80	2,946	62
July	21,429	691	1,760	21.23	2,946	60
August	110	4	57	37.66	2,946	2
September	1,694	56	846	20.38	2,946	29
October	88	3	37	20.77	2,946	1
November	238	8	88	21.11	2,946	3
December	2,482	80	1,089	20.98	2,946	37
Total	315,252					

1.4 Dowling Well Supply

C of A No. 5064-5RFKD5

Date: November 21, 2003

The Dowling water works is a communal groundwater system which supplies water to the community of Dowling. The water works includes two (2) 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 and, fluoride injection for public health. 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. This process allows standby water with poor aesthetic characteristics not enter the distribution system.

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 that 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 will need to have enhanced 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

The following table provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2004 reportable period.

**Table 1-4
Dowling Wells and Distribution System**

Item	Non-Compliance	Measure Taken to Ensure Compliance
MOE Inspection Issues	<ul style="list-style-type: none"> • Operations manual does not exist • The operations manual does not meet the requirements of the certificate of approval or engineering evaluation report • The concentration of fluoride is not in accordance with the regulation 	<p>The City immediately contacted the consultant for the system and developed these manuals by the required date. Confirmation was sent to the MOE by October 15th, 2004 as required</p> <p>The city has taken steps to correct and control this issue. Several modifications and adjustments have proven effective. CGS will continue to optimize as required.</p>
MOE Orders	<ul style="list-style-type: none"> • ORDER # 5620-64LRCD (Requiring the City to ensure an operations manual containing all information prescribed by the certificate of approval is provided) 	<p>The City immediately contacted the consultant for the system and developed these manuals by the required date. Confirmation was sent to the MOE by October 15th, 2004 as required</p>

2004 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

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
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No Adverse Water Quality Incident Report

Annual Flow Summary

The following table 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 2004 reportable period.

		Lionel Well					Riverside Well						
		m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow	% Capacity	m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow	% Capacity
January		6,145	198	961	41.30	3,600	27	8,466	273	724	41.00	3,600	20
February		4,184	144	867	41.10	3,600	24	9,900	341	772	40.67	3,600	21
March		2,765	89	878	53.70	3,600	24	10,194	329	758	41.57	3,600	21
April		5,550	185	896	42.62	3,600	25	8,886	296	853	41.50	3,600	24
May		4,532	146	864	50.70	3,600	24	10,724	346	903	41.92	3,600	25
June		5,111	170	922	39.80	3,600	26	10,766	359	804	41.72	3,600	22
July		6,237	201	882	39.15	3,600	24	10,323	333	782	48.90	3,600	22
August		5,610	181	942	38.85	3,600	26	10,109	326	765	40.57	3,600	21
September		5,890	196	881	38.70	3,600	24	10,792	360	814	40.22	3,600	23
October		5,370	173	855	38.25	3,600	24	10,812	349	818	39.82	3,600	23
November		6,024	201	915	37.95	3,600	25	10,994	366	794	39.47	3,600	22
December		5,908	191	890	37.90	3,600	25	11,181	361	838	39.30	3,600	23
Total		63,327						123,148					

- | | | |
|-------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <p>1.5</p> | <p>Garson Well Supply
C of A No. 3774-5J4T92
Date: January 28, 2003</p> | <p>(Inco Garson Well)
C of A No. 7619-5H8KEL
Date: January 02, 2003</p> |
|-------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|

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
- Garson Well No. 3

Inco Well No. 1 is owned by Inco Limited. The well is situated within a pumphouse on the east side of Falconbridge at Spruce Street. The system includes a vertical turbine well pump, chlorine for disinfection with sodium hypochlorite and fluoride injection for public health. There is no standby power at Well

Pumphouse No.1. The City of Greater Sudbury operates the well pumphouse on behalf of Inco as the water is directly connected to the public distribution network. Inco and the City are in discussions about transferring the ownership of the well to the City at the time of writing this report.

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 but housed in separate buildings which contain the vertical turbine well pumps. The discharge from the well pumps enter a common building which houses the liquid chlorine disinfection equipment, and fluoride injection equipment.

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 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 City has commenced a project to document water sources in the City as the basis for starting a groundwater protection plan.

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, however, this is only used in the event of emergencies. 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

The following table provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2004 reportable period.

Table 1-5
Garson Wells and Distribution System

Item	Non-Compliance	Measure Taken to Ensure Compliance
MOE Inspection Issues	<ul style="list-style-type: none"> • There was no evidence the annular space around the well casing of each well was adequately filled with sealing material when constructed • The owner does not have up-to-date drawings of the system • Up-to-date as built are not available and or subsequent modifications have not been noted on the drawings • The concentration of fluoride was not in accordance with regulations 	<p>The city submitted the documentation regarding the construction of the well and sealing materials as developed by IWS well contractors. This was submitted by the required date of December 10th, 2004</p> <p>The city edited the drawings on site to include sampling sink and sent confirmation letter to MOE when completed</p> <p>The city has taken steps to correct and control this issue. Several modifications and adjustments have proven effective. CGS will continue to optimize as required.</p>
MOE Orders	NONE	N/A

2004 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

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
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No Adverse Water Quality Incident Report

Annual Flow Summary

The following table 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 2004 reportable period.

		Orell # 1 Well					Orell # 3 Well					
		m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow	% Capacity	m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow
January	16,915	546	892	29.44	1,572	57	9,369	302	1,000	33.00	3,274	31
February	11,065	382	633	14.36	1,572	40	6,146	212	582	31.44	3,274	18
March	15,229	491	785	14.48	1,572	50	7,781	251	621	31.61	3,274	19
April	12,643	421	642	22.95	1,572	41	5,160	172	435	29.86	3,274	13
May	14,291	461	837	14.87	1,572	53	5,007	162	597	28.69	3,274	18
June	15,120	504	785	15.80	1,572	50	4,757	159	333	27.75	3,274	10
July	15,643	505	746	14.55	1,572	47	4,605	149	331	25.19	3,274	10
August	14,604	471	849	14.72	1,572	54	6,658	215	660	29.27	3,274	20
September	12,007	400	601	14.64	1,572	38	3,306	110	236	28.90	3,274	7
October	10,998	355	547	14.37	1,572	35	4,454	144	300	29.20	3,274	9
November	8,441	281	613	17.69	1,572	39	5,707	190	400	30.82	3,274	12
December	4,730	153	313	14.70	1,572	20	9,182	296	403	28.62	3,274	12
Total	151,686						72,133					

		Inco Garson Well				
		m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow
January	26,862	867	1,077	27.70	2,981	36
February	30,712	1,059	1,169	25.87	2,981	39
March	30,349	979	1,259	29.02	2,981	42
April	32,085	1,070	1,177	26.63	2,981	39
May	31,992	1,032	1,287	25.37	2,981	43
June	32,836	1,095	1,150	27.40	2,981	39
July	32,355	1,044	1,332	26.92	2,981	45
August	32,236	1,040	1,277	27.16	2,981	43
September	33,523	1,117	1,425	29.97	2,981	48
October	33,545	1,082	1,164	29.93	2,981	39
November	31,393	1,046	1,194	29.97	2,981	40
December	36,291	1,171	1,531	27.89	2,981	51
Total	384,179					

1.6 Blezard Valley Well Supply

C of A No. 8256-645J9F

Date: August 23, 2004

The Blezard Valley Well Supply system is a multi-well groundwater system servicing the communities of Hanmer, Blezard Valley, Val Caron, McCrea Heights, Azilda and Chelmsford. Nine (9) groundwater wells are situated throughout the Valley and each are located in well pumphouses. The communities are interconnected with distribution piping and three (3) 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 for public health. 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

The water supply source is a common groundwater aquifer characterized as a shallow sand and gravel aquifer. A preliminary hydrology study performed during the preparation of the First Engineers' Report classified all of the wells as not under the direct influence (GUDI) 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 have insufficient chlorine contact time except Well “F”, Linden. Therefore, all wells must be upgraded to incorporate additional contact time as was recently performed at the Garson Well System.

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, the long-term water quality of the Valley Well System is under some risk.

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

The following table provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2004 reportable period.

Table 1-6
Bleazard Valley Wells and Distribution System

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

2004 Adverse Water Quality Incident Report

210000737 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

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2004/07/12	Total Coliform Background	>200	counts/10 OmL	Resample/Re-test;	2004/07/19
2004/07/24	Total Coliform	203	CFU/100 mL	Resample/Re-test;	2004/07/25
2004/10/07	Total Coliform	10	counts/10 OmL	Resample/Re-test;	2004/10/10

Annual Flow Summary

The following table 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 2004 reportable period.

		Well "B" Kenneth					Well "C" Phillippe						
		m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow	% Capacity	m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow	% Capacity
January		28,642	924	1,624	23.82	2,288	71	28,452	918	1,642	21.70	2,288	72
February		27,401	945	1,492	25.27	2,288	65	25,733	887	1,657	20.95	2,288	72
March		27,652	892	1,469	22.20	2,288	64	27,677	893	1,550	21.55	2,288	68
April		24,813	827	1,196	23.32	2,288	52	24,451	815	1,316	22.27	2,288	58
May		19,845	640	1,061	23.12	2,288	46	30,252	976	1,727	23.17	2,288	75
June		25,355	845	1,090	22.67	2,288	48	24,606	820	1,212	22.90	2,288	53
July		25,939	837	1,496	23.02	2,288	65	29,000	935	1,686	22.90	2,288	74
August		25,697	829	1,132	21.90	2,288	49	35,537	1,146	1,719	23.65	2,288	75
September		26,661	889	1,149	21.57	2,288	50	30,780	1,026	1,310	23.17	2,288	57
October		30,279	977	1,418	21.65	2,288	62	31,738	1,024	1,724	23.57	2,288	75
November		31,854	1,062	1,445	22.52	2,288	63	35,417	1,181	1,650	22.77	2,288	72
December		31,412	1,013	1,202	21.72	2,288	53	37,538	1,211	1,725	22.43	2,288	75
Total		325,551						361,182					

		Well "A" Deschene					Well "D" Frost Well					
		m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow	% Capacity	m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow
January	14,747	476	926	14.10	1,797	52	34,746	1,121	2,049	29.22	2,288	90
February	14,470	499	872	14.27	1,797	49	33,269	1,147	2,174	28.37	2,288	95
March	11,669	376	859	13.87	1,797	48	34,260	1,105	2,288	28.60	2,288	100
April	15,682	523	899	12.70	1,797	50	39,875	1,329	2,280	29.87	2,288	100
May	14,684	474	913	13.17	1,797	51	35,890	1,158	2,253	29.62	2,288	98
June	16,108	537	805	14.30	1,797	45	33,029	1,101	2,175	29.32	2,288	95
July	17,469	564	932	13.55	1,797	52	37,755	1,218	2,105	30.25	2,288	92
August	17,660	570	938	13.67	1,797	52	39,758	1,283	2,226	30.02	2,288	97
September	17,183	573	704	14.02	1,797	39	47,751	1,592	2,243	30.17	2,288	98
October	22,666	731	912	13.22	1,797	51	47,296	1,526	2,296	29.52	2,288	100
November	18,892	630	893	12.40	1,797	50	50,796	1,693	2,281	29.77	2,288	100
December	20,419	659	901	13.82	1,797	50	54,901	1,771	2,984	30.62	2,288	130
Total	201,648						489,326					

		Well "H" Michelle Well					Well "E" Notre Dame					
		m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow	% Capacity	m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow
January	10,341	334	1,859	22.92	2,289	81	43,630	1,407	2,172	26.80	3,105	70
February	28,078	968	1,876	22.55	2,289	82	37,165	1,282	2,163	26.40	3,105	70
March	28,264	912	1,848	28.67	2,289	81	39,001	1,258	2,129	26.15	3,105	69
April	27,100	903	1,672	23.52	2,289	73	34,084	1,136	2,111	26.35	3,105	68
May	31,906	1,029	1,738	24.75	2,289	76	35,135	1,133	2,100	26.12	3,105	68
June	29,310	977	1,327	25.52	2,289	58	33,830	1,128	2,111	26.55	3,105	68
July	30,329	978	1,349	29.57	2,289	59	44,504	1,436	2,122	26.55	3,105	68
August	31,768	1,025	1,426	28.57	2,289	62	41,527	1,340	2,127	26.67	3,105	68
September	35,768	1,192	1,729	29.40	2,289	76	45,752	1,525	2,113	26.67	3,105	68
October	35,350	1,140	1,647	29.10	2,289	72	43,898	1,416	2,119	26.57	3,105	68
November	39,573	1,319	1,728	29.87	2,289	76	46,800	1,560	2,073	26.07	3,105	67
December	42,752	1,379	1,752	29.22	2,289	77	43,017	1,388	2,049	25.67	3,105	66
Total	370,540						488,343					

		Well "F" Linden					Well "G" Pharand					
		m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow	% Capacity	m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow
January	44,240	1,427	2,222	32.40	3,268	68	33,945	1,095	1,823	21.97	2,289	80
February	36,212	1,249	2,653	34.55	3,268	81	29,547	1,019	1,837	21.82	2,289	80
March	62,754	2,024	2,791	35.20	3,268	85	36,896	1,190	1,801	21.87	2,289	79
April	60,605	2,020	2,744	35.20	3,268	84	31,641	1,055	1,845	22.17	2,289	81
May	52,543	1,695	2,717	34.87	3,268	83	34,235	1,104	1,889	22.75	2,289	83
June	49,141	1,638	2,403	34.55	3,268	74	30,676	1,023	1,309	22.43	2,289	57
July	40,696	1,313	2,636	34.57	3,268	81	34,175	1,102	1,877	22.62	2,289	82
August	46,633	1,504	2,493	32.95	3,268	76	33,865	1,092	1,877	22.40	2,289	82
September	53,934	1,798	2,632	33.45	3,268	81	28,642	955	1,439	22.15	2,289	63
October	55,143	1,779	2,595	32.65	3,268	79	12,856	415	1,713	22.17	2,289	75
November	57,611	1,920	2,592	32.97	3,268	79	7,075	236	1,397	22.12	2,289	61
December	59,608	1,923	2,653	32.87	3,268	81	17,082	551	1,396	22.15	2,289	61
Total	619,119						330,635					

		Well "I" Well				
		m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow
January	39,526	1,275	1,286	25.80	1,973	65
February	37,530	1,294	1,304	22.86	1,973	66
March	40,204	1,297	1,305	19.10	1,973	66
April	38,804	1,293	1,304	21.99	1,973	66
May	36,961	1,192	1,305	22.26	1,973	66
June	38,862	1,295	1,305	22.39	1,973	66
July	38,767	1,251	1,306	22.81	1,973	66
August	32,719	1,055	1,304	22.94	1,973	66
September	11,564	385	1,304	25.52	1,973	66
October	28,469	918	1,304	25.25	1,973	66
November	22,634	754	1,304	23.21	1,973	66
December	29,180	941	1,773	21.63	1,973	90
Total	395,221					

1.7 Levack Fluoride System

C of A No. 3125-5TEN2Y

Date: November 21, 2003

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

The Levack water supply system owned by Inco is not the subject of this Compliance 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 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 Inco must prepare a GUDI study. Inco served notice late in 2003 that they intend to end supply agreement.

Although the Inco Levack system 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 has not objected to the Condition for re-chlorination, however, the MOE has been asked to extend the date for compliance to allow the City to see what upgrades Inco may be planning to their facility.

The water works in Levack will invariably require upgrades to ensure full compliance with O. Reg. 170/03. The exact extent of the upgrades is unknown at this time.

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

The following table provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2004 reportable period.

Table 1-7
Levack Fluoridation Station

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

2004 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

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2004/01/12	HPC	>500	counts/1 mL	Resample/Re-test;	2004/01/20
2004/02/03	Background count	435	CFU/100 ml	Resample/Re-test;	2004/02/09
2004/08/03	Free Chlorine Residual	0.00	mg/L	Resample/Re-test;	2004/08/03
2004/12/20	Fluoride	1.98	mg/L	Resample/Re-test;	2004/12/20
2004/12/21	Fluoride	2.0	mg/L	Resample/Re-test;	2004/12/21

Annual Flow Summary

The following table 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 2004 reportable period.

						
2004 Annual Summary Levack						
Levack Fluoridation Facility						
	m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow	% Capacity
January	30,001	968	1,041	22.43	1,056	99
February	26,692	920	1,051	26.30	1,056	99
March	26,828	865	903	19.21	1,056	85
April	25,312	844	868	26.34	1,056	82
May	25,497	822	896	28.10	1,056	85
June	25,032	834	909	38.93	1,056	86
July	23,779	767	835	27.54	1,056	79
August	24,178	780	832	22.47	1,056	79
September	26,524	884	966	26.68	1,056	91
October	19,550	631	818	25.57	1,056	78
November	16,805	560	602	13.49	1,056	57
December	26,094	842	1,037	22.47	1,056	98
Total	296,292					

1.8 Falconbridge Water System

C of A No. 3517-5VULKG

Date: February 04, 2004

The Falconbridge water system, as owned and operated by the City, is a Fluoridation station and Building. Water is supplied to the Fluoride Building from the Falconbridge Ltd. Deep well Pumphouse No. 4. The water is treated to comply with O. Reg. 170/03 by Falconbridge Ltd. then delivered to the community of Falconbridge via the City fluoride building.

The Falconbridge well supply system that is owned by Falconbridge is not the subject of this Compliance Report, however, a brief explanation of the system is provided for continuity. The Falconbridge Deep Well No. 4 is a groundwater well situated adjacent to Boucher Lake, south-east of Falconbridge. The groundwater quality had deteriorated due to historical mining activities therefore, a recharge system is now operated adjacent to PW No. 4. The recharge pit is filled with water from the Wanapitei River and a

pump system also owned by Falconbridge. The resultant water quality is generally in compliance with the ODWS, however, it is considered to be potentially under direct influence of surface water.

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

Although Falconbridge 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 has not objected to the Condition for re-chlorination, however, the MOE has been asked to extend the date for compliance to allow the City to see what upgrades Falconbridge may be planning for their facilities.

The distribution network in the community of Falconbridge is owned by the City but was developed by Falconbridge 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

The following table provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2004 reportable period.

**Table 1-8
Falconbridge Fluoridation Station**

Item	Non-Compliance	Measure Taken to Ensure Compliance
MOE Inspection Issues	<ul style="list-style-type: none"> • Operations Manual does not meet requirements • Concentration of Fluoride is not in accordance with regulations 	<p>The city contacted consultants to ensure completeness of document</p> <p>The city has taken steps to correct and control this issue. Several modifications and adjustments have proven effective. CGS will continue to optimize as required.</p>
MOE Orders	NONE	N/A

2004 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

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2004/07/06	Free Chlorine Residual	0.00	mg/L	Resample/Re-test;	2004/07/06

Annual Flow Summary

The following table 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 2004 reportable period.

 2004 Annual Summary Falconbridge Falconbridge Fluoridation Facility						
	m3 Total Flow	Average Daily Flow m3/d	Maximum Daily Flow m3/d	Instantaneous Peak Flow L/s	m3/d C of A Maximum Flow	% Capacity
January	10,953	353	404	9.99	727	56
February	11,254	388	422	9.99	727	58
March	11,727	378	398	9.99	727	55
April	11,337	378	447	9.99	727	61
May	11,910	384	442	9.99	727	61
June	13,537	451	518	9.99	727	71
July	12,264	396	526	9.99	727	72
August	9,395	303	449	9.99	727	62
September	7,118	237	319	9.99	727	44
October	7,083	228	304	9.99	727	42
November	6,319	211	350	9.99	727	48
December	6,983	225	424	9.99	727	58
Total	119,878					

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 owners certificate for the treatment facility. The owners of the Onaping and Vermillion *treatment* facilities are Falconbridge and 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 and Vermillion. The City has obligations to test, maintain and report on these distribution works as part of the new regulations.

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

The following table provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2004 reportable period.

**Table 1-9
 Onaping Distribution System**

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

2004 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

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
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No Adverse Water Quality Incident Report

Non-Compliance with Act, Regulations, Order or Approvals

The following table provides a summary of any requirements of the Act, Regulations, Orders, or Approval that the system failed to meet during the 2004 reportable period.

Table 1-10
Vermillion Distribution System

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

2004 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

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2004/07/28	Total Coliform	1	counts/10 0mL	Resample/Re-test;	2004/07/31
2004/07/30	Free Chlorine Residual	0.07	mg/L	Resample/Re-test;	2004/07/30
2004/08/11	Free Chlorine Residual	0.03	mg/L	Resample/Re-test;	2004/08/11
2004/11/10	Total Coliform	9	counts/10 0mL	Resample/Re-test;	2004/11/12