COUNCIL ATTACHMENT 1

York Region Drinking Water System Schedule 22 Summary Report

Mandated under Schedule 22 of the Ministry of the Environment's Drinking Water Systems Regulation (O. Reg. 170/03)

2007 Reporting Year

Presented to the York Region Transportation and Works Committee and York Regional Council

Executive Summary

York Region is responsible for the production, treatment and storage of drinking water to the communities of Georgina, Aurora, East Gwillimbury, Newmarket, Whitchurch-Stouffville, King Township, and parts of the City of Vaughan. York Region is also responsible for the transmission of drinking water from the City of Toronto and the Regional Municipality of Peel to the communities of Richmond Hill, Markham, City of Vaughan, and parts of the Towns of Aurora and Newmarket.

This report has been created to fulfill the requirements outlined in Schedule 22 of the Ministry of the Environment's Drinking Water Systems Regulation O. Reg. 170/03.

This report provides a summary of the individual drinking water systems and a series of figures on the 2007 pumping history for each individual well and system in York Region. In 2007, all of York Region's Drinking Water Systems met the withdrawal limits imposed by its Permits to Take Water (PTTW).

In 2007, 15 of 37 production wells experienced incidents where instantaneous peak flow rates exceeded the Permit To Take Water limits. Water production wells may experience brief flow spikes (typically, less than five minutes) where the instantaneous flow rate exceed the Permit To Take Water limits. Flow spikes are generally associated with well pump start up and the Ministry of Environment is satisfied that any short term flow spikes recorded at York Region production wells are expected and do not pose a compliance issue. The peak flows over the PTTW limit are identified in each of the *'Daily Instantaneous Peak Flow'* graphs.

A summary of the findings for each drinking water system are presented in Table E1.

TABLE E1: York Region Drinking Water System Compliance Summary

Water Supply	Met Limits Imposed By The PTTW
Ansnorveldt	Withdrawal below allowable limit
Aurora	Withdrawal below allowable limit *Instantaneous peak flow rates recorded above allowable limit*
Ballantrae	Withdrawal below allowable limit *Instantaneous peak flow rates recorded above allowable limit*
Georgina	Withdrawal below allowable limit
Keswick	Withdrawal below allowable limit
King City	Withdrawal below allowable limit *Instantaneous peak flow rates recorded above allowable limit*
Kleinburg	Withdrawal below allowable limit *Instantaneous peak flow rates recorded above allowable limit*
Mount Albert	Withdrawal below allowable limit
Newmarket/ East Gwillimbury	Withdrawal below allowable limit *Instantaneous peak flow rates recorded above allowable limit*
Nobleton	Withdrawal below allowable limit *Instantaneous peak flow rates recorded above allowable limit*
Schomberg	Withdrawal below allowable limit *Instantaneous peak flow rates recorded above allowable limit*
Stouffville	Withdrawal below allowable limit *Instantaneous peak flow rates recorded above allowable limit*
Yonge Street Aquifer	Withdrawal below allowable limit
York Water System	Withdrawal below allowable limit
Toronto Water Supply	Withdrawal below allowable limit
Peel Water Supply	Withdrawal above allowable limit

There have been no Provincial Orders issued by the Ministry of the Environment under the *Safe Drinking Water Act (2002)* or the Ontario Regulation 170/03 for the period of January 1 – December 31, 2007.

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Introduction

The purpose of the Summary Report is to provide the owners with an understanding of the Regional Municipality of York's (York Region) drinking-water systems status and capacities for the reporting period of January 1 – December 31, 2007. It has been created to fulfill the requirements mandated under Schedule 22 of the Ministry of the Environment's Drinking Water Systems Regulation Ontario Regulation 170/03.

The Annual Water Quality Report, which details the quality of York Region's drinking water, has been completed separately to fulfill the requirements of Section 11 of Ontario Regulation 170/03. This report will be available on request through the Water and Wastewater Branch, available on-line through the York Region website, as well as distributed to the local area municipalities serviced by the water system after February 28th, 2008.

2.0 Drinking-Water Systems Information

2.1 Ansnorveldt

York Region operates a water supply system to service Ansnorveldt, Township of King, under authority of a Certificate of Approval (C of A) issued by the Ontario Ministry of the Environment (MOE). The C of A includes reference to the valid Permit to Take Water (PTTW) also issued by the MOE. Details of the C of A and PTTW and other relevant classification information are presented in Table 1. All system upgrades required by the C of A have been completed.

TABLE 1: Ansnorveldt Water Supply – Summary of Approvals and Permit

Current Certificate of Approval Number: Issue Date:	4234-6VJPWK January 15, 2007
Current Permit to Take Water Number: Issue Date: Expiry Date:	02-P-3050 June 21, 2002 March 31, 2012
MOE Waterworks Number:	260002213
System Classification:	Water Distribution II

2.1.1 Water Taking

The PTTW for the Ansnorveldt Water Supply System allows York Region to withdraw up to 285,120 litres per day from production wells 1 and 2.

York Region monitors the water taking through flow meters placed downstream of each production well. Flow is monitored and alarmed on a continuous basis by SCADA to ensure that the regulated flows are not exceeded.

2.1.2 Measuring Points

Flow meters are in place downstream of each production well and record the instantaneous flow rate and total volume of water that has passed through the meter. The flow meters are calibrated annually to meet the monitoring conditions of the C of A.

Flow data is retrieved and stored using two methods which provides York Region with the opportunity to compare and contrast data, in the event one method should fail.

1. York Region staff manually record the flow rates and total flow data on regular operational visits to the well sites. Average flow rates are also calculated using records of total flow and number of operating pump hours. This ‘manual’ data was used to generate the maximum daily withdrawal and monthly average flow tables and figures.

2. The flow meters are also connected to the Supervisory Control and Data Acquisition (SCADA) system so that data can be monitored remotely and stored electronically. This data was used to generate the instantaneous peak flow rate figures.

2.1.3 Water Withdrawal

The total volume of water taken from the production wells of the Ansnorveldt Water Supply system for the reporting period of January 1 – December 31, 2007 was 19,542,255 litres or 53,540 litres per day.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 2.

TABLE 2: Permitted and Actual Maximum Daily Withdrawal from the Ansnorveldt Production Wells for January 1 – December 31, 2007

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Percentage of Permitted Withdrawal During Peak Demand
Well 1	100,800	39,961 – June 11, 2007	39.6%
Well 2	184,320	97,047 – May 23, 2007	52.6%

The maximum permitted water withdrawal and the actual annual withdrawal recorded daily water taking are presented in Table 3.

TABLE 3: Permitted and Actual Maximum Withdrawal from the Ansnorveldt Production Wells for January 1 – December 31, 2007

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Withdrawal
104,068,800	19,542,255	18.0%

The monthly average flows, the maximum daily withdrawals, and the permitted daily withdrawal for the reporting period of January 1 – December 31, 2007 are shown in Figures 1 and 2.

Figure 1: Ansnorveldt Well No. 1
Monthly Average Flow and Monthly Maximum Flow 2007

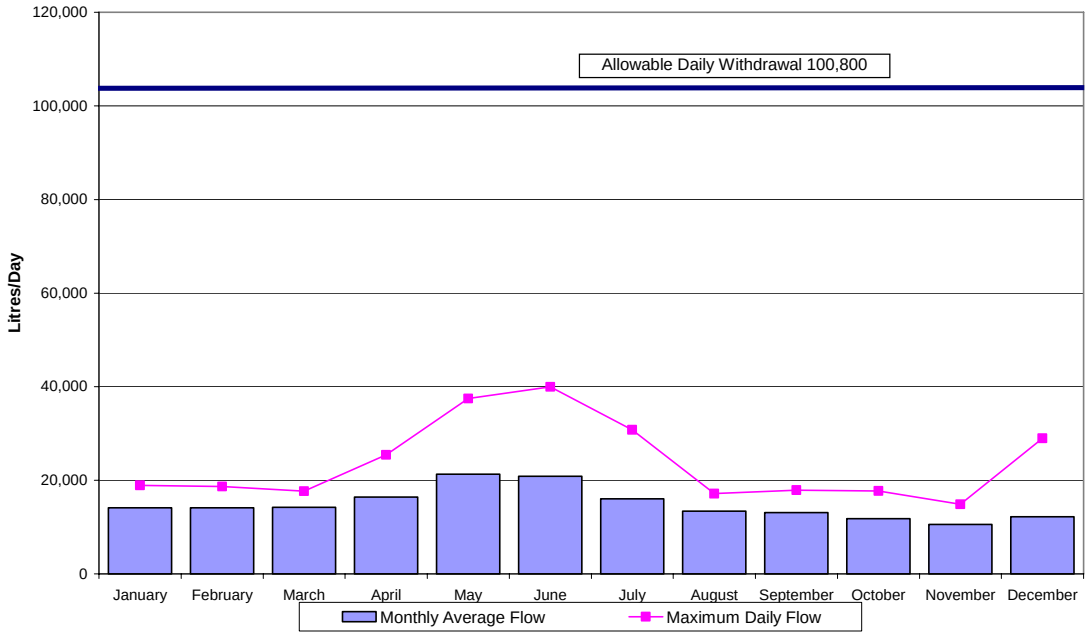
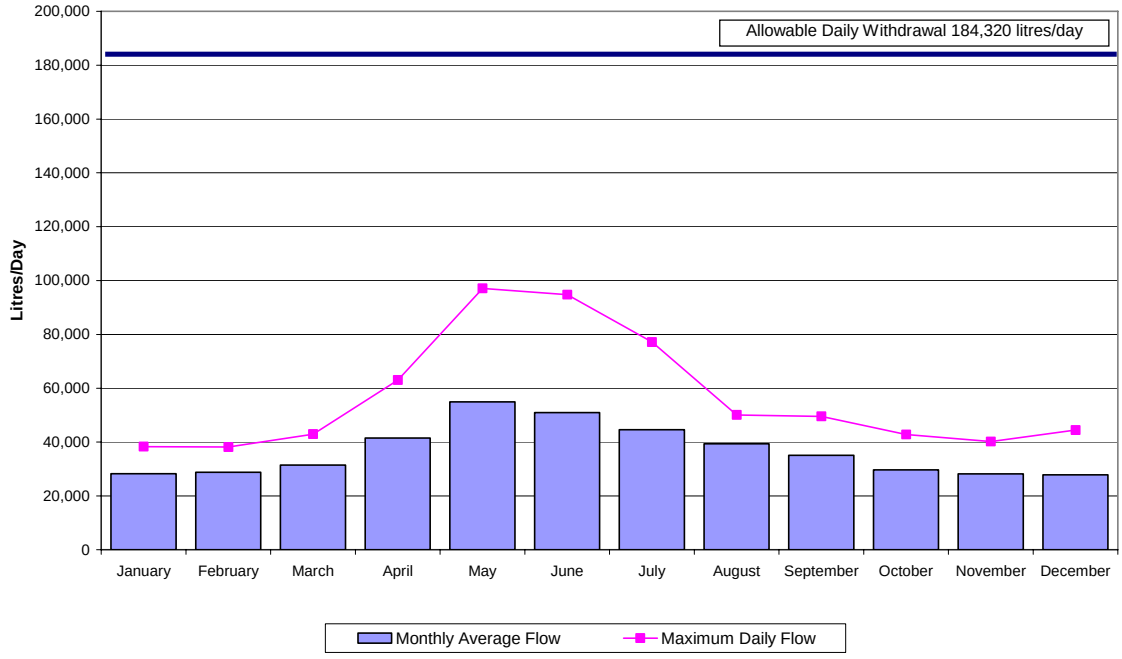


Figure 2: Ansnorveldt Well No. 2
Monthly Average Flow and Maximum Daily Flow 2007

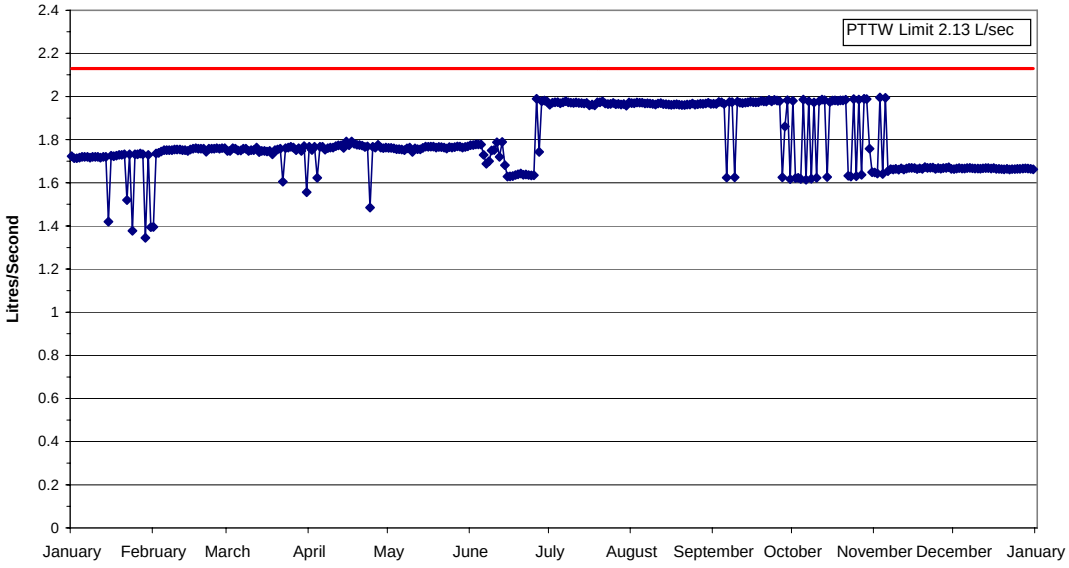


The actual volumes of water taken from the Ansnorveldt production wells during January 1 – December 31, 2007 did not exceed the permitted daily withdrawal volumes.

The *'Daily Instantaneous Peak Flow (litres)'* for January 1- December 31, 2007 are presented in Figures 3 and 4.

Figure 3: Ansnorveldt Well No. 1
Daily Instantaneous Peak Flow 2007

Figure 4: Ansnorveldt Well No. 2
Daily Instantaneous Peak Flow 2007



2.2 Aurora

York Region operates a water supply system to service the Town of Aurora under authority of a C of A issued by the MOE. The C of A includes reference to the valid PTTW also issued by the MOE. Details of the C of A and PTTW and other relevant classification information for the Aurora Water Supply are presented in Table 4. All system upgrades required by the C of A have been completed.

TABLE 4: Aurora Water Supply – Summary of Approvals and Permit

Current Certificate of Approval Number: Issue Date:	2603-6U8LCV November 10, 2006
Current Permit to Take Water Number: Issue Date: Expiry Date:	6623-68QQ6L March 10, 2005 March 31, 2015
MOE Waterworks Number:	220002440
System Classification:	Water Distribution & Supply III

2.2.1 Water Taking

The PTTW for the Aurora Water Supply System allows York Region to withdraw up to 31,618,944 litres per day from all production wells.

York Region monitors the water taking through flow meters placed downstream of each production well. Flow is monitored and alarmed on a continuous basis to ensure that the regulated flows are not exceeded.

2.2.2 Measuring Points

Flow meters are in place downstream of each production well and record the instantaneous flow rate and total volume of water that has passed through the meter. The flow meters are calibrated annually to meet the monitoring conditions of the C of A.

Flow data is retrieved and stored using two methods which provides York Region with the opportunity to compare and contrast data, in the event one method should fail.

1. York Region staff manually record the flow rates and total flow data on regular operational visits to the well sites. Average flow rates are also calculated using records of total flow and number of operating pump hours. This ‘manual’ data was used to generate the maximum daily withdrawal and monthly average flow tables and figures.

2. The flow meters are also connected to the Supervisory Control and Data Acquisition (SCADA) system so that data can be monitored remotely and stored electronically. This data was used to generate the instantaneous peak flow rate figures.

2.2.3 Water Withdrawal

The total volume of water taken from the production wells of the Aurora Water Supply system for the reporting period of January 1 – December 31, 2007 was 4,960,582,459 litres or 13,590,636 litres per day.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 5.

TABLE 5: Permitted and Actual Maximum Daily Withdrawal from the Aurora Production Wells for January 1 – December 31, 2007

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Percentage of Permitted Daily Withdrawal During Peak Demand
Well 1	3,273,120	2,803,333 – May 5, 2007	85.6%
Well 2	5,891,760	4,448,000 – May 5, 2007	75.5%
Well 3	5,237,136	4,899,333 – January 5, 2007	93.5%
Well 4	7,855,632	5,880,000 – May 10, 2007	74.9%
Well 5	5,891,760	5,267,343 – December 5, 2007	89.4%
Well 6	3,469,536	1,837,500 – January 16, 2007	52.9%

The maximum permitted water withdrawal and the actual annual withdrawal recorded daily water taking are presented in Table 6.

TABLE 6: Permitted and Actual Maximum Withdrawal from the Aurora Production Wells for January 1 – December 31, 2007

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Withdrawal
11,540,914,560	4,960,582,459	42.9%

The monthly average flows, the maximum daily withdrawals, and the permitted daily withdrawal for the reporting period of January 1 – December 31, 2007 are shown in Figures 5 through 10.

Figure 5: Aurora Well No. 1
Monthly Average Flow and Maximum Daily Flow 2007

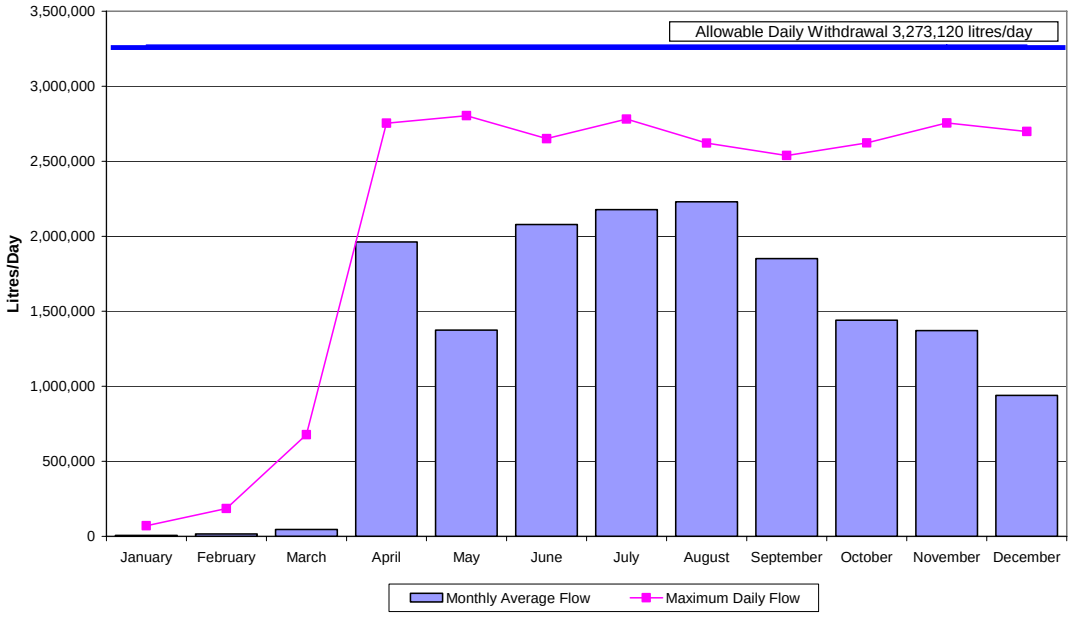


Figure 5 shows a reduced monthly average flow or no monthly average flow recorded for the month of January February and March 2007. This reduction in flow occurred due to the scheduled and unscheduled maintenance conducted on the well annually to improve the overall operation of the water system.

Figure 6: Aurora Well No. 2
Monthly Average Flow and Maximum Daily Flow 2007

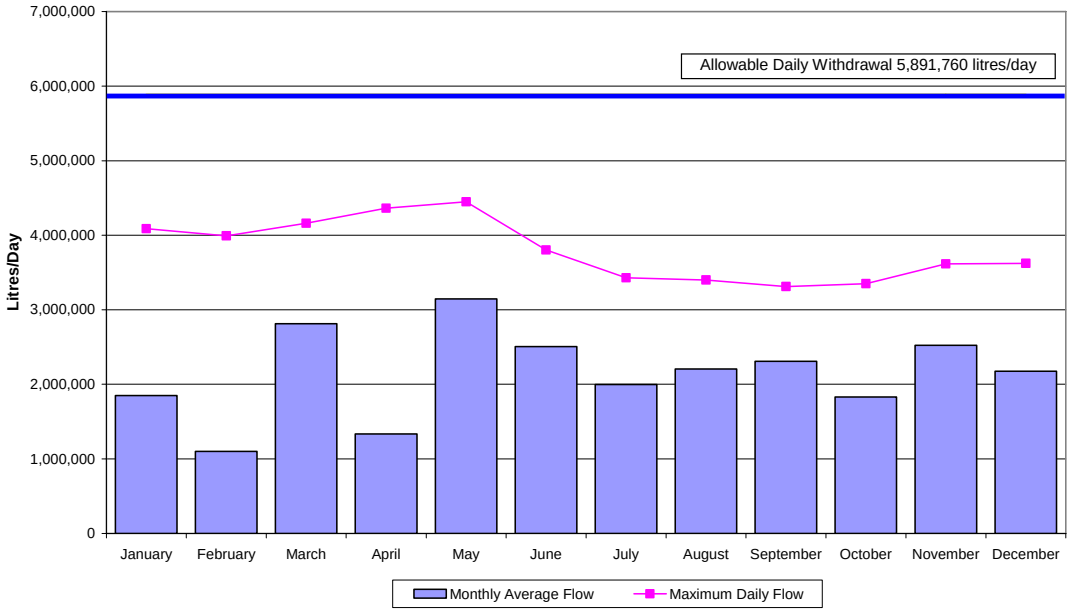


Figure 7: Aurora Well No. 3
Monthly Average Flow and Maximum Daily Flow 2007

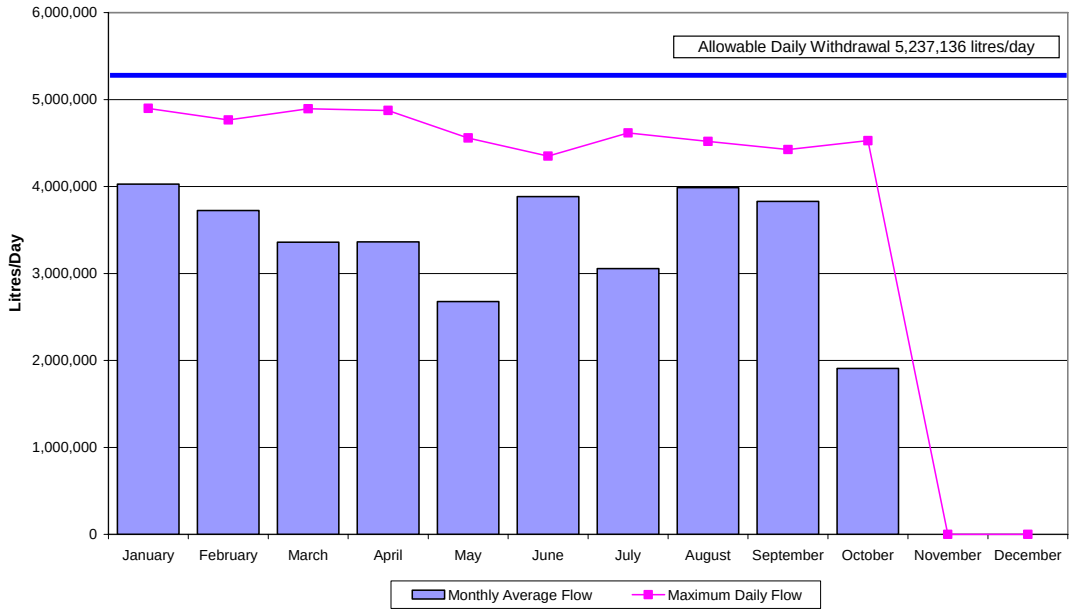


Figure 7 shows a reduced monthly average flow or no monthly average flow recorded for the month of January February and March 2007. This reduction in flow occurred due to the scheduled and unscheduled maintenance conducted on the well annually to improve the overall operation of the water system.

Figure 8: Aurora Well No. 4
Monthly Average Flow and Maximum Daily Flow 2007

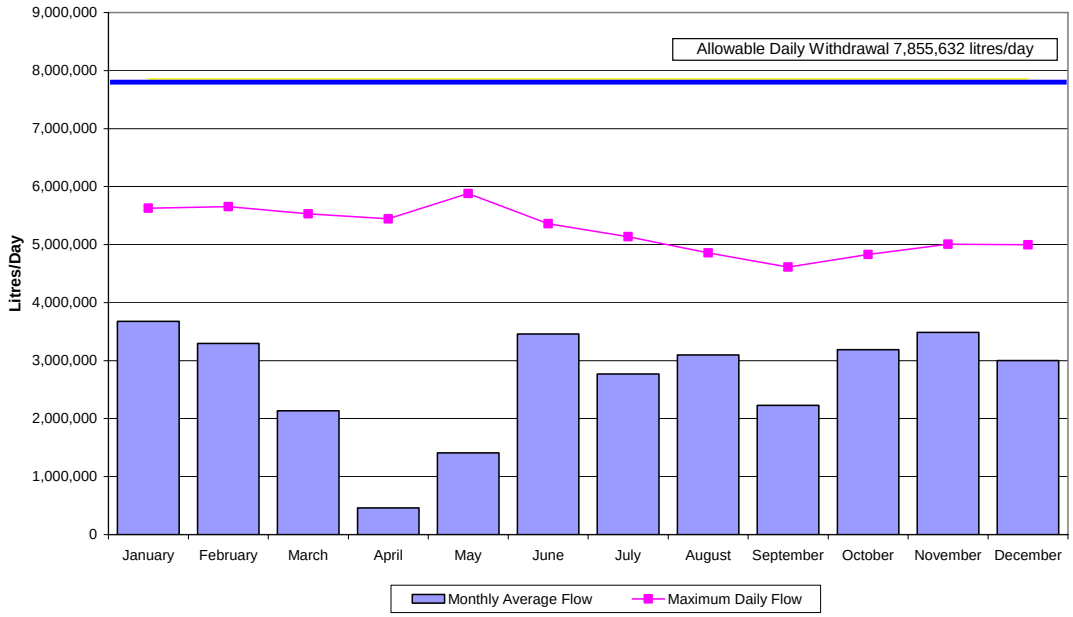


Figure 9: Aurora Well No. 5
Monthly Average Flow and Maximum Daily Flow 2007

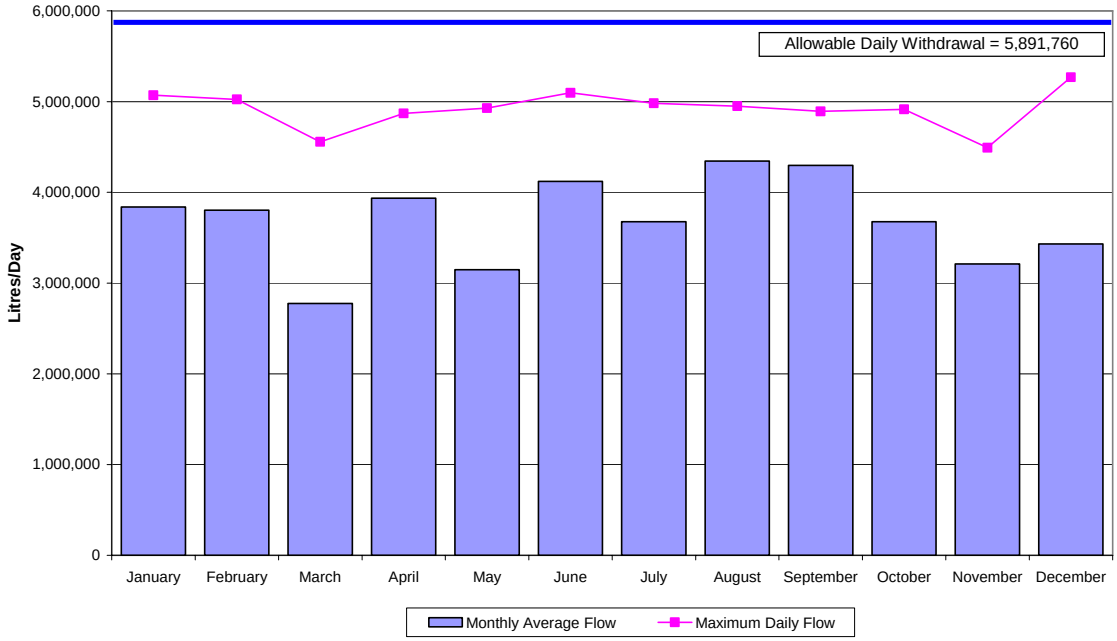
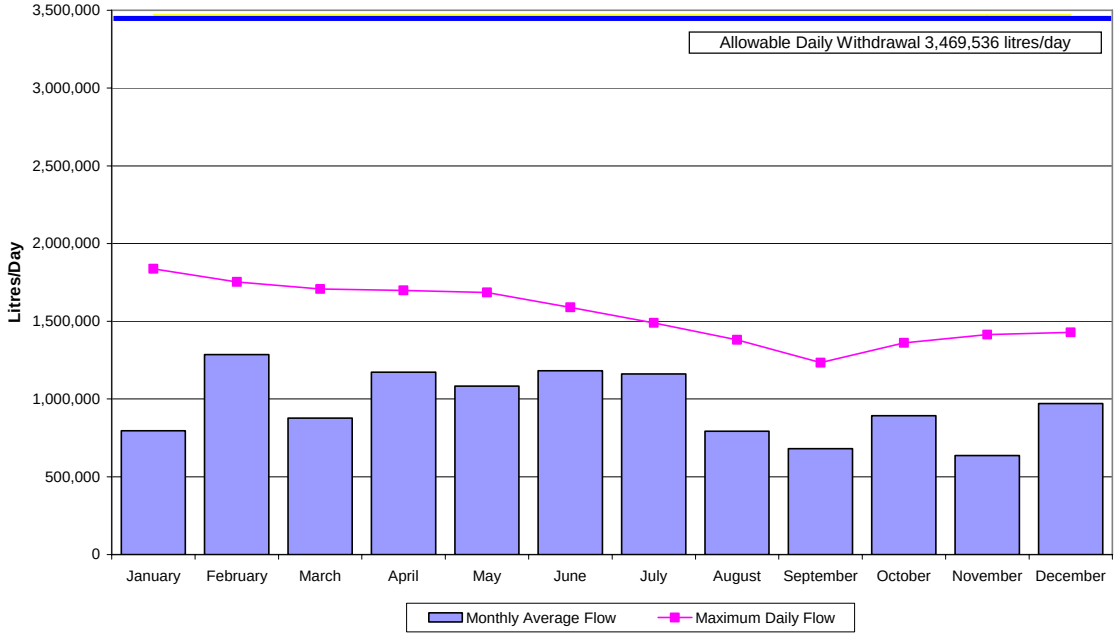


Figure 10: Aurora Well No. 6
Monthly Average Flow and Maximum Daily Flow 2007



Actual volumes of water taken from the Aurora production wells during January 1 – December 31, 2007 did not exceed the permitted daily withdrawal.

The *'Daily Instantaneous Peak Flow (litres)'* for January 1- December 31, 2007 are presented in Figures 11 through 16.

Figure 11: Aurora Well No. 1
Daily Instantaneous Peak Flow 2007

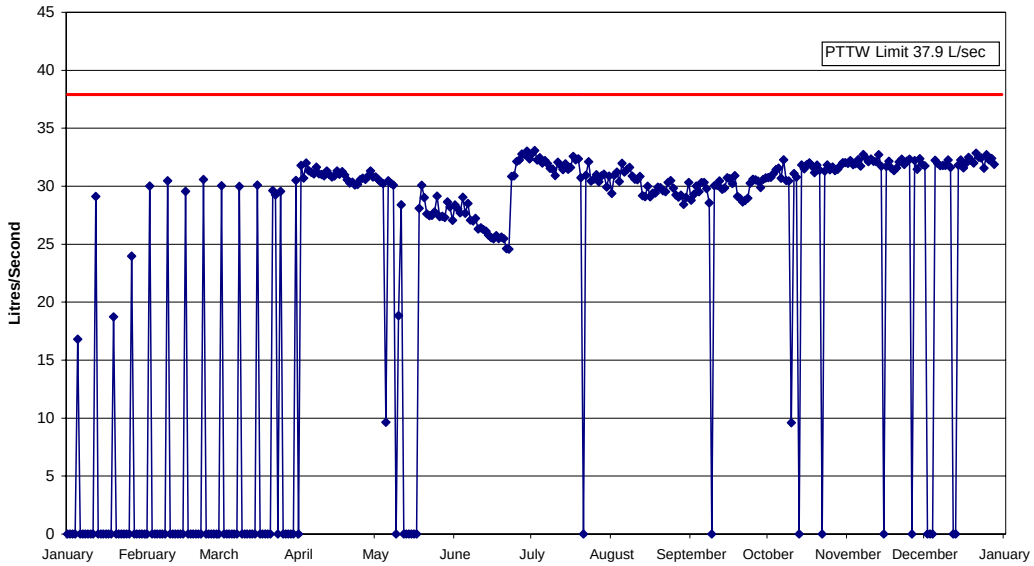


Figure 12: Aurora Well No. 2
Daily Instantaneous Peak Flow 2007

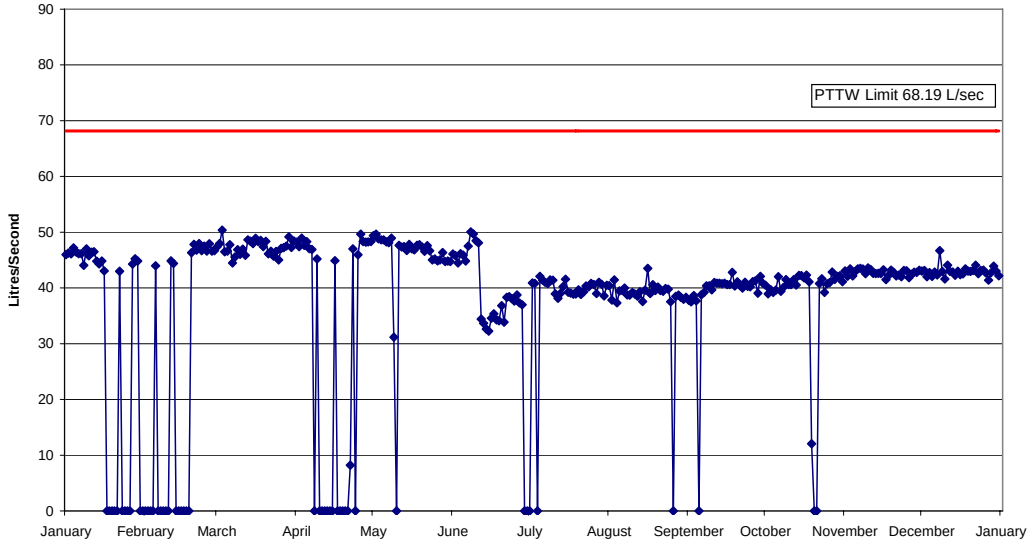


Figure 13: Aurora Well No. 3
Daily Instantaneous Peak Flow 2007

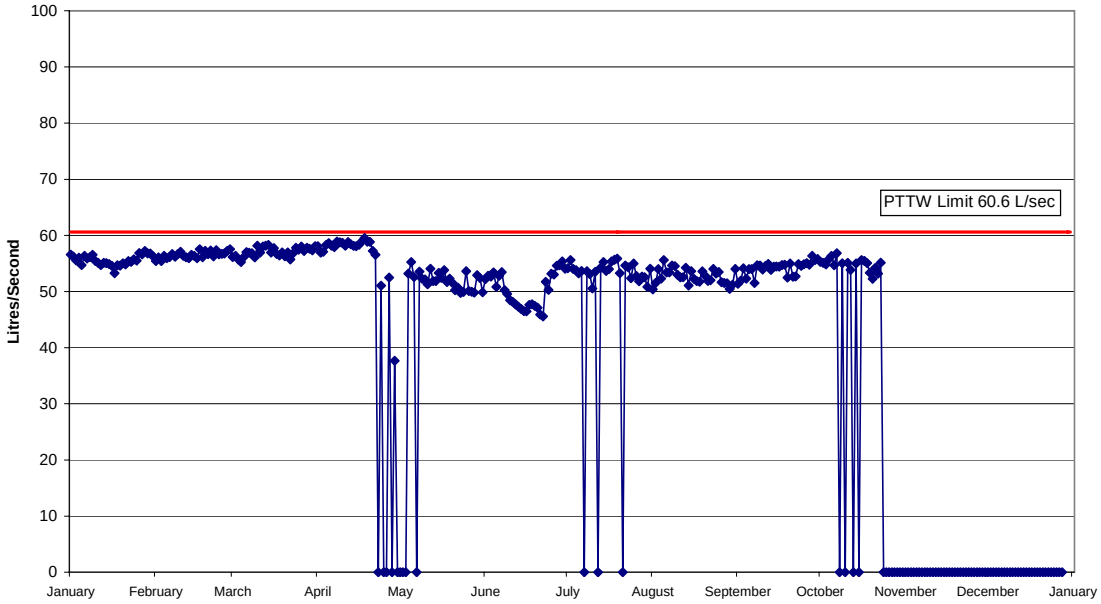


Figure 14: Aurora Well No. 4
Daily Instantaneous Peak Flow 2007

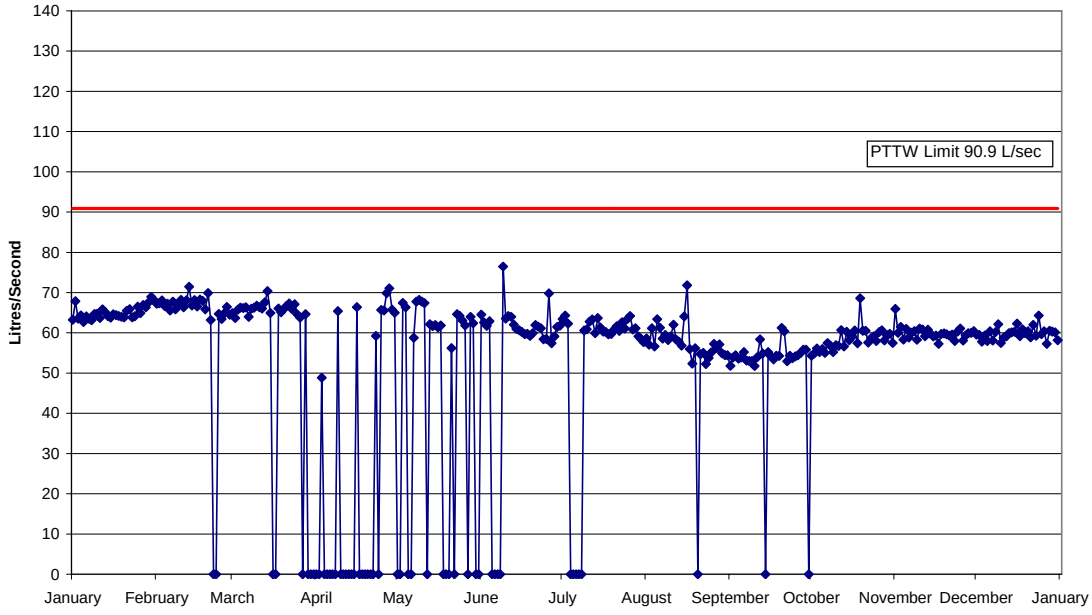


Figure 15: Aurora Well No. 5
Daily Instantaneous Peak Flow 2007

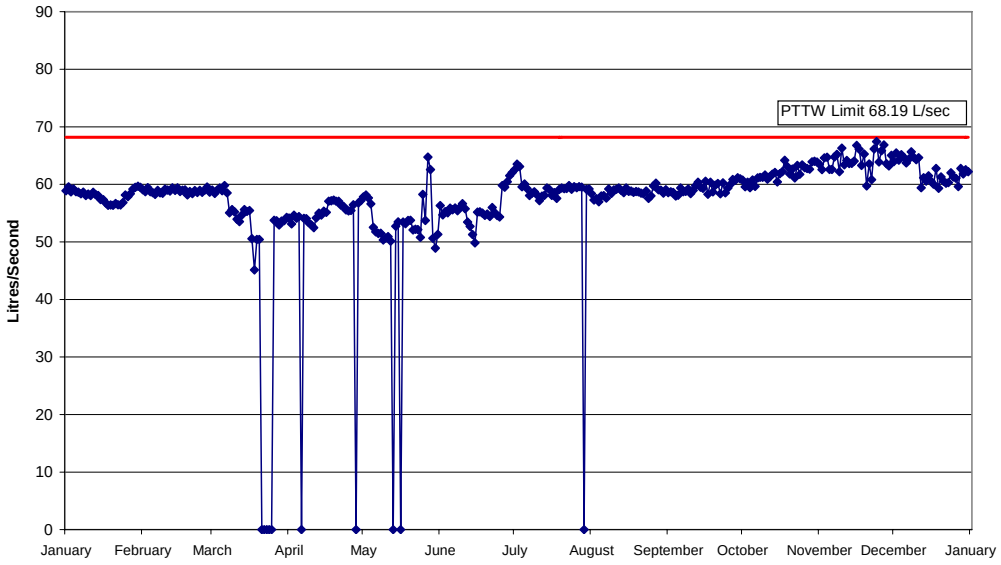


Figure 16: Aurora Well No. 6
Daily Instantaneous Peak Flow 2007

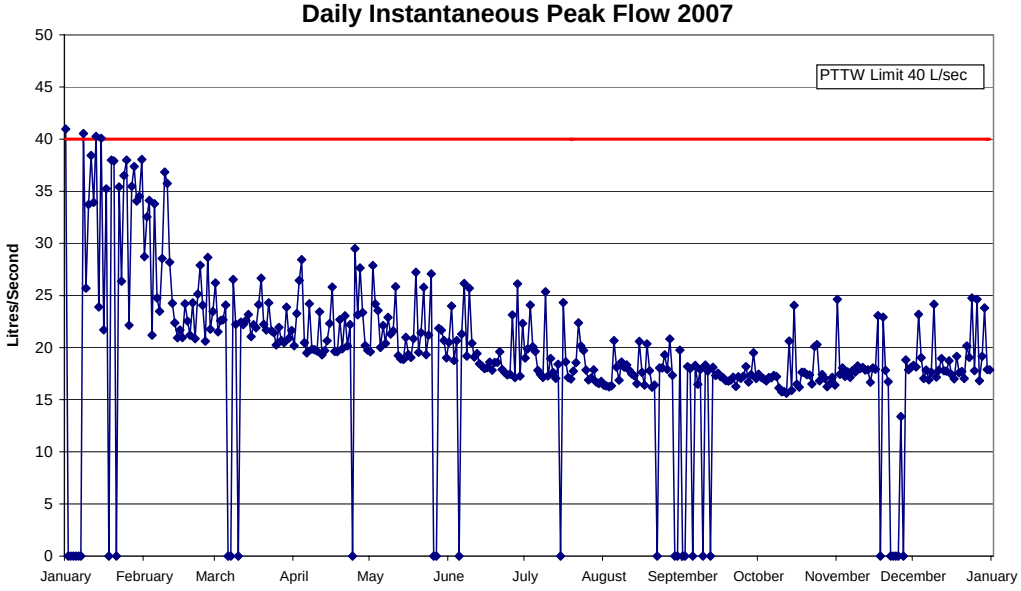


Figure 16 shows instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure, a change in the distribution system pressure or maintenance on the distribution system. Scheduled operational maintenance contributed to the reduction of the peak flow rates, improving the overall operations of the water system.

2.3 Ballantrae

York Region operates a water supply system to service Ballantrae/Musselman's Lake, Town of Whitchurch-Stouffville, under authority of a C of A issued by the MOE. The C of A includes reference to the valid PTTW also issued by the MOE. Details of the C of A and PTTW and other relevant classification information for the Ballantrae/Musselmans's Lake Water Supply are presented in Table 7. All system upgrades required by the C of A have been completed.

TABLE 7: Ballantrae/Musselman's Lake Water Supply – Summary of Approvals and Permit

Current Certificate of Approval Number: Issue Date:	8759-5W9LN2 March 3, 2004
Current Permit to Take Water Number: Issue Date: Expiry Date**:**	1088-6MMNAA March 10, 2006 March 31, 2008
MOE Waterworks Number:	220008658
System Classification:	Water Distribution & Supply II

2.3.1 Water Taking

The PTTW for the Ballantrae/Musselman's Lake Water Supply System allow York Region to withdraw up to 1,818,000 litres per day from production wells 1 and 2 with a maximum combined total permitted withdrawal of 3,180,000 litres per day. During higher demand periods from November 1 – April 30 combined daily water taking is limited to 2,618,000 litres per day and from May 1 – October 31 is limited to 4,580,000 litres per day.

York Region monitors the water taking through flow meters placed downstream of each production well. Flow is monitored and alarmed on a continuous basis to ensure that regulated flows are not exceeded.

2.3.2 Measuring Points

Flow meters are in place downstream of each production well and record the instantaneous flow rate and total volume of water that has passed through the meter. The flow meters are calibrated annually to meet the monitoring conditions of the C of A.

Flow data is retrieved and stored using two methods which provides York Region with the opportunity to compare and contrast data, in the event one method should fail.

1. York Region staff manually record the flow rates and total flow data on regular operational visits to the well sites. Average flow rates are also calculated using records of total flow and number of operating pump hours. This 'manual' data was used to generate the maximum daily withdrawal and monthly average flow tables and figures.

2. The flow meters are also connected to the Supervisory Control and Data Acquisition (SCADA) system so that data can be monitored remotely and stored electronically. This data was used to generate the instantaneous peak flow rate figures.

2.3.3. Water Withdrawal

The total volume of water taken from the production wells of the Ballantrae/Musselman's Lake Water Supply system for the reporting period of January 1 – December 31, 2007 was 440,897,431 litres or 1,207,938 litres per day.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 8.

TABLE 8: Permitted and Actual Maximum Daily Withdrawal from the Ballantrae/Musselman's Lake Production Wells for January 1 – December 31, 2007

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Percentage of Permitted Withdrawal During Peak Demand
Well 1 & 2	2,618,000 From Nov 1 – April 30	1,718,969 – November 18, 2007	65.6%
Well 1 & 2	4,580,000 From May 1 – October 31	3,013,027 – June 29, 2007	65.8%

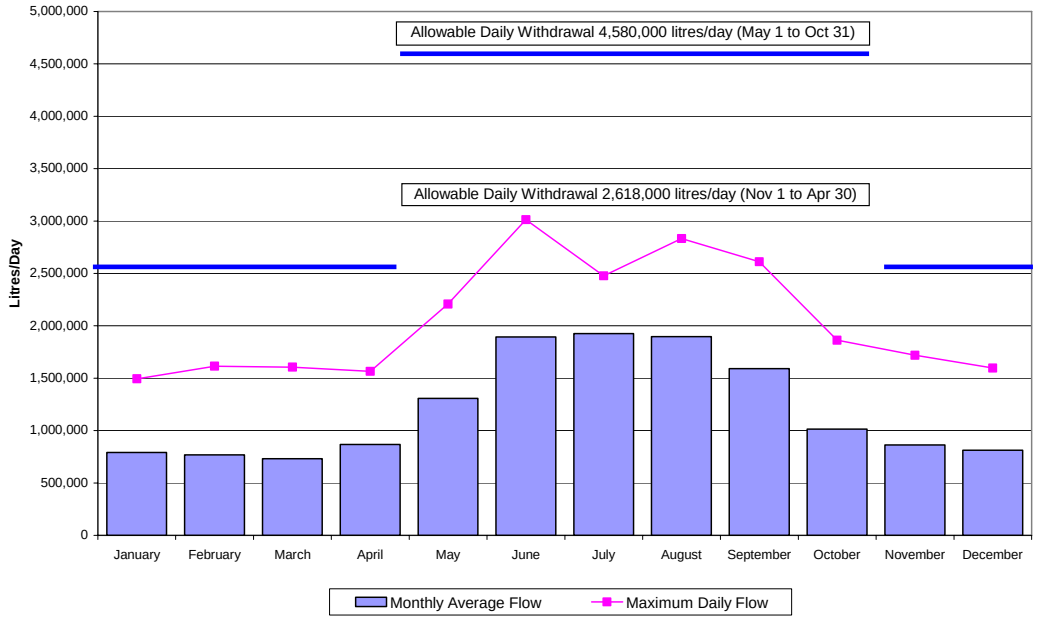
The maximum permitted water withdrawal and the actual annual withdrawal recorded daily water taking are presented in Table 9.

TABLE 9: Permitted and Actual Maximum Withdrawal from the Ballantrae/Musselman's Lake Production Wells for January 1 – December 31, 2007

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Withdrawal
1,598,875,200	440,897,431	27.5%

The average monthly flow rates, maximum daily flow, and the permitted daily withdrawal are presented in Figure 17.

Figure 17: Ballantrae Wells No. 1 & 2
Monthly Average Flow and Maximum Daily Flow 2007



The actual volume of water taken from the Ballantrae/Musselman's production wells during January 1 – December 31, 2007 did not exceed the permitted daily withdrawal volume.

The *'Daily Instantaneous Peak Flow (litres)'* for January 1- December 31, 2007 are presented in Figures 18 and 19.

Figure 18: Ballantrae Well No. 1
Daily Instantaneous Peak Flow 2007

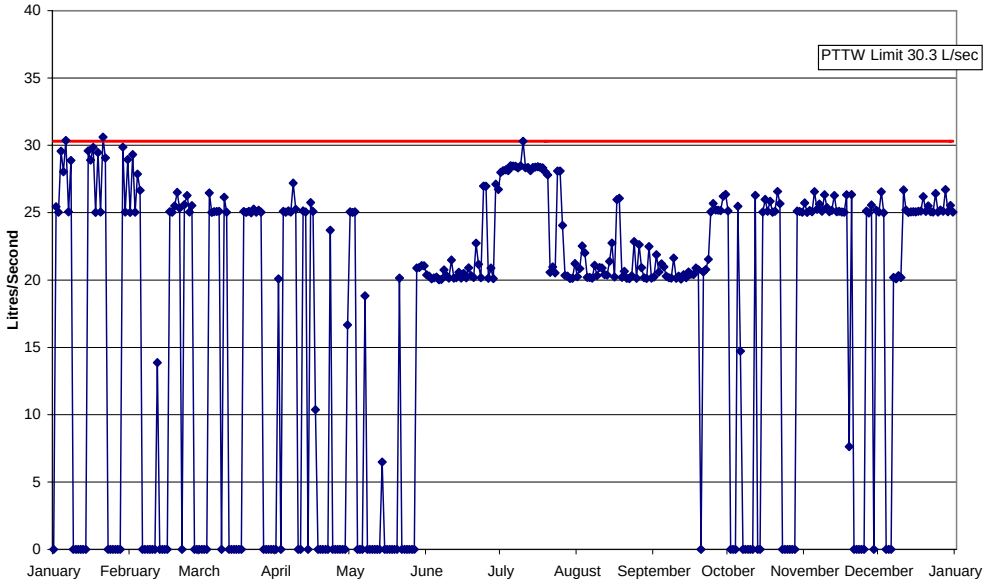
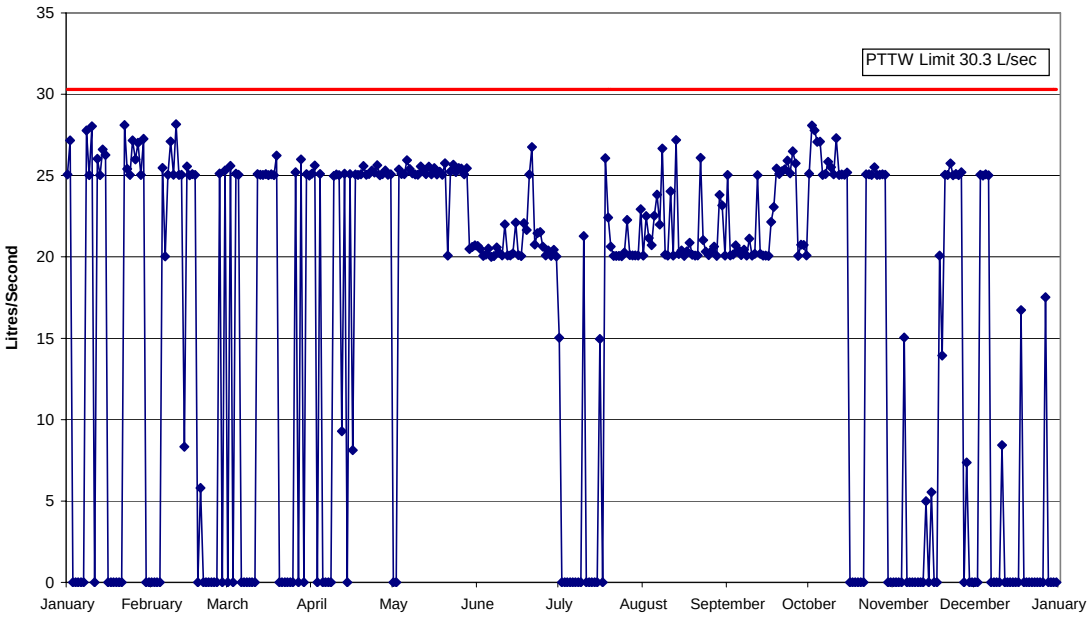


Figure 18 shows instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure, a change in the distribution system pressure or maintenance on the distribution system. Scheduled operational maintenance contributed to the reduction of the peak flow rates, improving the overall operations of the water system.

Figure 19: Ballantrae Well No. 2
Daily Instantaneous Peak Flow 2007



2.4 Georgina

The Regional Municipality of York (York Region) operates a water supply system to service Sutton and Keswick, Town of Georgina, under authority of a C of A issued by the MOE. The C of A includes reference to the valid PTTW also issued by the MOE. Details of the C of A and PTTW and other relevant classification information for the Georgina Water Supply are presented in Table 10. All system upgrades required by the C of A have been completed.

TABLE 10: Georgina Water Supply – Summary of Approvals and Permit

Current Certificates of Approval Numbers: Issue Date:	5640-667R8N December 8, 2004
Current Permit to Take Water Number: Issue Date: Expiry Date:	03-P-3008 February 12, 2003 February 28, 2013
MOE Waterworks Number:	260026156
System Classification:	Water Treatment II

2.4.1 Water Taking

The PTTW for the Georgina Water Supply System allows York Region to withdraw up to 49,999,680 litres per day from the water treatment plant.

York Region monitors the water taking through flow meters. Flow is monitored and alarmed on a continuous basis to ensure that the regulated flows are not exceeded.

2.4.2 Measuring Points

Flow meters are in place downstream of each production well and record the instantaneous flow rate and total volume of water that has passed through the meter. The flow meters are calibrated annually to meet the monitoring conditions of the C of A.

Flow data is retrieved and stored using two methods which provides York Region with the opportunity to compare and contrast data, in the event one method should fail.

1. York Region staff manually record the flow rates and total flow data on regular operational visits to the well sites. Average flow rates are also calculated using records of total flow and number of operating pump hours. This ‘manual’ data was used to generate the maximum daily withdrawal and monthly average flow tables and figures.
2. The flow meters have recently been connected to the Supervisory Control and Data Acquisition (SCADA) system so that data can be monitored remotely and stored electronically. This data was used to generate the instantaneous peak flow rate figures.

2.4.3 Water Withdrawal

The total volume of water from the Georgina water treatment plant during January 1 – December 31, 2007 was 2,265,491,812 litres or 6,206,826 litres per day.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 11.

TABLE 11: Permitted and Actual Maximum Daily Withdrawal from the Georgina Water Treatment Plant for January 1 – December 31, 2007

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Percentage of Permitted Withdrawal During Peak Demand
Water Treatment Plant	49,999,680	15,115,750 – May 30, 2007	30.2%

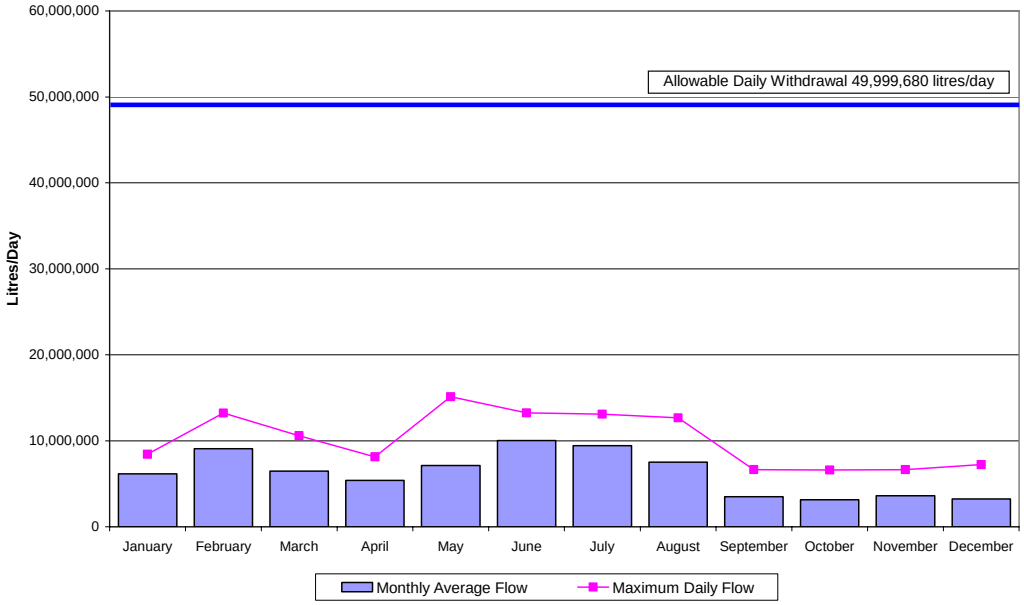
The maximum permitted water withdrawal and the actual annual withdrawal recorded daily water taking are presented in Table 12.

TABLE 12: Permitted and Actual Maximum Withdrawal from the Georgina Water Treatment Plant for January 1 – December 31, 2007

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Withdrawal
18,249,883,200	2,265,491,812	12.4%

The monthly average flows, the maximum daily withdrawals, and the permitted daily withdrawal for the reporting period of January 1 – December 31, 2007 are shown in Figure 20.

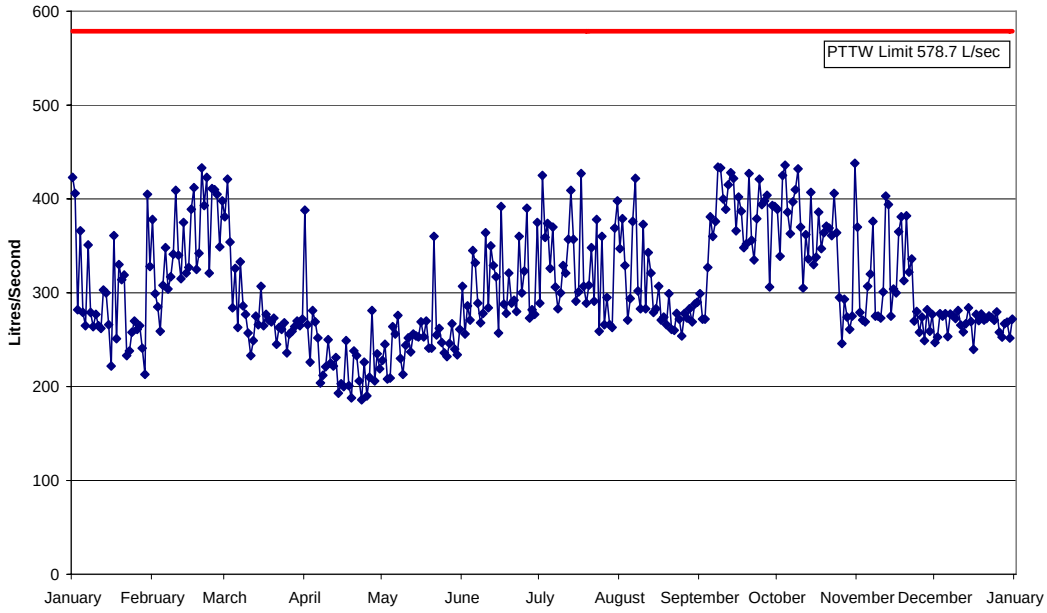
Figure 20: Georgina Water Treatment Plant
Monthly Average Flow and Maximum Daily Flow 2007



The withdrawal rates from the Georgina Water Treatment Plant did not exceed the permitted limits for January 1 – December 31, 2007.

The *'Daily Instantaneous Peak Flow (litres)'* for January 1- December 31, 2007 is presented in Figure 21.

Figure 21: Georgina Water Treatment Plant
Daily Instantaneous Peak Flow 2007



2.5 Keswick

The Regional Municipality of York (York Region) operates a water supply system to service Keswick, Town of Georgina, under authority of a C of A issued by the MOE. The C of A includes reference to the valid PTTW also issued by the MOE. Details of the C of A and PTTW and other relevant classification information for the Keswick Water Supply are presented in Table 13. All system upgrades required by the C of A have been completed.

TABLE 13: Keswick Water Supply – Summary of Approvals and Permit

Current Certificates of Approval Numbers: Issue Date:	3684-6GNPMV October 19, 2005
Current Permit to Take Water Number: Issue Date: Expiry Date:	1268-636QNK July 30, 2004 June 30, 2014
MOE Waterworks Number:	210003280
System Classification:	Water Treatment III

2.5.1 Water Taking

The PTTW for the Keswick Water Supply System allows York Region to withdraw up to 16,200,000 litres per day from the water treatment plant.

York Region monitors the water taking through flow meters. Flow is monitored and alarmed on a continuous basis to ensure that the regulated flows are not exceeded.

2.5.2 Measuring Points

Flow meters are in place downstream of each production well and record the instantaneous flow rate and total volume of water that has passed through the meter. The flow meters are calibrated annually to meet the monitoring conditions of the C of A.

Flow data is retrieved and stored using two methods which provides York Region with the opportunity to compare and contrast data, in the event one method should fail.

1. York Region staff manually record the flow rates and total flow data on regular operational visits to the well sites. Average flow rates are also calculated using records of total flow and number of operating pump hours. This ‘manual’ data was used to generate the maximum daily withdrawal and monthly average flow tables and figures.
2. The flow meters are also connected to the Supervisory Control and Data Acquisition (SCADA) system so that data can be monitored remotely and stored electronically. This data was used to generate the instantaneous peak flow rate figures.

2.5.3 Water Withdrawal

The total volume of water from the Keswick water treatment plant during January 1 – December 31, 2007 was 1,272,138,396 litres or 3,485,311 litres per day.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 14.

TABLE 14: Permitted and Actual Maximum Daily Withdrawal from the Keswick Water Treatment Plant for January 1 – December 31, 2007

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Percentage of Permitted Withdrawal During Peak Demand
Water Treatment Plant	16,200,000	9,591,719 – July 30, 2007	59.2%

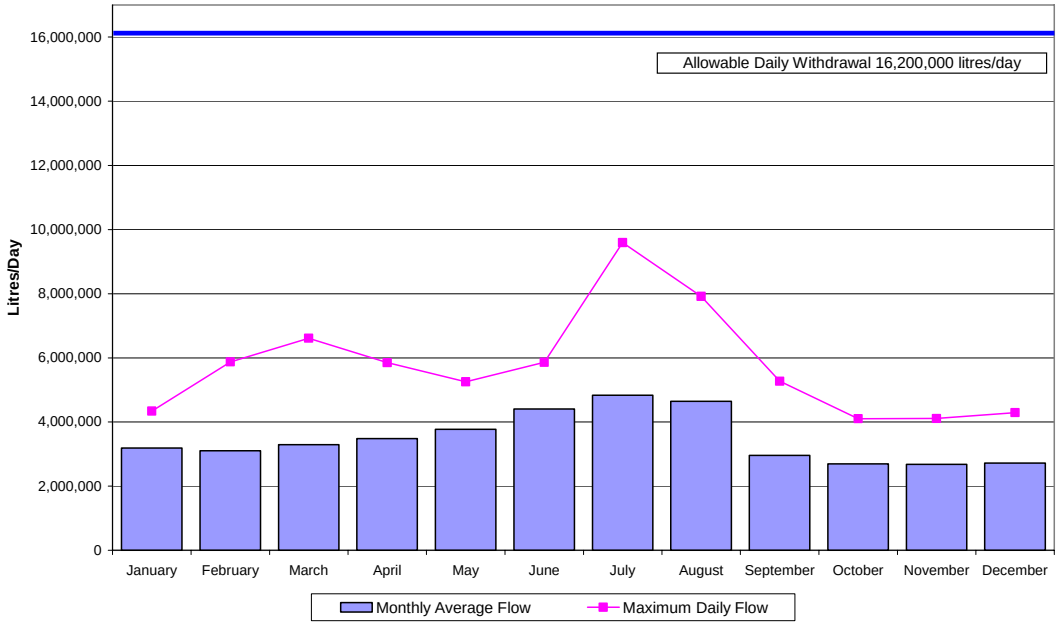
The maximum permitted water withdrawal and the actual annual withdrawal recorded daily water taking are presented in Table 15.

TABLE 15: Permitted and Actual Maximum Withdrawal from the Keswick Water Treatment Plant for January 1 – December 31, 2007

Annual Permitted Withdrawal	Actual Annual Withdrawal	Percentage of Permitted Withdrawal
5,913,000,000	1,272,138,396	21.5%

The monthly average flows, the maximum daily withdrawals, and the permitted daily withdrawal for the reporting period of January 1 – December 31, 2007 are shown in Figure 22.

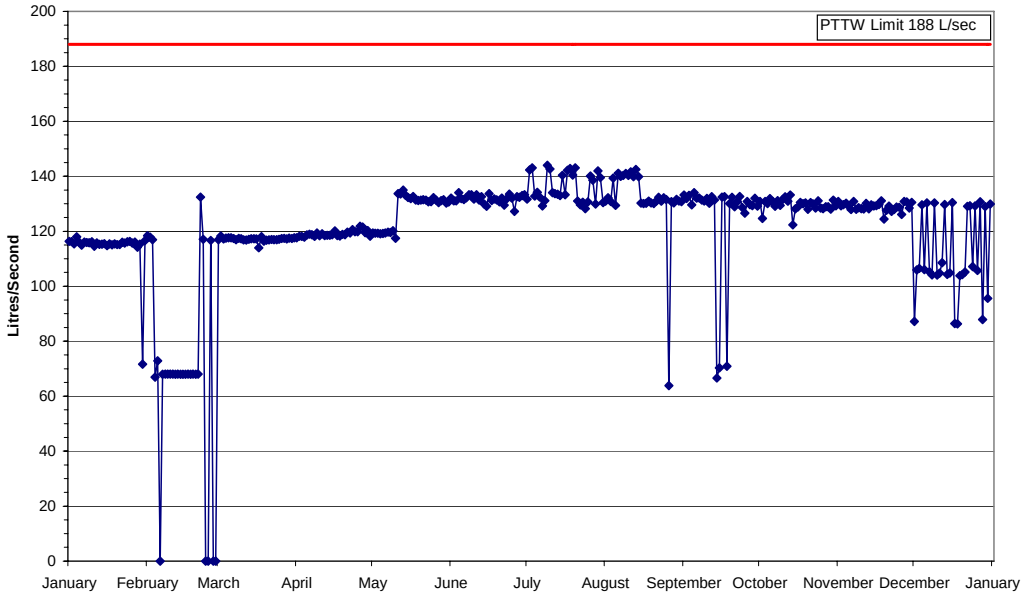
Figure 22: Keswick Water Treatment Plant
Monthly Average Flow and Maximum Daily Flow 2007



Withdrawal rates from the Keswick Water Treatment Plant did not exceed the permitted limits during January 1 – December 31, 2007.

The '*Daily Instantaneous Peak Flow (litres)*' for January 1- December 31, 2007 is presented in Figure 23.

Figure 23: Keswick Water Treatment Plant
Daily Instantaneous Peak Flow 2007



2.6 King City

York Region operates a water supply system to service King City, Township of King, under authority of a C of A issued by the MOE. The C of A includes reference to the valid PTTW also issued by the MOE. Details of the C of A and PTTW and other relevant classification information for the King City Water Supply are presented in Table 16. All system upgrades required by the C of A have been completed.

TABLE 16: King City Water Supply – Summary of Approvals and Permit

Current Certificate of Approval Number: Issue Date:	21100-69HKRC April 1, 2005
Current Permit to Take Water Number: Issue Date: Expiry Date:	8634-67HR9L December 20, 2004 January 31, 2015
MOE Waterworks Number:	220002299
System Classification:	Water Distribution & Supply II

2.6.1 Water Taking

The PTTW for the King City Water Supply System allows York Region to withdraw up to 1,963,915 litres per day from production well 3 and 2,618,554 litres per day from production well 4.

York Region monitors the water taking through flow meters placed downstream of each production well. Flow is monitored and alarmed on a continuous basis to ensure that the regulated flows are not exceeded.

2.6.2 Measuring Points

Flow meters are in place downstream of each production well and record the instantaneous flow rate and total volume of water that has passed through the meter. The flow meters are calibrated annually to meet the monitoring conditions of the C of A.

Flow data is retrieved and stored using two methods which provides York Region with the opportunity to compare and contrast data, in the event one method should fail.

1. York Region staff manually record the flow rates and total flow data on regular operational visits to the well sites. Average flow rates are also calculated using records of total flow and number of operating pump hours. This ‘manual’ data was used to generate the maximum daily withdrawal and monthly average flow tables and figures.
2. The flow meters are also connected to the Supervisory Control and Data Acquisition (SCADA) system so that data can be monitored remotely and stored electronically. This data was used to generate the instantaneous peak flow rate figures.

2.6.3 Water Withdrawal

The total volume of water taken from the production wells of the King City Water Supply system for January 1 – December 31, 2007 was 500,911,809 litres or 1,372,361 litres per day.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 17.

TABLE 17: Permitted and Actual Maximum Daily Withdrawal from the King City Production Wells for January 1 – December 31, 2007

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Percentage of Permitted Withdrawal During Peak Demand
Well 3	1,963,915	1,642,453 – July 29, 2007	83.6%
Well 4	2,618,554	2,409,516 – July 11, 2007	92.0%

The maximum permitted water withdrawal and the actual annual withdrawal recorded daily water taking are presented in Table 18.

TABLE 18: Permitted and Actual Maximum Withdrawal from the King City Production Wells for January 1 – December 31, 2007

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Withdrawal
1,672,459,200	500,911,809	29.9%

The monthly average flow rates, maximum daily flow, and the permitted daily withdrawal are presented in Figures 24 and 25.

Figure 24: King City Well No. 3
Monthly Average Flow and Maximum Daily Flow 2007

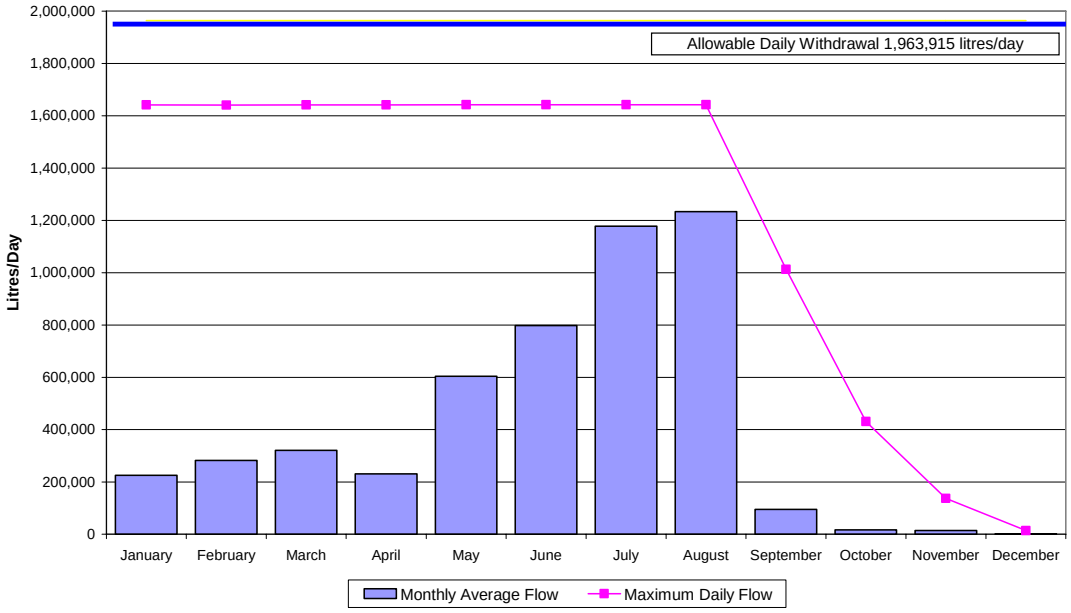
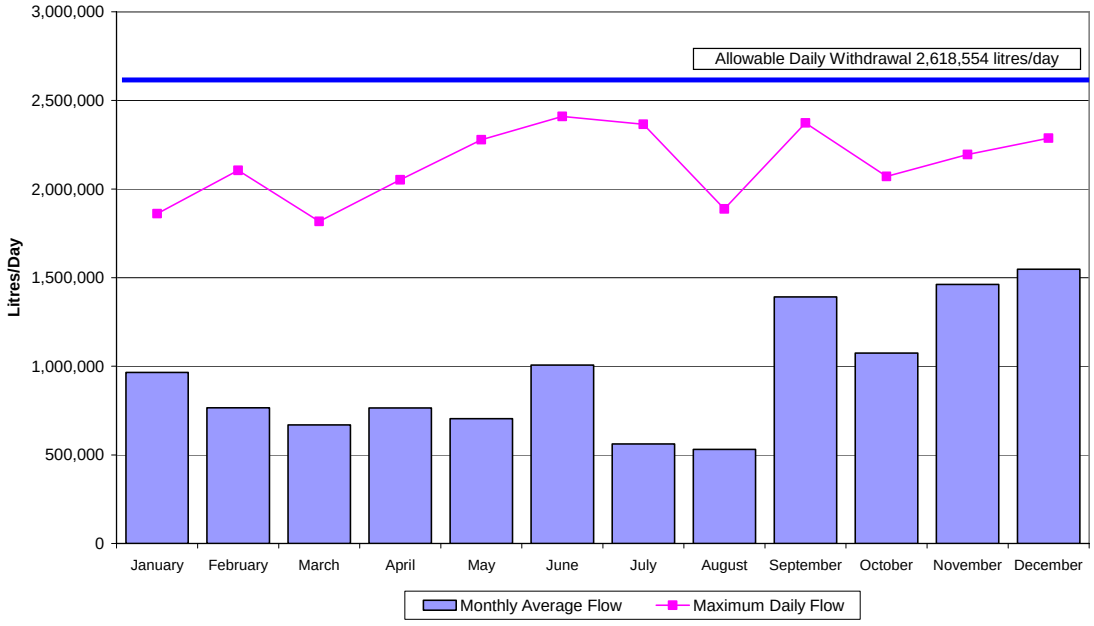


Figure 24 shows a reduced monthly average flow or no monthly average flow recorded for the months of September, October, November and December 2007. This reduction in flow is representative of the scheduled and unscheduled maintenance conducted on the well annually as part of improving the overall operations of the water system.

Figure 25: King City Well No. 4
Monthly Average Flow and Maximum Daily Flow 2007



Withdrawal rates from the King City production wells did not exceed the permitted limits during January 1 – December 31, 2007.

The *'Daily Instantaneous Peak Flow (litres)'* for January 1- December 31, 2007 are presented in Figures 26 and 27.

Figure 26: King City Well No. 3
Daily Instantaneous Peak Flow 2007

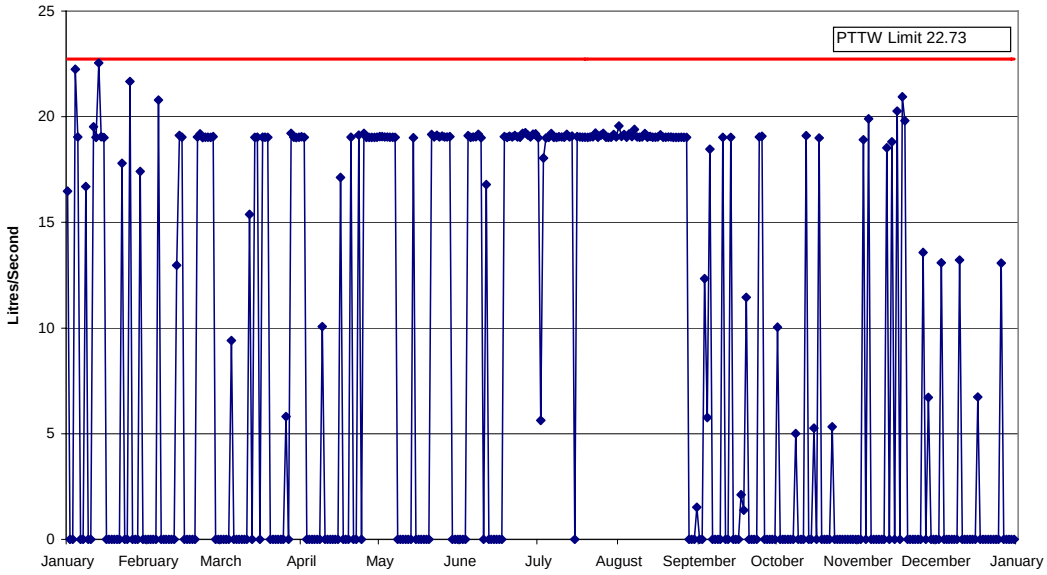


Figure 27: King City Well No. 4
Daily Instantaneous Peak Flow 2007

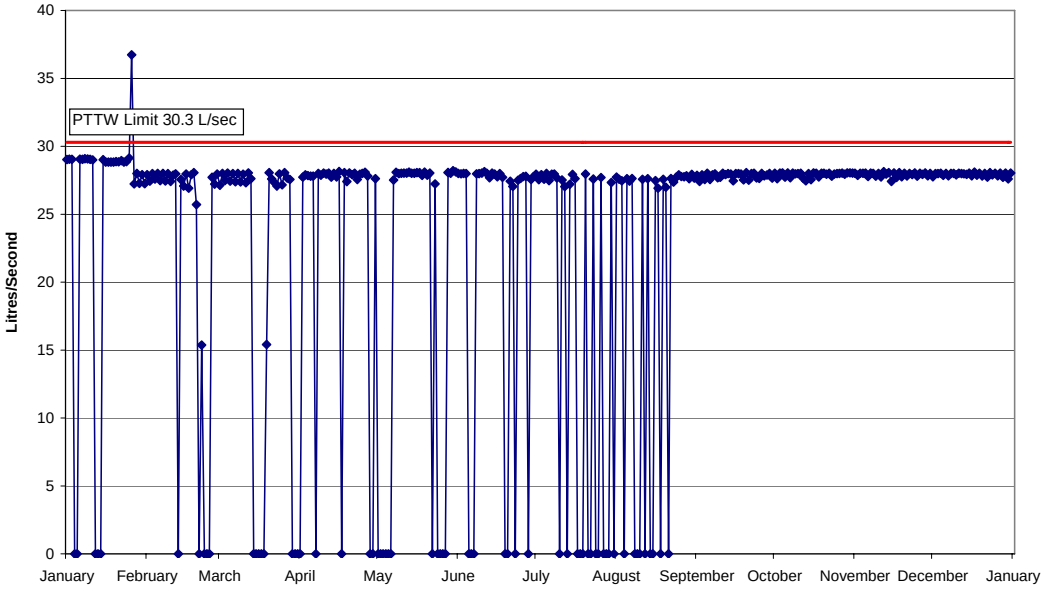


Figure 27 shows instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure or a change in the distribution system pressure.

2.7 Kleinburg

York Region operates a water supply system to service Kleinburg, City of Vaughan, under authority of a C of A issued by the MOE. The C of A includes reference to the valid PTTW also issued by the MOE. Details of the C of A and PTTW and other relevant classification information for the Kleinburg Water Supply are presented in Table 19.

TABLE 19: Kleinburg Water Supply – Summary of Approvals and Permit

Current Certificate of Approval Number: Issue Date:	6072-6R9Q9W July 12, 2006
Current Permit to Take Water Number: Issue Date: Expiry Date:	3568-6R7MD8 July 12, 2006 March 31, 2009
MOE Waterworks Number:	220002360
System Classification:	Water Distribution II (WDII)

2.7.1 Water Taking

The PTTW for the Kleinburg Water Supply System allows York Region to withdraw up to 950,400 litres per day from production well 2 over a 24 hour period and 3,283,200 litres per day from production wells 3 and 4 inclusive.

On September 6, 2007 it was necessary to operate production well 2 for a period of 27 hours, over the permitted 24 hour period. The well was run consecutively during peak summer demand through into September to maintain fire protection in the water tower. The City of Vaughan experienced a main break in the distribution system that increased the demand on the water supply. Both wells supplied water to the distribution system over the permitted time period in order to bring the distribution system back to operating range.

York Region monitors the water taking through flow meters placed downstream of each production well. Flow is monitored and alarmed on a continuous basis to ensure that the regulated flows are not exceeded.

2.7.2 Measuring Points

Flow meters are in place downstream of each production well and record the instantaneous flow rate and total volume of water that has passed through the meter. The flow meters are calibrated annually to meet the monitoring conditions of the C of A.

Flow data is retrieved and stored using two methods which provides York Region with the opportunity to compare and contrast data, in the event one method should fail.

1. York Region staff manually record the flow rates and total flow data on regular operational visits to the well sites. Average flow rates are also calculated using records of total flow and number of operating pump hours. This 'manual' data was used to generate the maximum daily withdrawal and monthly average flow tables and figures.
2. The flow meters are also connected to the Supervisory Control and Data Acquisition (SCADA) system so that data can be monitored remotely and stored electronically. This data was used to generate the instantaneous peak flow rate figures.

2.7.3 Water Withdrawal

The total volume of water taken from the production wells of the Kleinburg Water Supply system for January 1 – December 31, 2007 was 670,237,616 litres or 1,836,267 litres per day.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 20.

TABLE 20: Permitted and Actual Maximum Daily Withdrawal from the Kleinburg Production Wells for January 1 – December 31, 2007

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Percentage of Permitted Daily Withdrawal During Peak Demand
Well 2	950,400	803,883 – August 5, 2007	84.6%
Well 3/4	3,283,200	3,196,594 – July 31, 2007	97.4%

- *Kleinburg well 4 is pumped into well 3 common header, flow is recorded through well 4 metering*

The maximum permitted water withdrawal and the actual annual withdrawal recorded daily water taking are presented in Table 21.

TABLE 21: Permitted and Actual Maximum Withdrawal from the Kleinburg Production Wells for January 1 – December 31, 2007

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Withdrawal
1,346,630,400	670,237,616	49.7%

The monthly average flow rates, maximum daily flow, and permitted daily withdrawal are presented in Figures 28 and 29. As Kleinburg Well 4 is pumped into Kleinburg Well 3 common header, the flow recorded is a combined flow from both wells. Through recorded onsite metering, Kleinburg Well 4 operated from June 22 – December 12, 2007, withdrawing a total of 321,798,000 litres or 881,589 litres per day.

Figure 28: Kleinburg Well No. 2
Monthly Average Flow and Maximum Daily Flow 2007

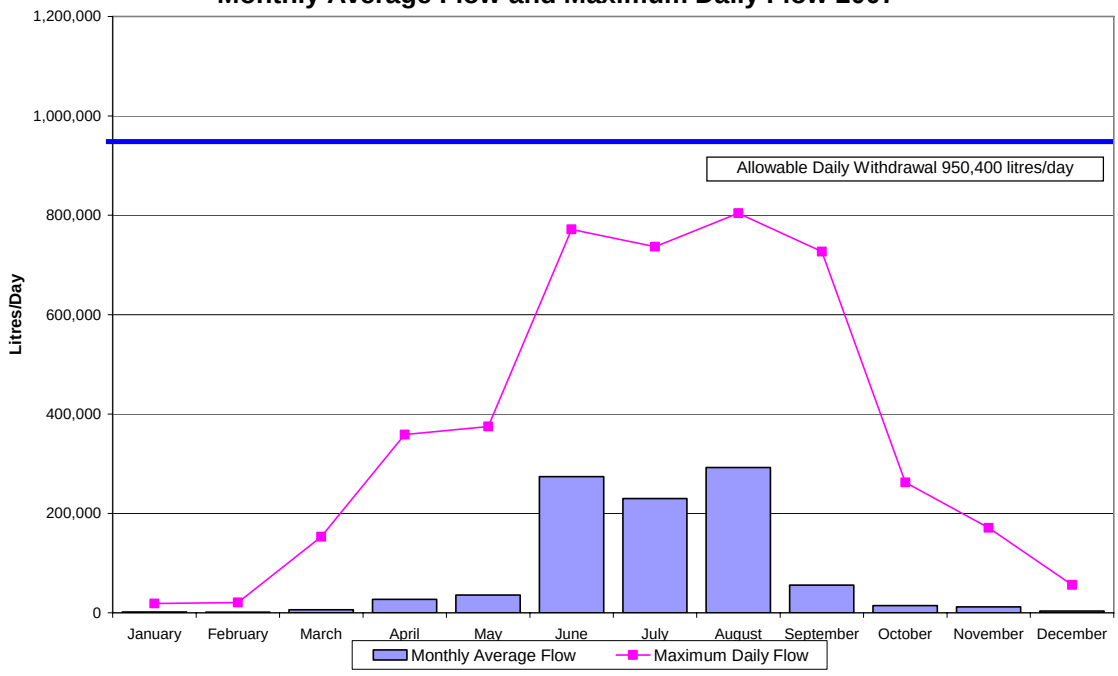
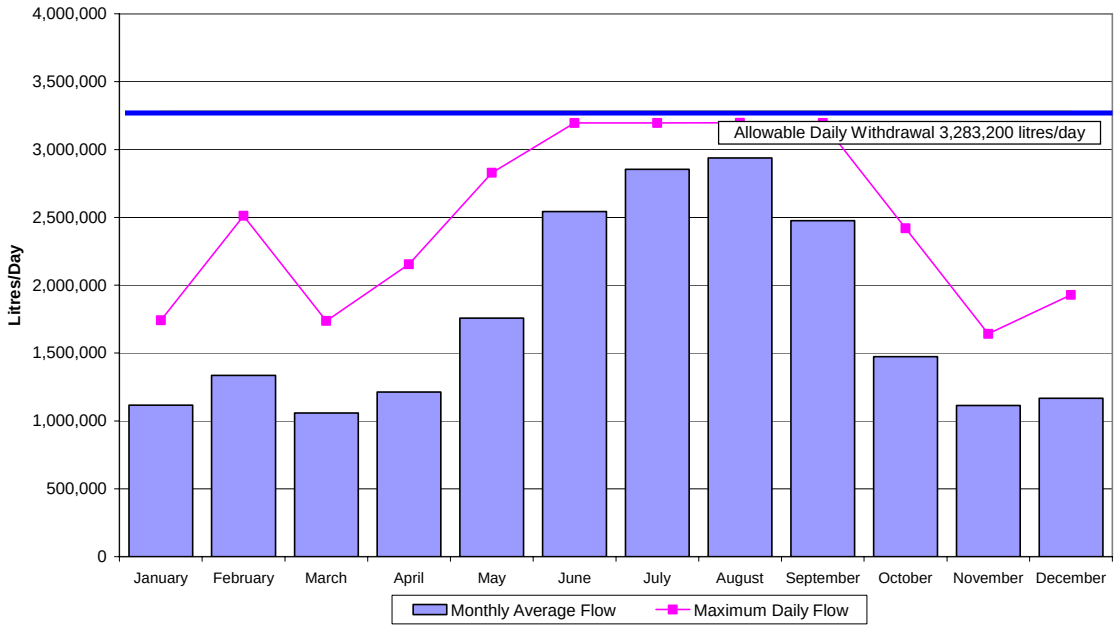


Figure 28: shows a reduced monthly average flow or no monthly average flow recorded throughout the year. This reduction in flow is representative of the permit condition which only allows production well 2 to withdrawal water less than 1,000 litres per day for sampling and maintenance. The increased monthly average flow seen in June, July August and September represents where the well ran consecutively during peak summer demand to maintain fire protection in the water tower.

Figure 29: Kleinburg Well No. 3 & 4
Monthly Average Flow and Maximum Daily Flow 2007



The *'Daily Instantaneous Peak Flow (litres)'* for January 1- December 31, 2007 are presented in Figures 30 and 31.

Figure 30: Kleinburg Well No. 2
Daily Instantaneous Peak Flow 2007

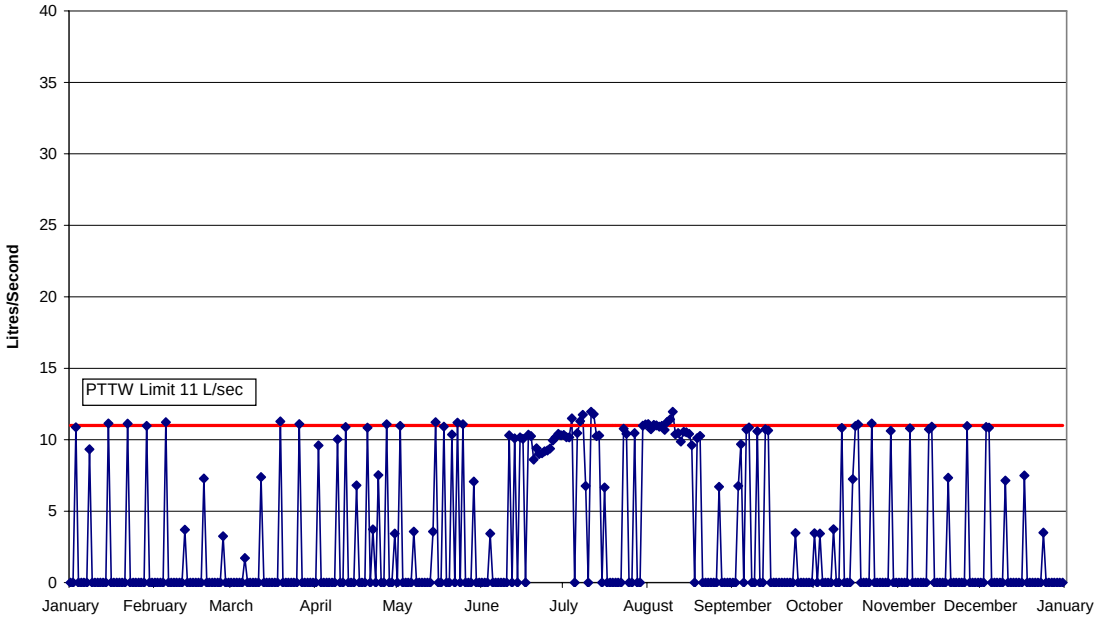
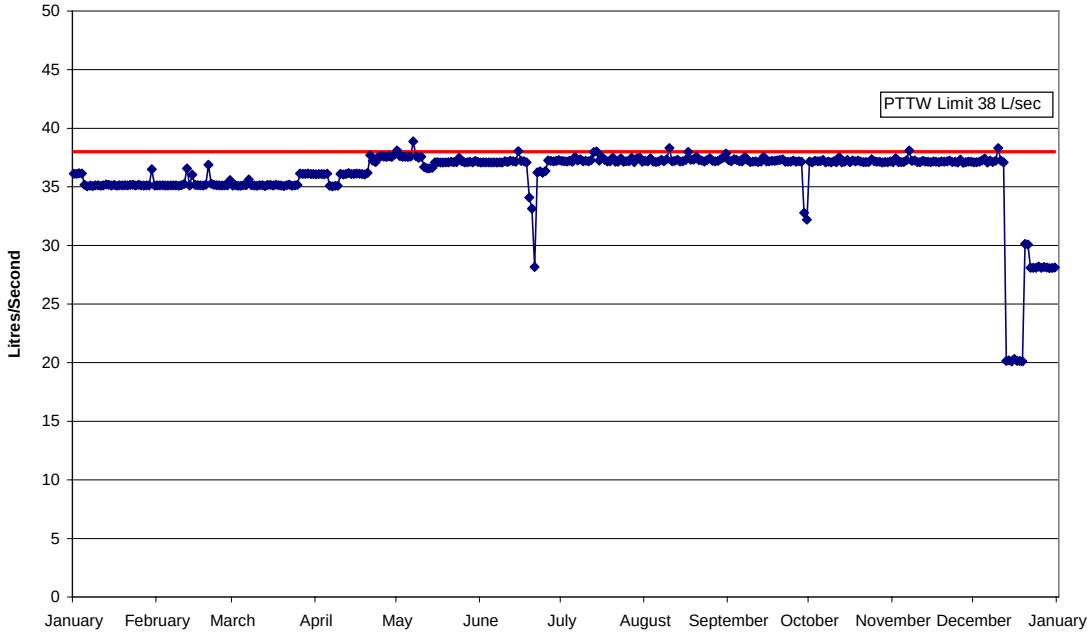


Figure 31: Kleinburg Well No. 3 & 4
Daily Instantaneous Peak Flow 2007



Figures 30 and 31 show instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure or a change in the distribution system pressure.

2.8 Mount Albert

York Region operates a water supply system to service Mount Albert, Town of East Gwillimbury, under authority of a C of A issued by the MOE. The C of A includes reference to the valid PTTW also issued by the MOE. Details of the C of A and PTTW and other relevant classification information for the Mount Albert Water Supply are presented in Table 22. All system upgrades required by the C of A have been completed.

TABLE 22: Mount Albert Water Supply – Summary of Approvals and Permit

Current Certificate of Approval Number: Issue Date:	2899-6H4RRF October 24, 2005
Current Permit to Take Water Number: Issue Date: Expiry Date:	2274-6PAJGV May 17, 2006 March 31, 2016
MOE Waterworks Number:	220006543
System Classification:	Water Distribution II (WDII)

2.8.1 Water Taking

The PTTW for the Mount Albert Water Supply System allows York Region to withdraw up to 3,273,120 from production well 1 and 3,273,120 for production well 2 with an permitted combined flow of 4,352,000 litres per day. The combined water taking from both production wells is limited to a maximum of 16 hours per day for no more than 7 consecutive days, maximum 21 days in the year with a combined annual average of 1,800,000 L/day.

York Region monitors the water taking through flow meters placed downstream of each production well. Flow is monitored and alarmed on a continuous basis to ensure that the regulated flows are not exceeded.

2.8.2 Measuring Points

Flow meters are in place downstream of each production well and record the instantaneous flow rate and total volume of water that has passed through the meter. The flow meters are calibrated annually to meet the monitoring conditions of the C of A.

Flow data is retrieved and stored using two methods which provides York Region with the opportunity to compare and contrast data, in the event one method should fail.

1. York Region staff manually record the flow rates and total flow data on regular operational visits to the well sites. Average flow rates are also calculated using records of total flow and number of operating pump hours. This ‘manual’ data

was used to generate the maximum daily withdrawal and monthly average flow tables and figures.

2. The flow meters are also connected to the Supervisory Control and Data Acquisition (SCADA) system so that data can be monitored remotely and stored electronically. This data was used to generate the instantaneous peak flow rate figures.

2.8.3 Water Withdrawal

The total volume of water taken from the production wells of the Mount Albert Water Supply system for the reporting period of January 1 – December 31, 2007 was 308,870,989 litres or 846,221 litres per day.
The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 23.

TABLE 23: Permitted and Actual Maximum Daily Withdrawal from the Mount Albert Production Wells for January 1 – December 31, 2007

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Percentage of Permitted Daily Withdrawal During Peak Demand
Well 1	3,273,120	1,916,828 – June 12, 2007	58.6%
Well 2	3,273,120	2,086,359 – August 31, 2007	63.7%

The maximum permitted water withdrawal and the actual annual withdrawal recorded daily water taking are presented in Table 24.

TABLE 24: Permitted and Actual Maximum Withdrawal from the Mount Albert Production Wells for January 1 – December 31, 2007

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Withdrawal
2,389,377,600	308,870,989	12.9%

The monthly average flow rates, maximum daily flow, and permitted daily withdrawal are presented in Figures 32 and 33.

Figure 32: Mount Albert Well No. 1
Monthly Average Flow and Maximum Daily Flow 2007

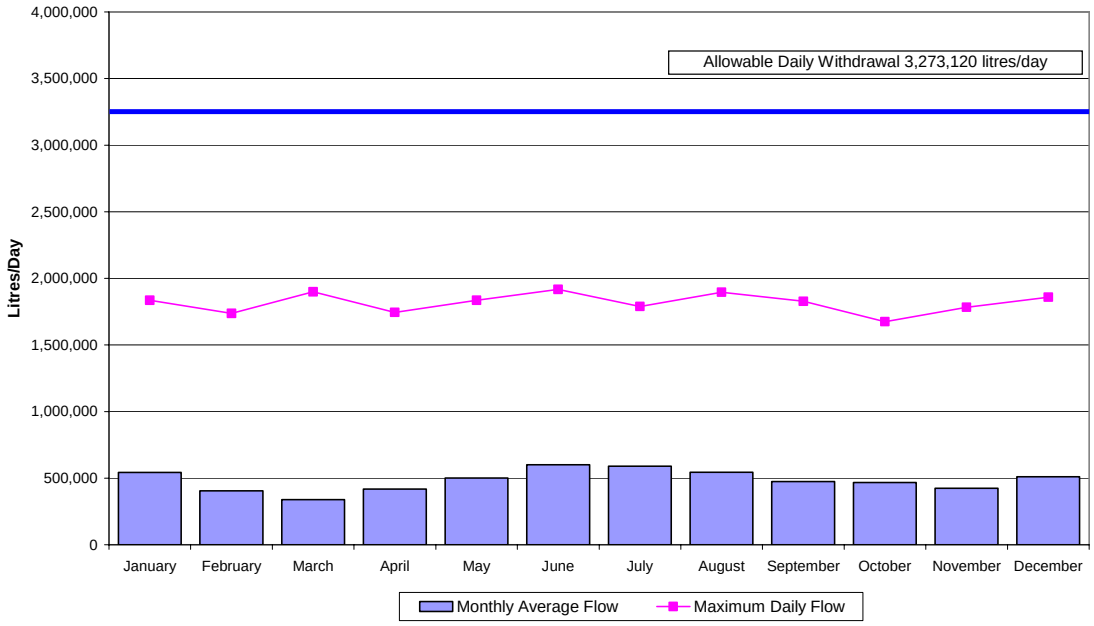
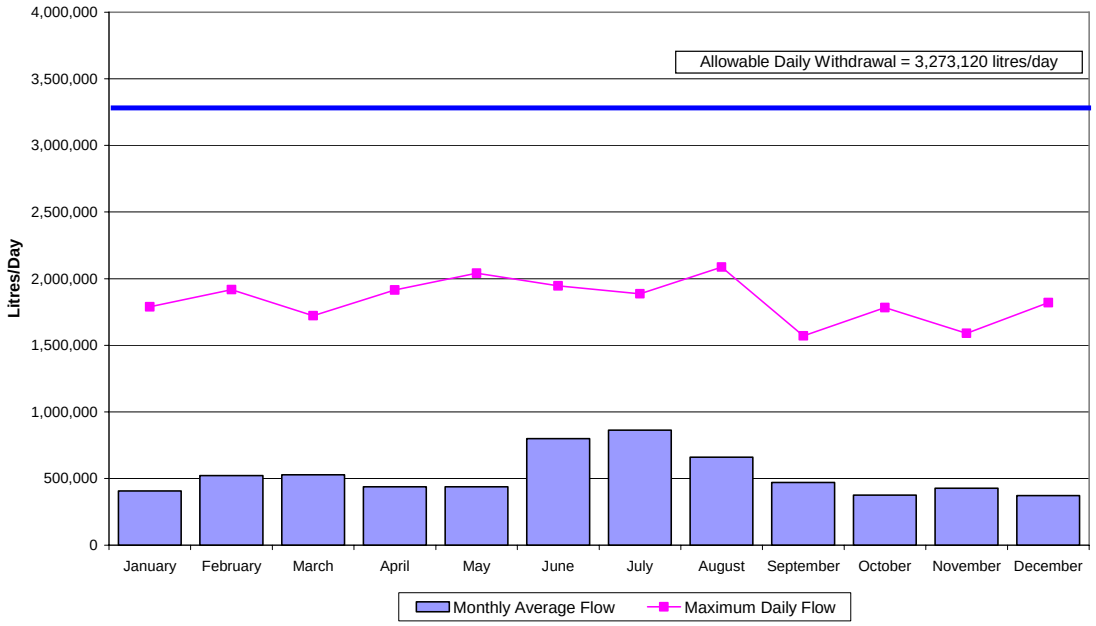


Figure 33: Mount Albert Well No. 2
Monthly Average Flow and Maximum Daily Flow 2007



The actual volumes of water taken from the Mount Albert production wells during January 1 – December 31, 2007 did not exceed the permitted daily withdrawal volumes.

The '*Daily Instantaneous Peak Flow (litres)*' for January 1- December 31, 2007 are presented in Figures 34 and 35.

Figure 34: Mount Albert Well No. 1
Daily Instantaneous Peak Flow 2007

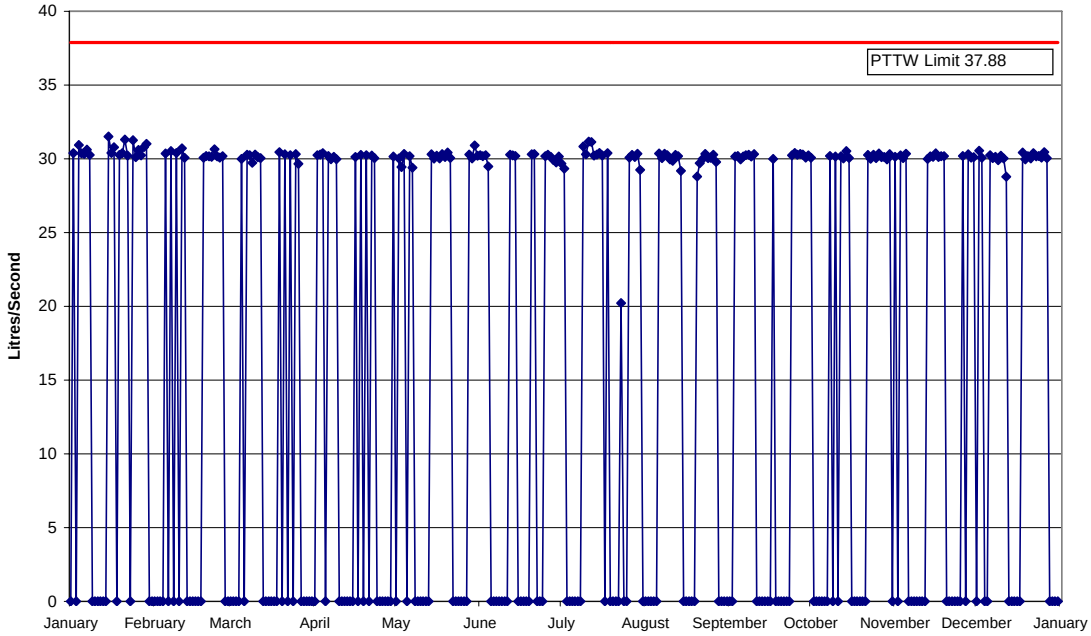
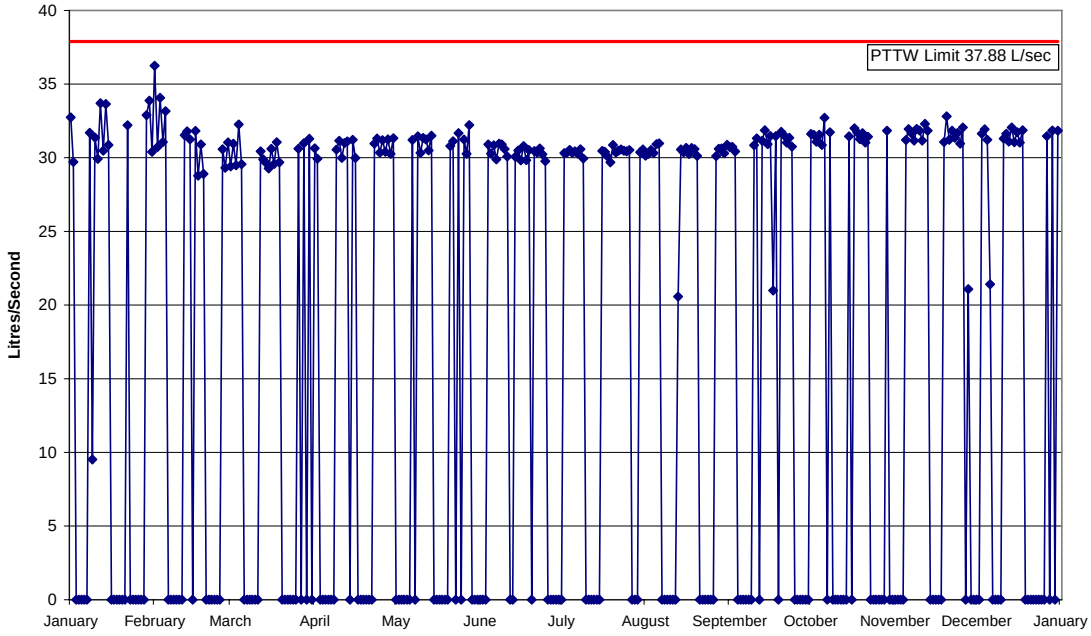


Figure 35: Mount Albert Well No. 2
Daily Instantaneous Peak Flow 2007



2.9 Newmarket/East Gwillimbury

York Region operates a water supply system to service the communities of Holland Landing, Sharon and Queensville in the Town of East Gwillimbury and the Town of Newmarket under authority of a C of A issued by the MOE. The C of A includes reference to the valid PTTW also issued by the MOE. Details of the C of A and PTTW and other relevant classification information for the Newmarket/East Gwillimbury Water Supply are presented in Table 25. All system upgrades required by the C of A have been completed.

TABLE 25: Newmarket/East Gwillimbury Water Supply – Summary of Approvals and Permit

Current Certificate of Approval Number: Issue Date:	3509-6ALJGJ July 7, 2005
Current Permit to Take Water Number: Issue Date: Expiry Date:	6623-68QQ6L March 10, 2005 March 31, 2015
MOE Waterworks Number: Holland Landing: Newmarket: Queensville:	 220004046 220002413 260001955
System Classification:	Water Distribution III (WD III)

2.9.1 Water Taking

The PTTW for the Newmarket/East Gwillimbury Water Supply System allows York Region to withdraw up to 56,036,736 litres per day from all production wells.

York Region monitors the water taking through flow meters placed downstream of each production well. Flow is monitored and alarmed on a continuous basis to ensure that the regulated flows are not exceeded.

2.9.2 Measuring Points

Flow meters are in place downstream of each production well and record the instantaneous flow rate and total volume of water that has passed through the meter. The flow meters are calibrated annually to meet the monitoring conditions of the C of A.

Flow data is retrieved and stored using two methods which provides York Region with the opportunity to compare and contrast data, in the event one method should fail.

1. York Region staff manually record the flow rates and total flow data on regular operational visits to the well sites. Average flow rates are also calculated using records of total flow and number of operating pump hours. This ‘manual’ data

was used to generate the maximum daily withdrawal and monthly average flow tables and figures.

2. The flow meters are also connected to the Supervisory Control and Data Acquisition (SCADA) system so that data can be monitored remotely and stored electronically. This data was used to generate the instantaneous peak flow rate figures.

2.9.3 Water Withdrawal

The total volume of water taken from the production wells of the Newmarket/East Gwillimbury Water Supply system for January 1 – December 31, 2007 was 1,015,765,783 litres or 27,829,199 litres per day.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 26.

TABLE 26: Permitted and Actual Maximum Daily Withdrawal from the Newmarket/East Gwillimbury Production Wells for the January 1 – December 31, 2007

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Percentage of permitted daily withdrawal during peak demand
Holland Landing Well 1	2,291,184	1,891,336 – December 9, 2007	82.5%
Holland Landing Well 2	3,600,432	2,417,063 – June 28, 2007	67.1%
Newmarket Well 1	2,291,184	1,988,938 – July 5, 2007	86.8%
Newmarket Well 2	4,582,512	4,326,250 – July 5, 2007	94.4%
Newmarket Well 13	5,891,760	5,653,375 – July 5, 2007	96.0%
Newmarket Well 14	2,291,184	1,774,719 – June 25, 2007	77.4%
Newmarket Well 15	3,273,120	2,472,882 – November 20, 2007	75.5%
Newmarket Well 16	5,629,824	5,372,125 – July 5, 2007	95.4%
Queensville Well 1	6,546,384	6,076,375 – August 2, 2007	92.8%
Queensville Well 2	6,546,384	6,056,000 – April 13, 2007	92.5%
Queensville Well 3	6,546,384	6,052,266 – October 25, 2007	92.4%
Queensville Well 4	6,546,384	6,057,438 – October 15, 2007	92.5%

The maximum permitted water withdrawal and the actual annual withdrawal recorded daily water taking are presented in Table 27.

TABLE 27: Permitted and Actual Maximum Withdrawal from the Newmarket//East Gwillimbury/Holland Landing Production Wells for January 1 – December 31, 2007

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Withdrawal
2,045,340,864	1,015,765,783	49.7%

The monthly average flow rates, maximum daily flow, and permitted daily withdrawal are presented in Figures 36 through 47.

Figure 36: Holland Landing Well No. 1
Monthly Average Flow and Maximum Daily Flow 2007

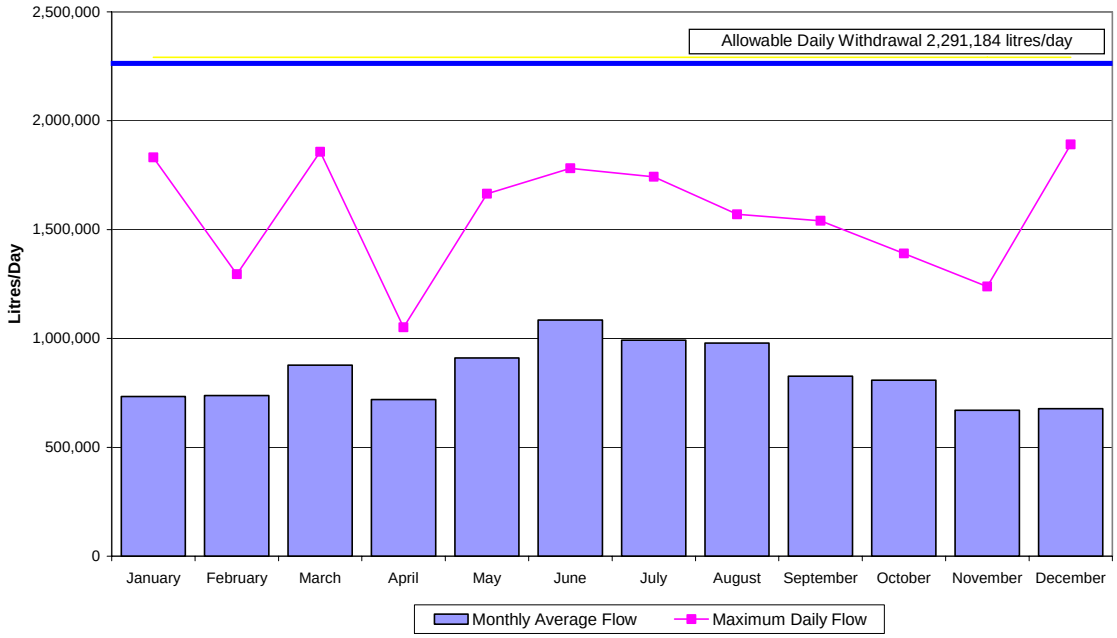


Figure 37: Holland Landing Well No. 2
Monthly Average Flow and Maximum Daily Flow 2007

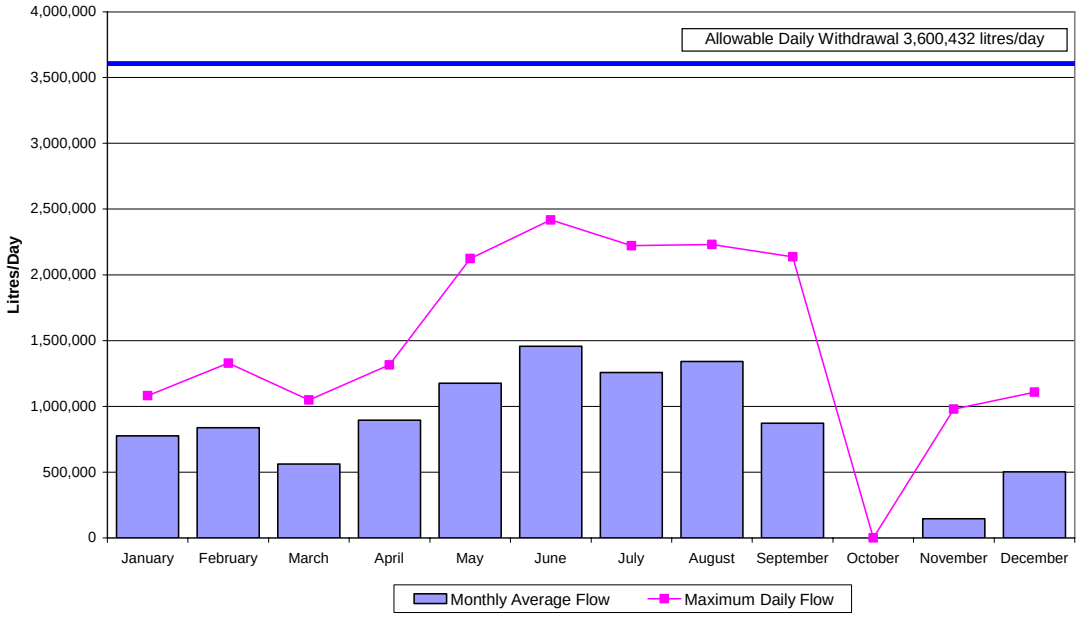


Figure 37 shows a reduced monthly average flow or no monthly average flow recorded for the month of October and November 2007. This reduction in flow due to the scheduled and unscheduled maintenance conducted on the well annually to improve the overall operation of the water system.

Figure 38: Newmarket Well No. 1
Monthly Average Flow and Maximum Daily Average 2007

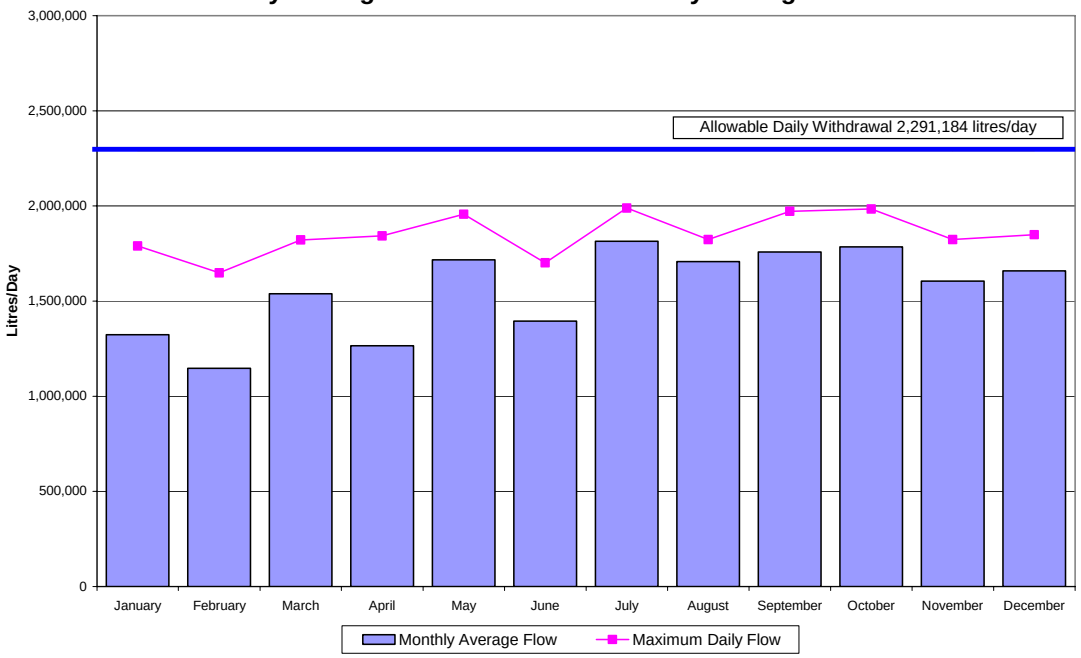


Figure 39: Newmarket Well No. 2
Monthly Average Flow and Maximum Daily Flow 2007

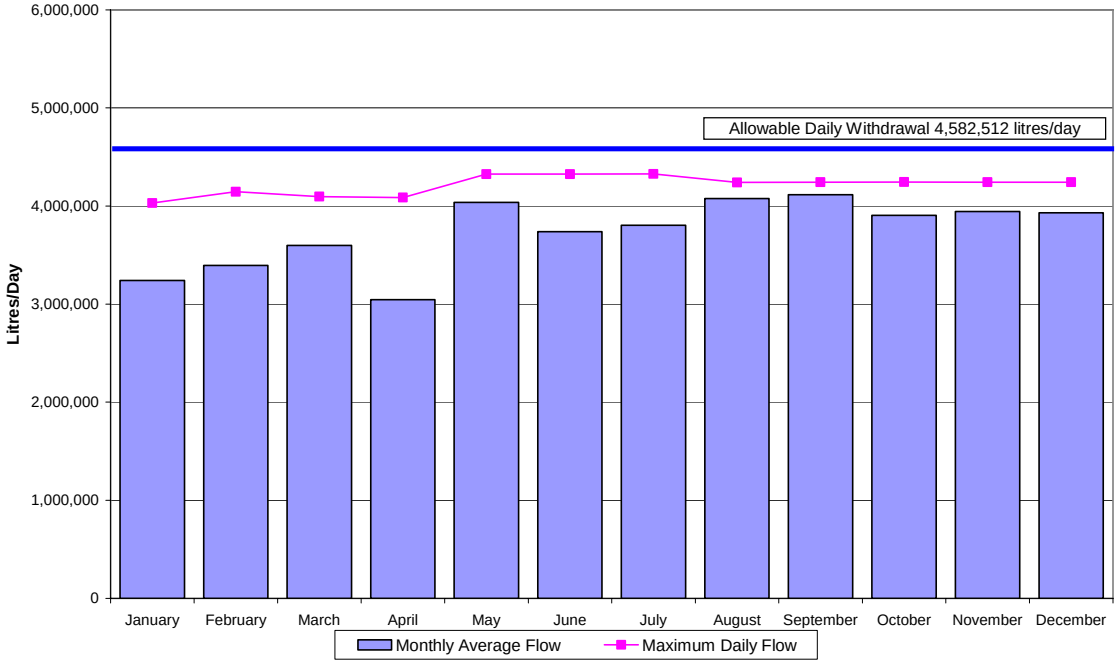


Figure 40: Newmarket Well No. 13
Monthly Average Flow and Maximum Daily Flow 2007

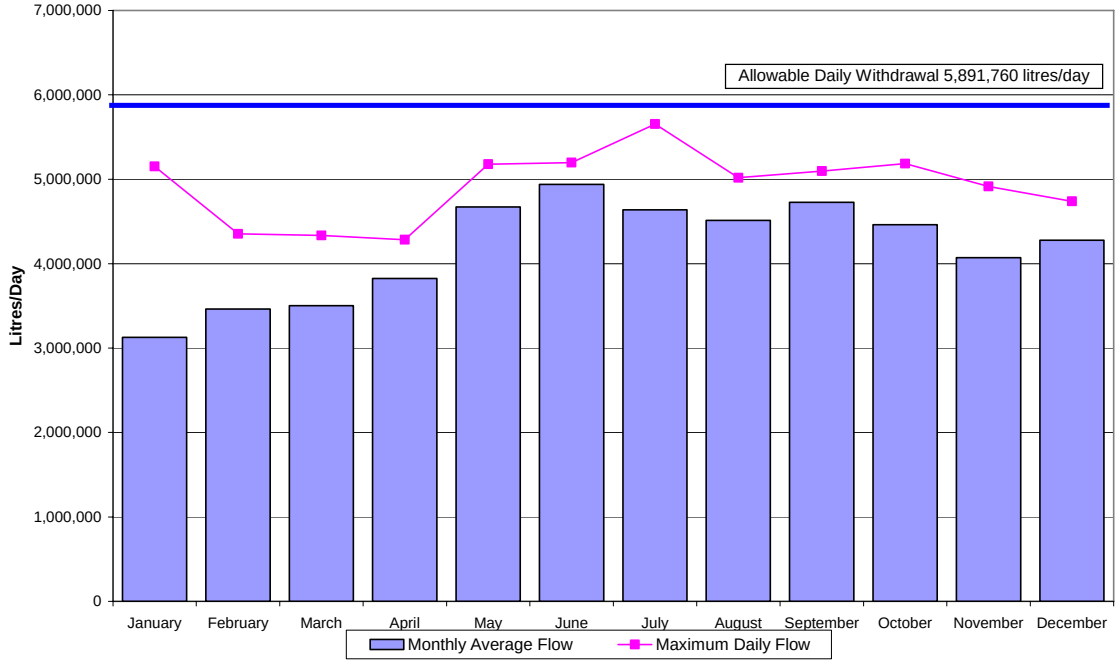


Figure 41: Newmarket Well No. 14
Monthly Average Flow and Maximum Daily Flow 2007

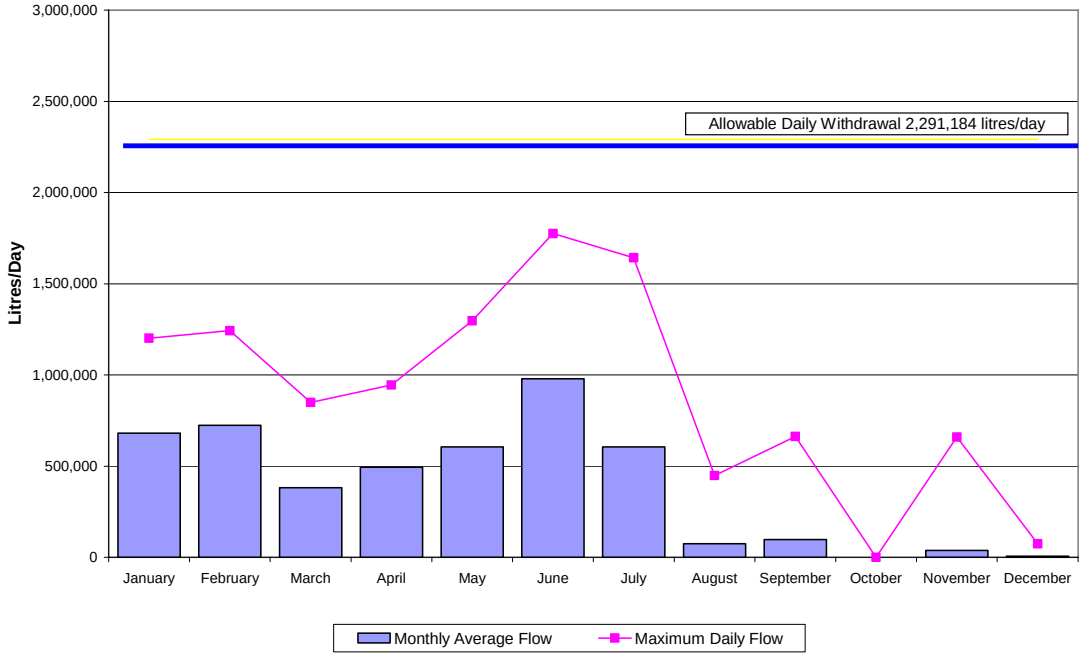


Figure 41 shows a reduced monthly average flow or no monthly average flow recorded for the month of August, September, October, November and December 2007. This reduction in flow due to the scheduled and unscheduled maintenance conducted on the well annually to improve the overall operation of the water system.

Figure 42: Newmarket Well No. 15
Monthly Average Flow and Maximum Daily Flow 2007

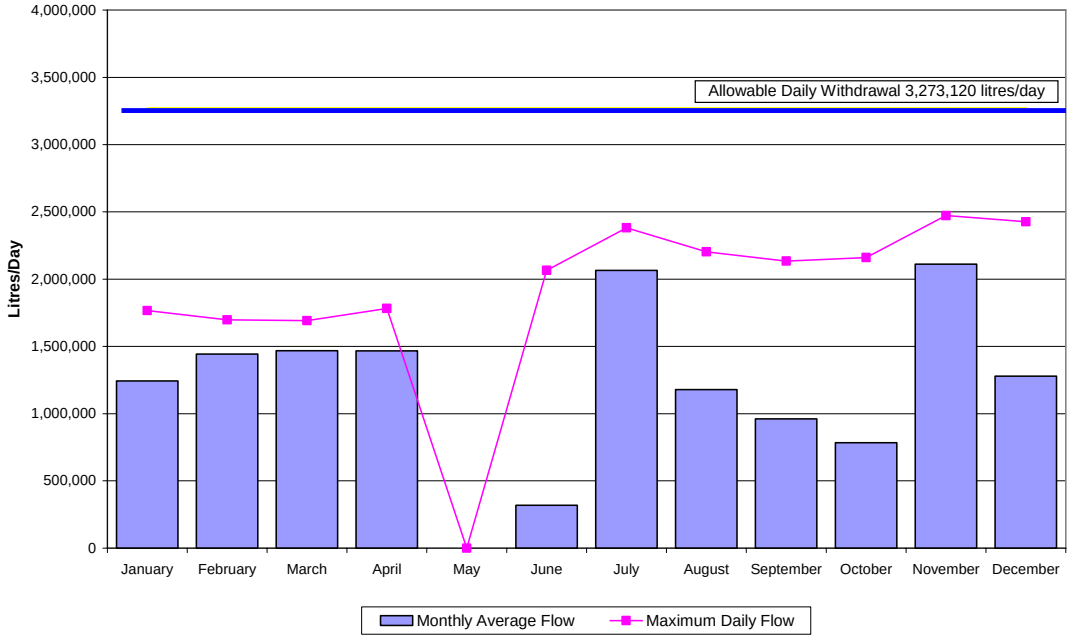


Figure 42 shows a reduced monthly average flow or no monthly average flow recorded for the months of May and June 2007. This reduction in flow due to the scheduled and unscheduled maintenance conducted on the well annually to improve the overall operation of the water system.

Figure 43: Newmarket Well No. 16
Monthly Average Flow and Maximum Daily Flow 2007

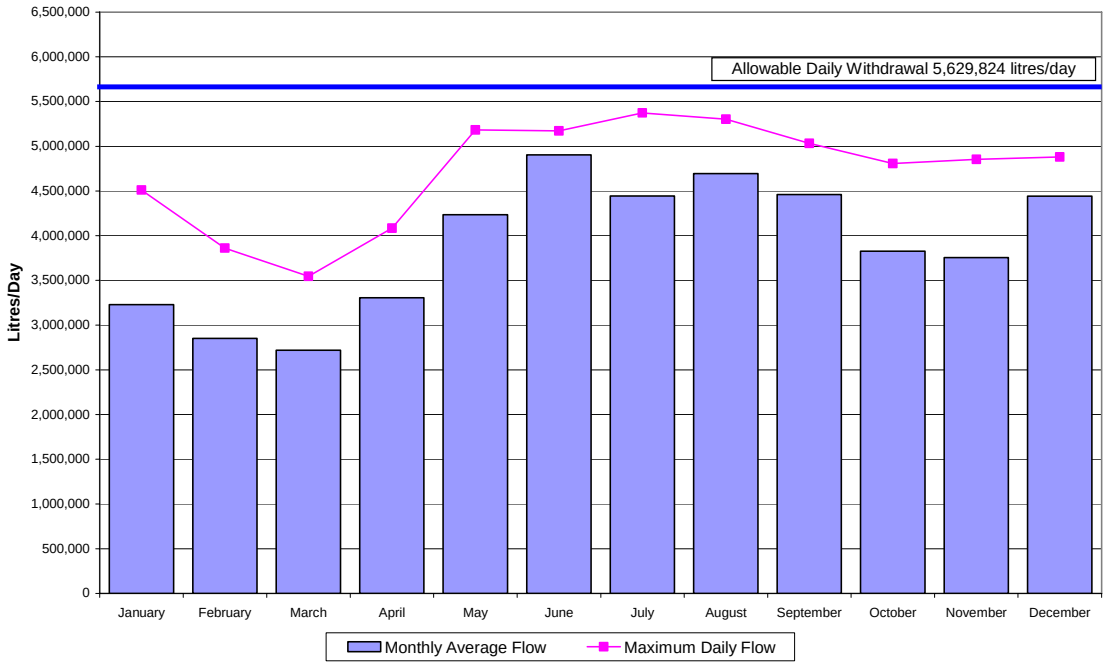


Figure 44: Queensville Well No. 1
Monthly Average Flow and Maximum Daily Flow 2007

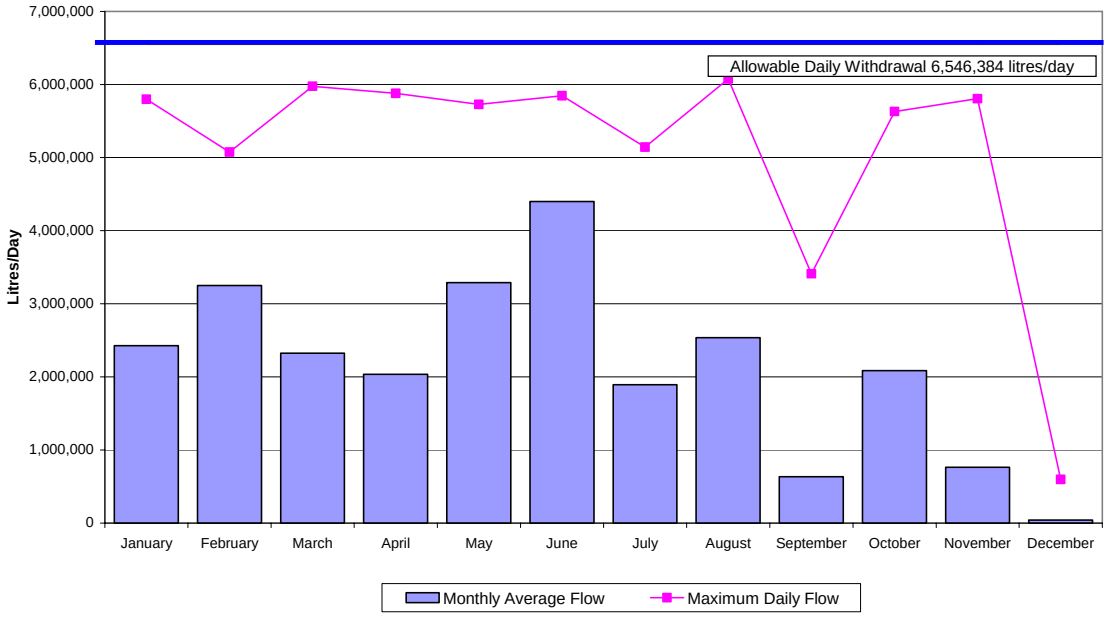


Figure 44 shows a reduced monthly average flow or no monthly average flow recorded for the months of September, November and December 2007. This reduction in flow due to the scheduled and unscheduled maintenance conducted on the well annually to improve the overall operation of the water system.

Figure 45: Queensville Well No. 2
Monthly Average Flow and Maximum Daily Flow 2007

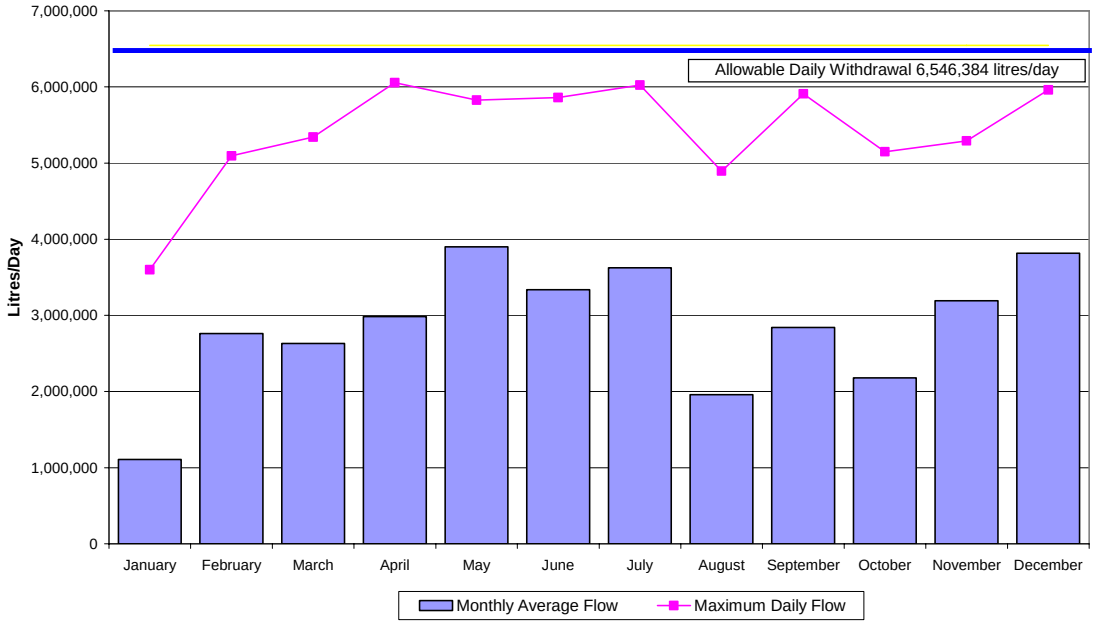


Figure 46: Queensville Well No. 3
Monthly Average Flow and Maximum Daily Flow 2007

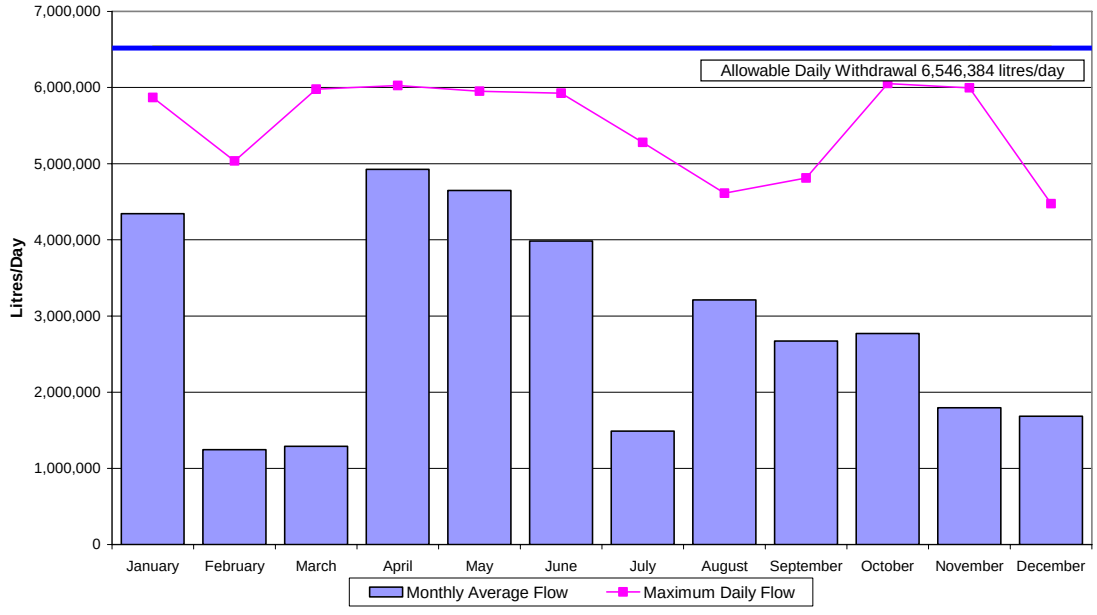


Figure 47: Queensville Well No. 4
Monthly Average Flow and Maximum Daily Flow 2007

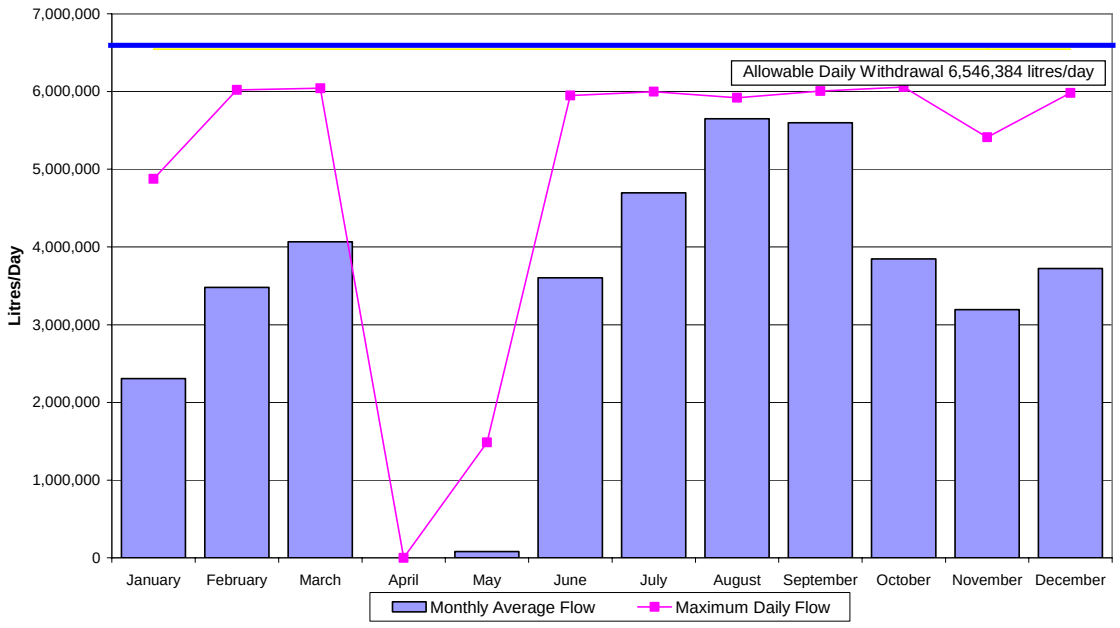


Figure 47 shows a reduced monthly average flow or no monthly average flow recorded for the months of April and May 2007. This reduction in flow due to the scheduled and unscheduled maintenance conducted on the well annually to improve the overall operation of the water system.

Throughout the period of January 1 – December 31, 2007 the withdrawal rates from the Newmarket/East Gwillimbury production wells did not exceed the permitted limits.

The *'Daily Instantaneous Peak Flow (litres)'* for January 1- December 31, 2007 are presented in Figures 48 through 59.

Figure 48: Holland Landing Well No. 1
Daily Instantaneous Peak Flow 2007

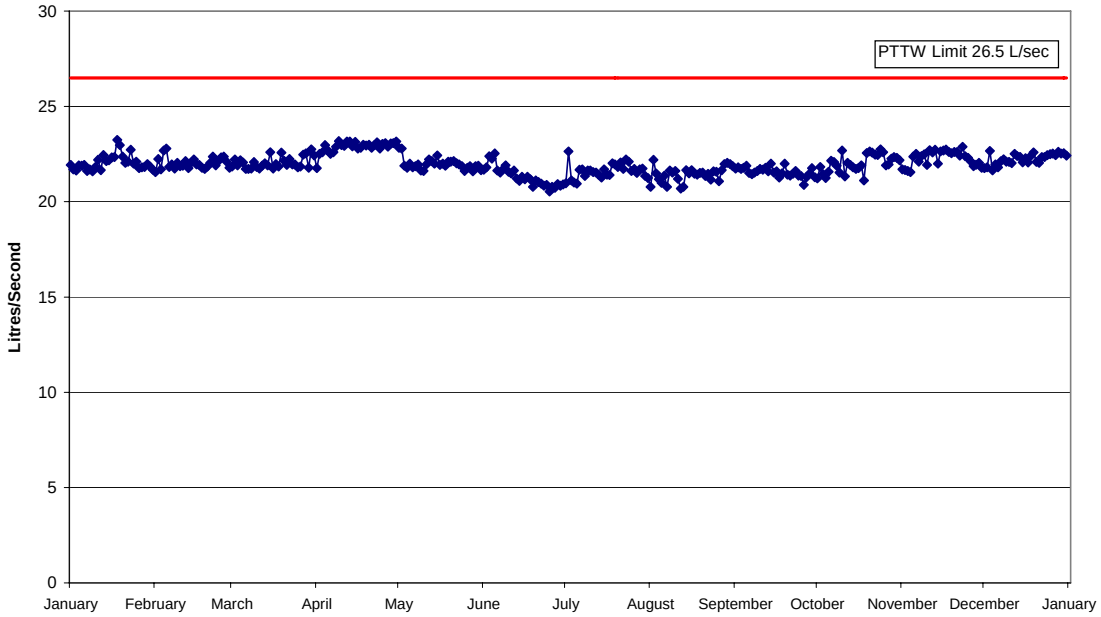


Figure 49: Holland Landing Well No. 2
Daily Instantaneous Peak Flow 2007

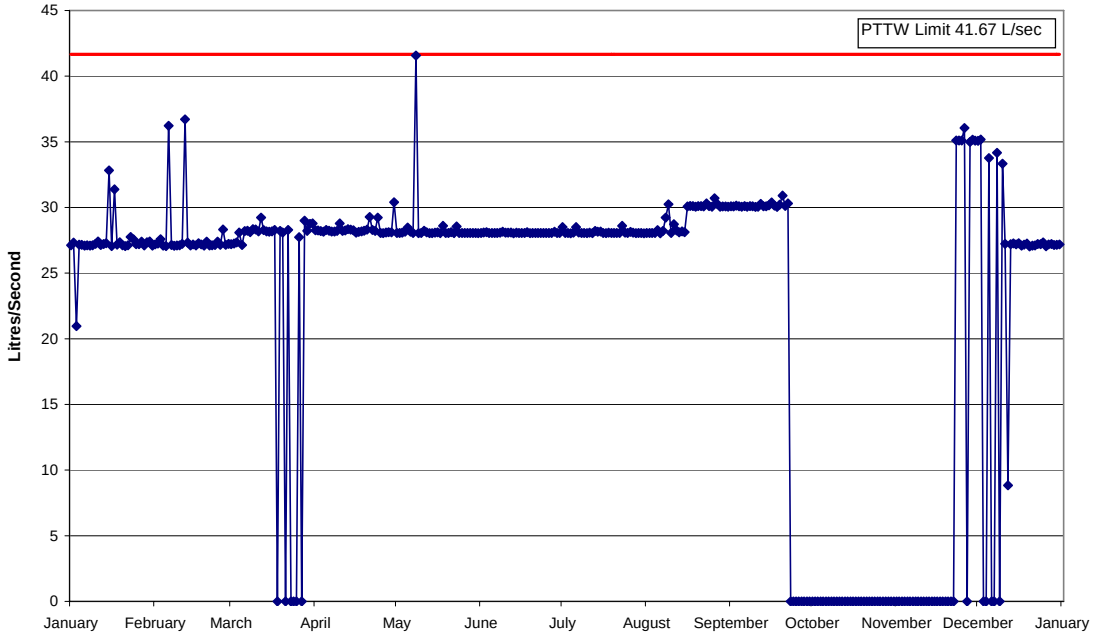


Figure 50: Newmarket Well No. 1
Daily Instantaneous Peak Flow 2007

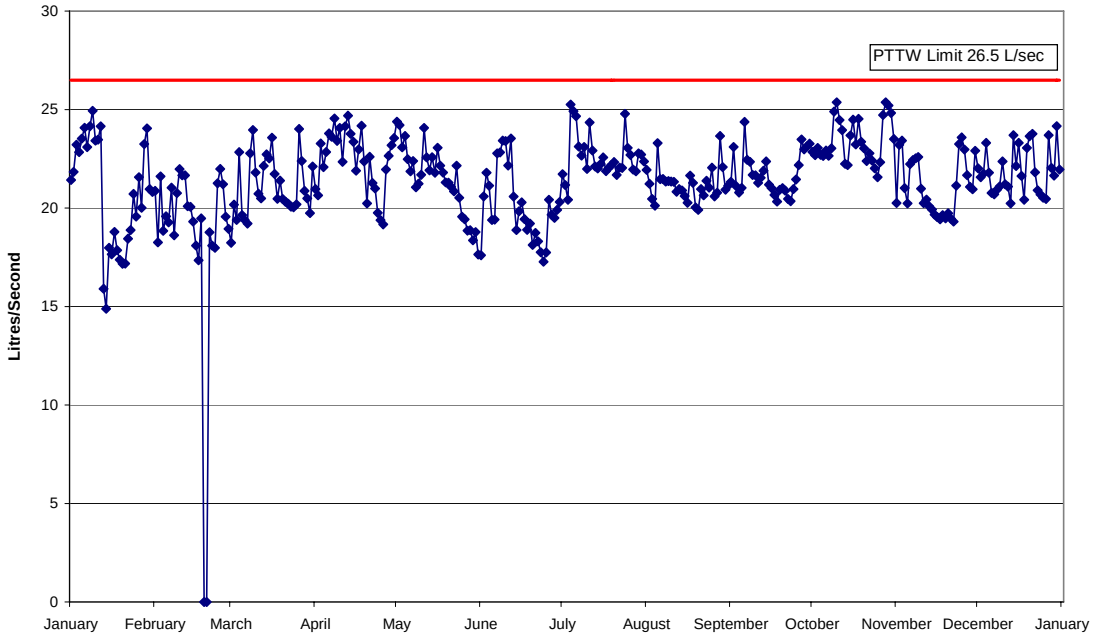


Figure 51: Newmarket Well No. 2
Daily Instantaneous Peak Flow 2007

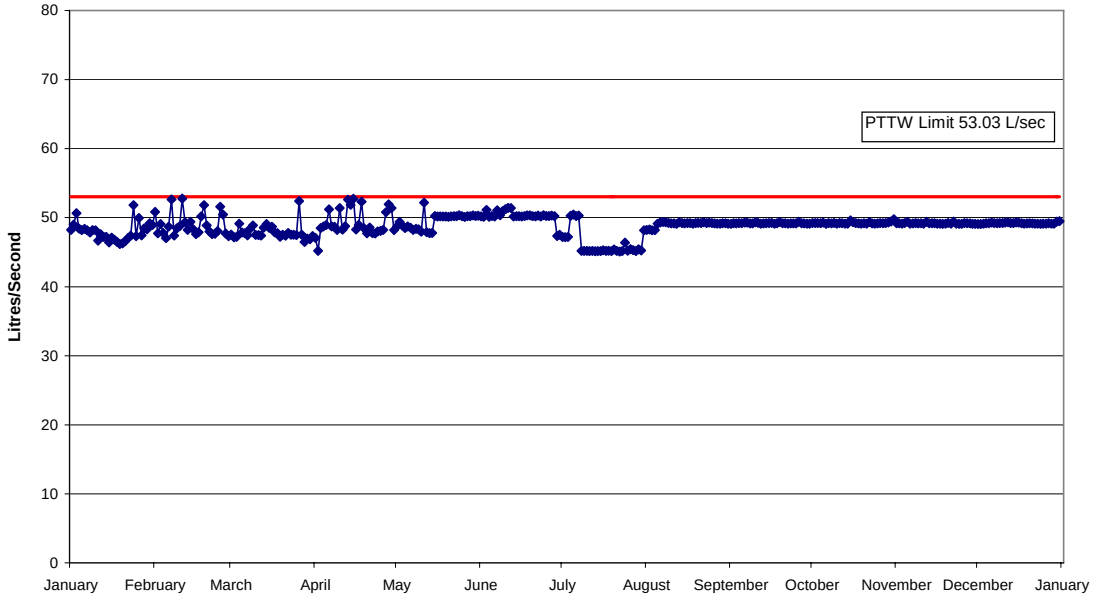


Figure 52: Newmarket Well No. 13
Daily Instantaneous Peak Flow 2007

Figure 53: Newmarket Well No. 14
Daily Instantaneous Peak Flow 2007

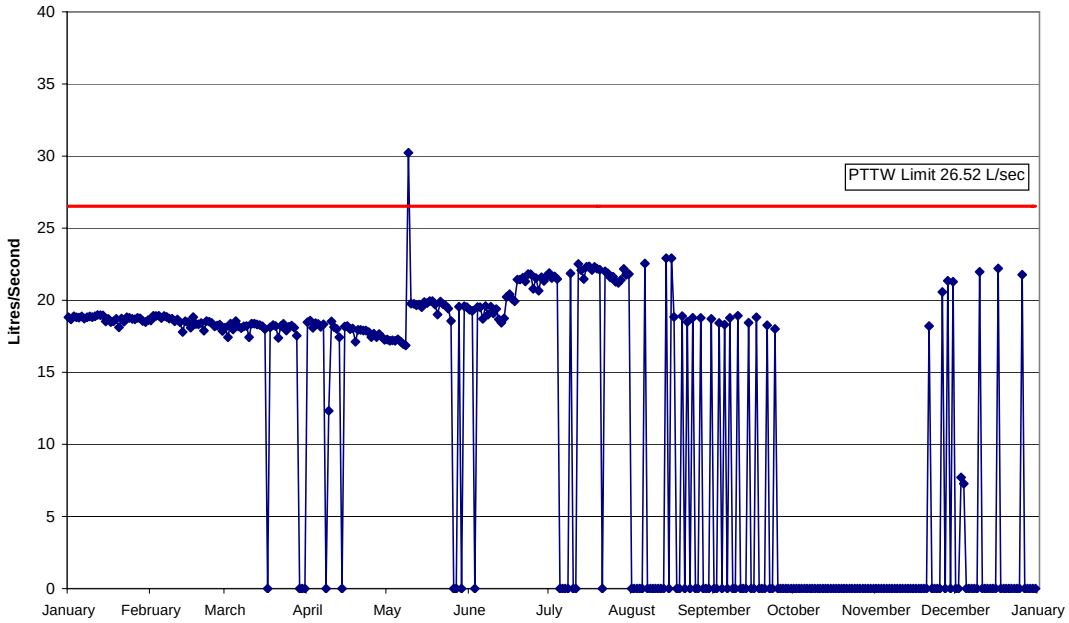


Figure 53 shows instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure or a change in the distribution system pressure.

Figure 54: Newmarket Well No. 15
Daily Instantaneous Peak Flow 2007

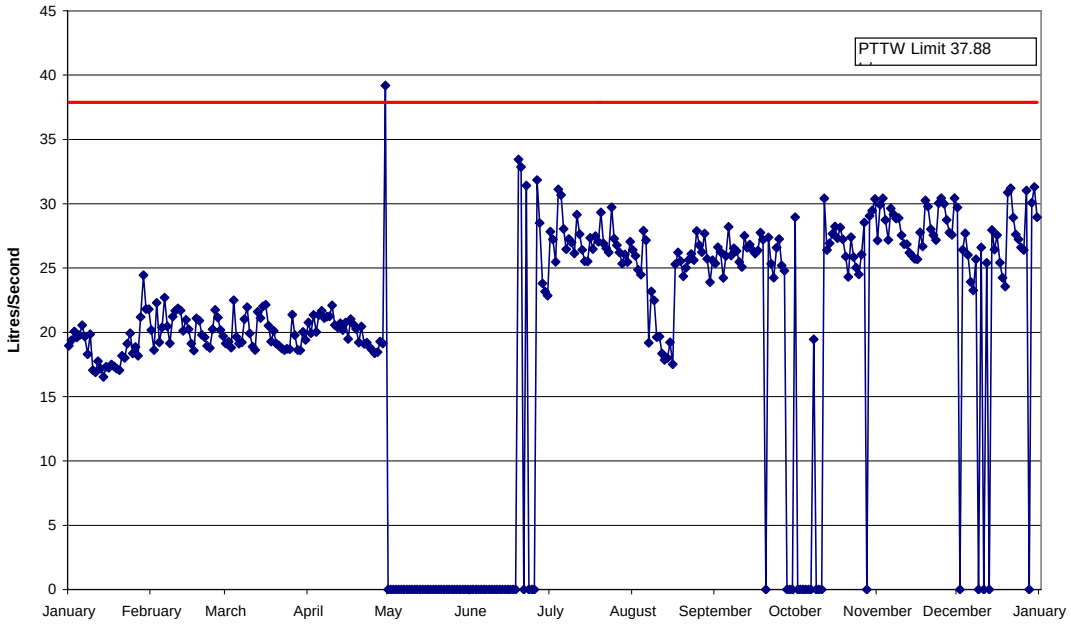
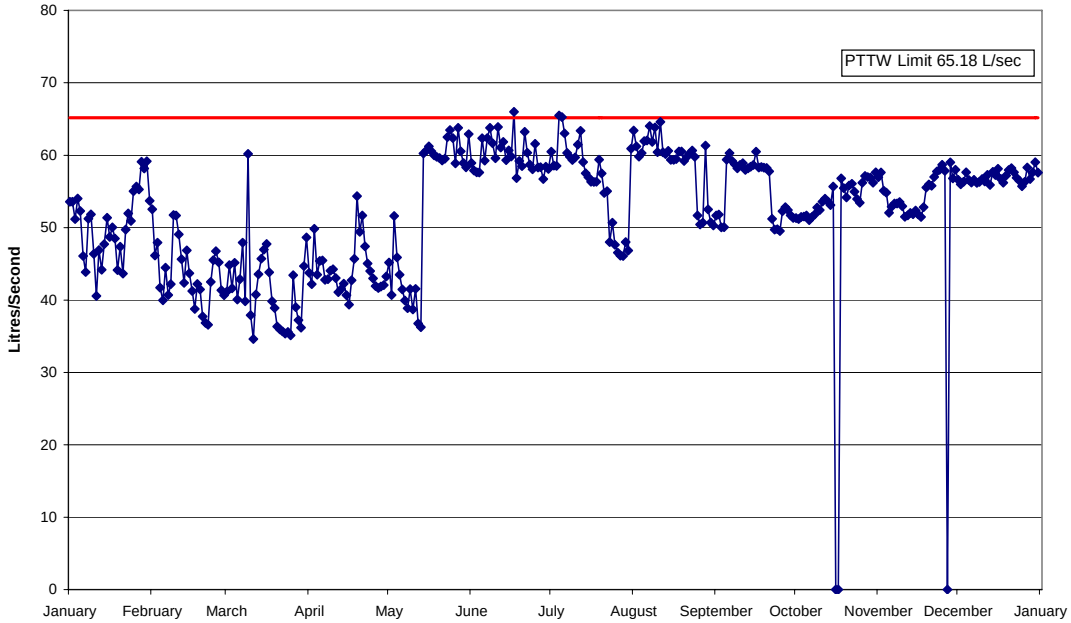


Figure 55: Newmarket Well No. 16
Daily Instantaneous Peak Flow 2007



Figures 54 and 55 shows instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure or a change in the distribution system pressure.

Figure 56: Queensville Well No. 1
Daily Instantaneous Peak Flow 2007

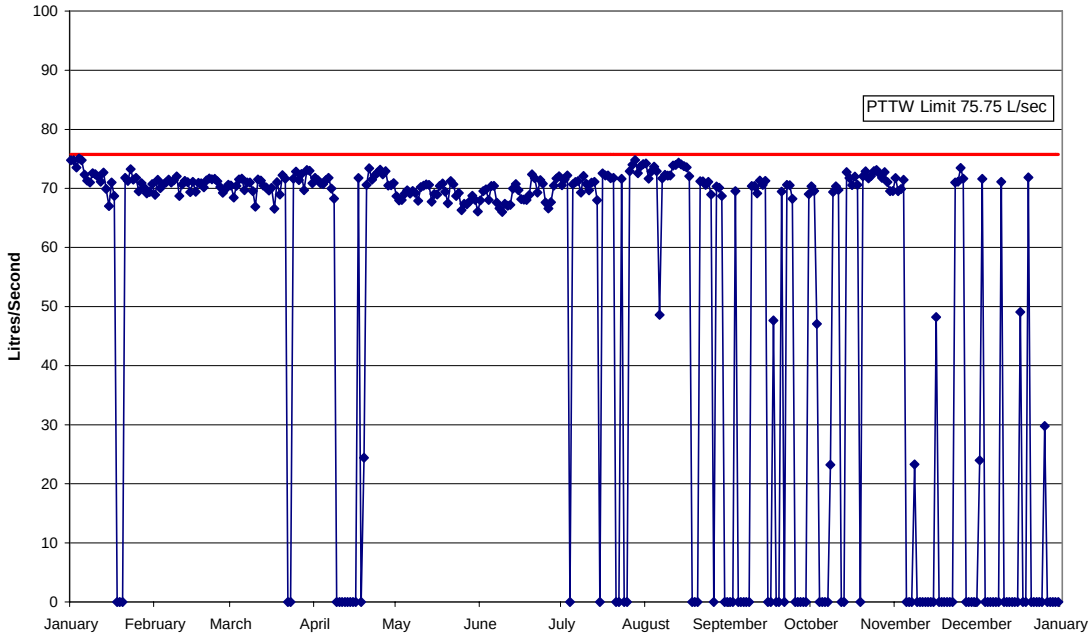


Figure 57: Queensville Well No. 2
Daily Instantaneous Peak Flow 2007

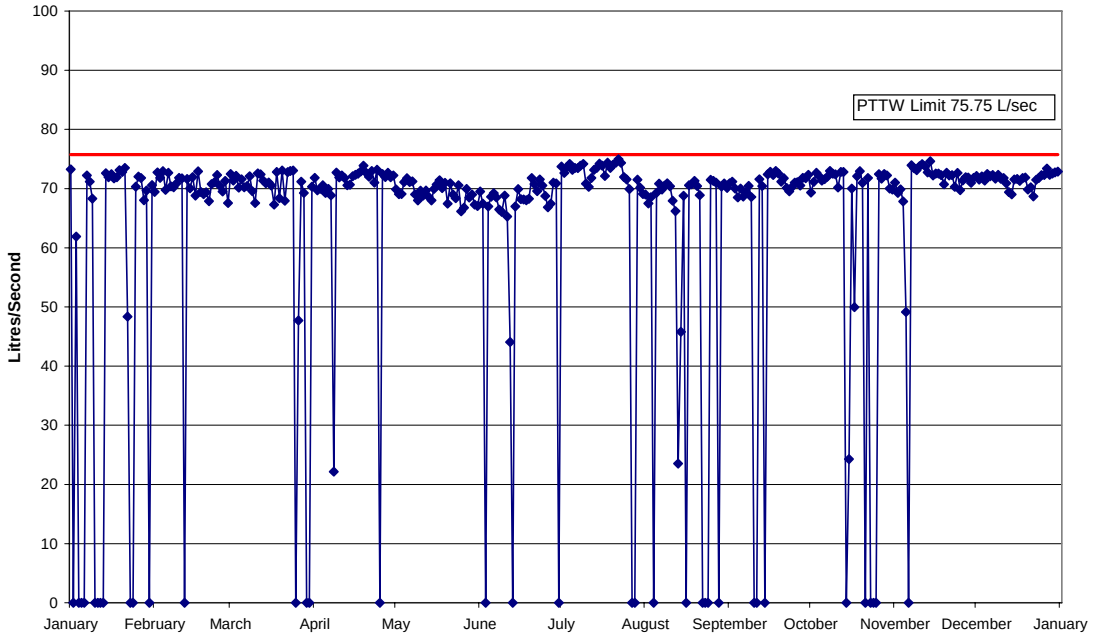


Figure 58: Queensville Well No. 3
Daily Instantaneous Peak Flow 2007

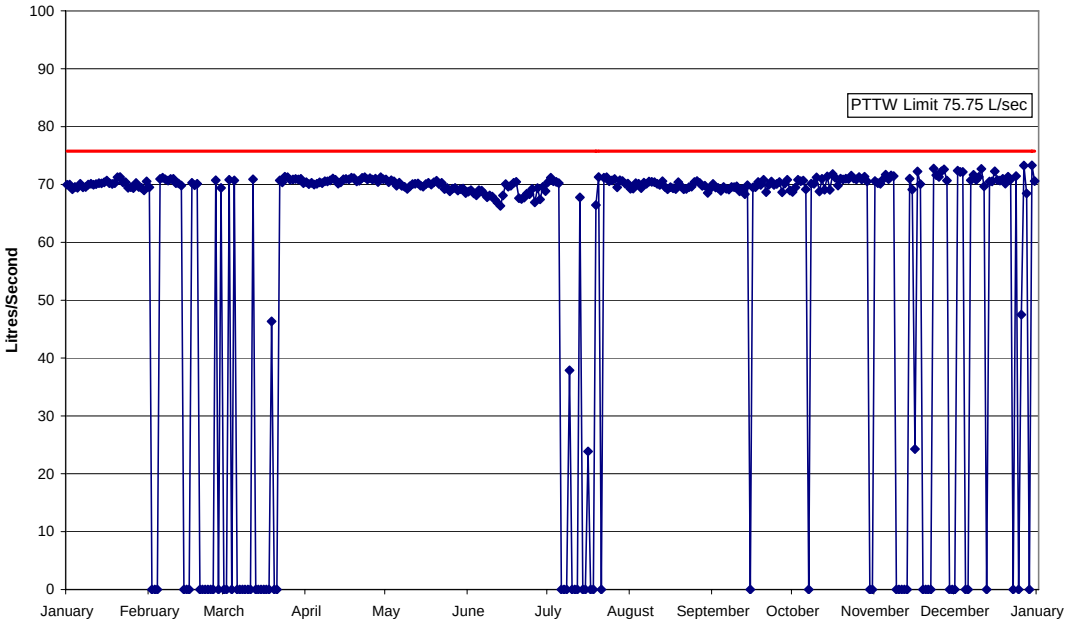


Figure 59: Queensville Well No. 4
Daily Instantaneous Peak Flow 2007

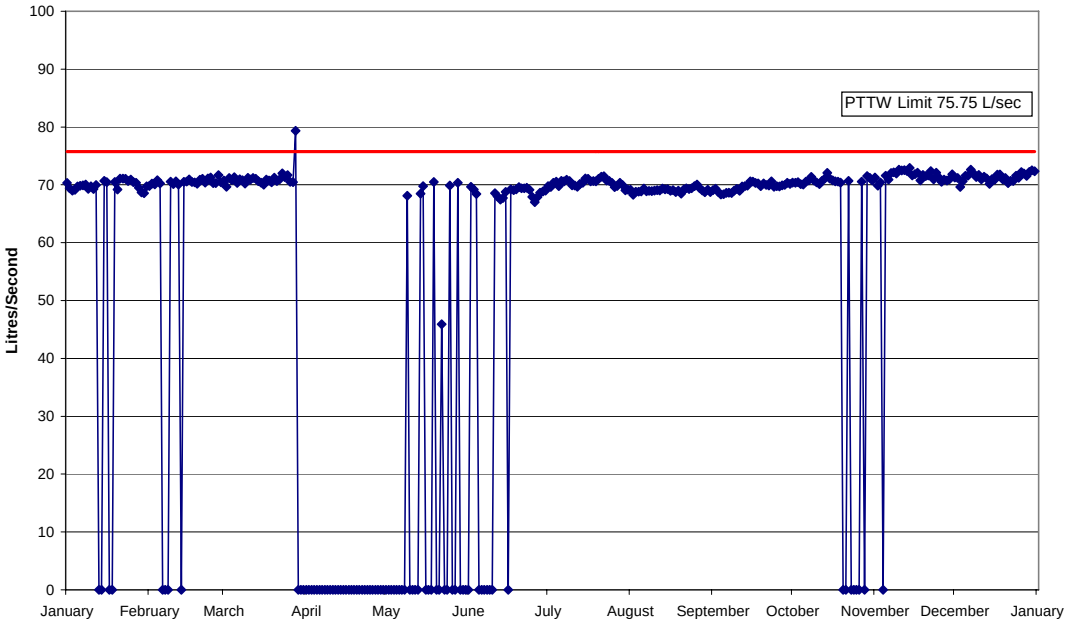


Figure 59 shows instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure or a change in the distribution system pressure.

2.10 Nobleton

York Region operates a water supply system to service Nobleton, Township of King, under authority of a C of A issued by the MOE. The C of A includes reference to the valid PTTW also issued by the MOE. Details of the C of A and PTTW and other relevant classification information for the Nobleton Water Supply are presented in Table 28. All system upgrades required by the C of A have been completed.

TABLE 28: Nobleton Water Supply – Summary of Approvals and Permit

Current Certificate of Approval Number: Issue Date:	6988-5RRN8F November 24, 2003
Current Permit to Take Water Number: Issue Date: Expiry Date:	7433-6HWTED November 15, 2005 December 31, 2010
MOE Waterworks Number:	220002306
System Classification:	Water Distribution II (WDII)

2.10.1 Water Taking

The PTTW for the Nobleton Water Supply System allows York Region to withdraw up to 3,927,740 litres per day from production wells 2 and 3.

York Region monitors the water taking through flow meters placed downstream of each production well. Flow is monitored and alarmed on a continuous basis to ensure that the regulated flows are not exceeded.

2.10.2 Measuring Points

Flow meters are in place downstream of each production well and record the instantaneous flow rate and total volume of water that has passed through the meter. The flow meters are calibrated annually to meet the monitoring conditions of the C of A.

Flow data is retrieved and stored using two methods which provides York Region with the opportunity to compare and contrast data, in the event one method should fail.

1. York Region staff manually record the flow rates and total flow data on regular operational visits to the well sites. Average flow rates are also calculated using records of total flow and number of operating pump hours. This ‘manual’ data was used to generate the maximum daily withdrawal and monthly average flow tables and figures.
2. The flow meters are also connected to the Supervisory Control and Data Acquisition (SCADA) system so that data can be monitored remotely and stored electronically. This data was used to generate the instantaneous peak flow rate figures.

2.10.3 Water Withdrawal

The total volume of water taken from the production wells of the Nobleton Water Supply system in January 1 – December 31, 2007 was 371,737,916 litres or 1,018,460 litres per day.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 29.

TABLE 29: Permitted and Actual Maximum Daily Withdrawal from the Nobleton Production Wells for January 1 – December 31, 2007

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Percentage of Permitted Withdrawal During Peak Demand
Well 2	1,963,872	1,729,156 – June 13, 2007	88.0%
Well 3	1,963,872	1,668,016 – September 29, 2007	84.9%

The maximum permitted water withdrawal and the actual annual withdrawal recorded daily water taking are presented in Table 30.

TABLE 30: Permitted and Actual Maximum Withdrawal from the Nobleton Production Wells for January 1 – December 31, 2007

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Withdrawal
1,433,625,100	371,737,916	25.9%

The monthly average flow rates, maximum daily flow, and the permitted daily withdrawal are presented in Figures 60 and 61.

Figure 60: Nobleton Well No. 2
Monthly Average Flow and Maximum Daily Flow 2007

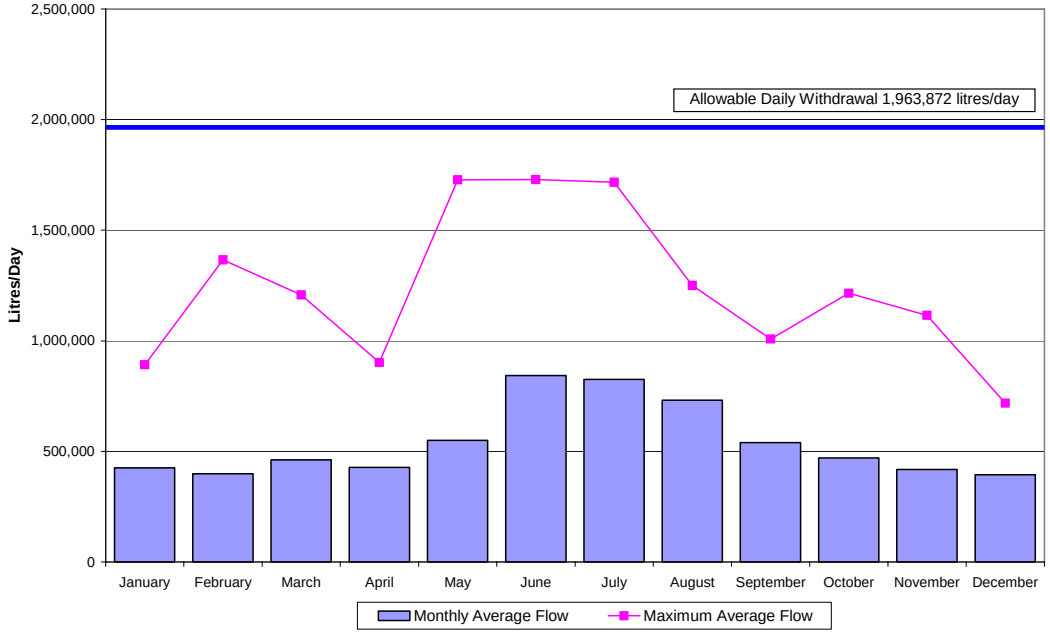
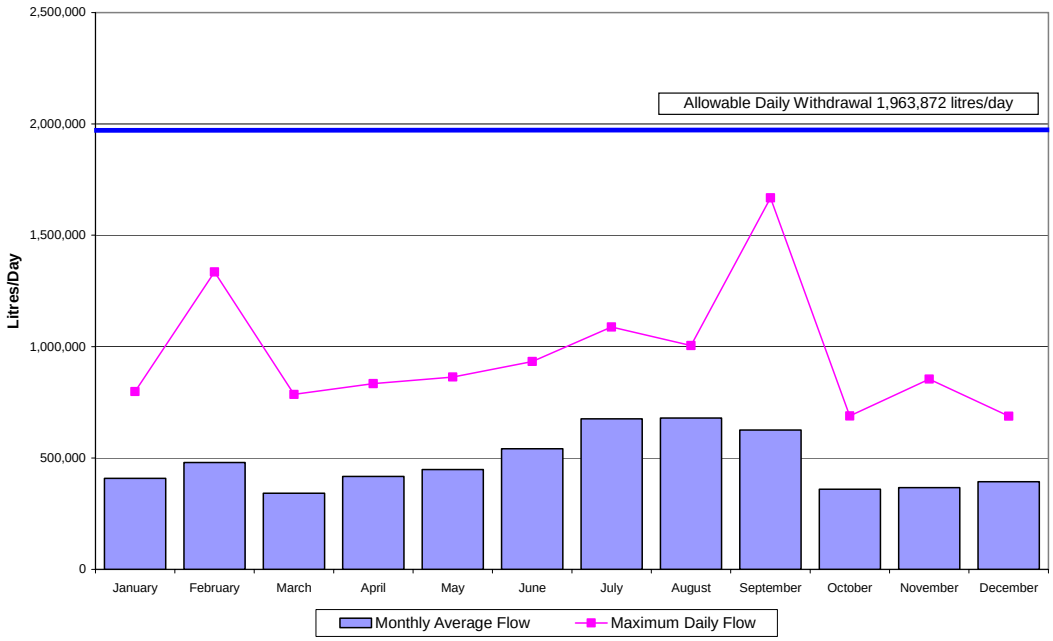


Figure 61: Nobleton Well No. 3
Monthly Average Flow and Maximum Daily Flow 2007



The withdrawal rates from the Nobleton production wells did not exceed the permitted limits during January 1 – December 31, 2007.

The *'Daily Instantaneous Peak Flow (litres)'* for January 1- December 31, 2007 are presented in Figures 62 and 63.

Figure 62: Nobleton Well No. 2
Daily Instantaneous Peak Flow 2007

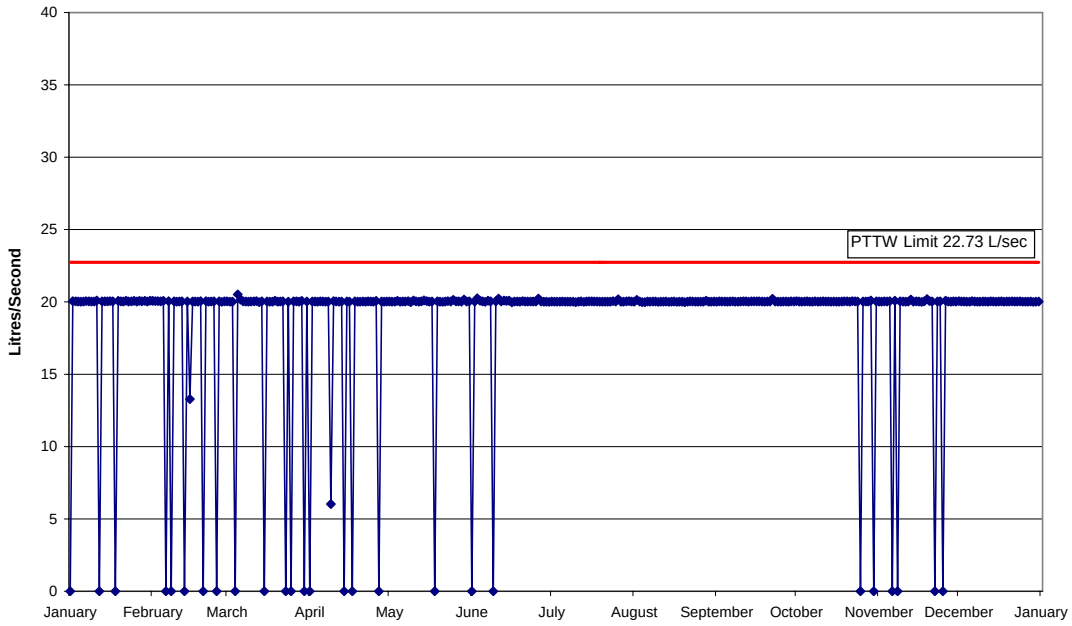


Figure 63: Nobleton Well No. 3
Daily Instantaneous Peak Flow 2007

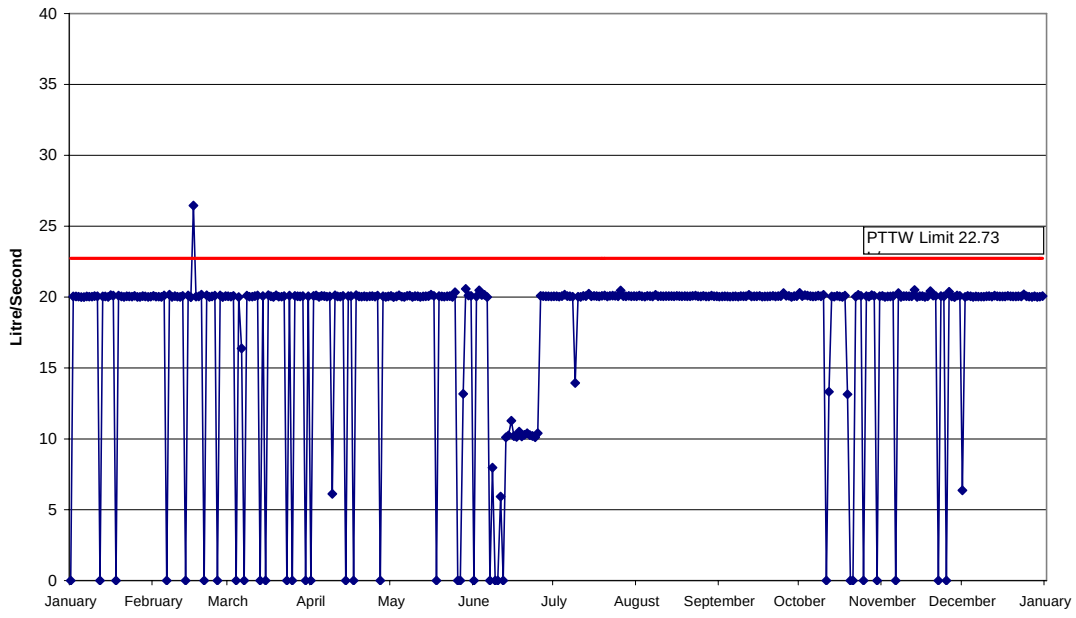


Figure 63 shows instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure or a change in the distribution system pressure.

2.11 Schomberg

York Region operates a water supply system to service Schomberg, Township of King, under authority of a C of A issued by the MOE. The C of A includes reference to the valid PTTW also issued by the MOE. Details of the C of A and PTTW and other relevant classification information for the Schomberg Water Supply are presented in Table 31. All system upgrades required by the C of A have been completed.

TABLE 31: Schomberg Water Supply – Summary of Approvals and Permit

Current Certificate of Approval Number: Issue Date:	7539-6KSQXR February 9, 2006
Current Permit to Take Water Number: Issue Date: Expiry Date:	3451-66BNPB November 9, 2004 November 30, 2014
MOE Waterworks Number:	220004901
System Classification:	Water Distribution II (WDII)

2.11.1 Water Taking

The PTTW for the Schomberg Water Supply System allows York Region to withdraw up to 3,926,560 litres per day from production wells 2 and 3.

York Region monitors the water taking through flow meters placed downstream of each production well. Flow is monitored and alarmed on a continuous basis to ensure that the regulated flows are not exceeded.

2.11.2 Measuring Points

Flow meters are in place downstream of each production well and record the instantaneous flow rate and total volume of water that has passed through the meter. The flow meters are calibrated annually to meet the monitoring conditions of the C of A.

Flow data is retrieved and stored using two methods which provides York Region with the opportunity to compare and contrast data, in the event one method should fail.

1. York Region staff manually record the flow rates and total flow data on regular operational visits to the well sites. Average flow rates are also calculated using records of total flow and number of operating pump hours. This ‘manual’ data was used to generate the maximum daily withdrawal and monthly average flow tables and figures.

2. The flow meters are also connected to the Supervisory Control and Data Acquisition (SCADA) system so that data can be monitored remotely and stored electronically. This data was used to generate the instantaneous peak flow rate figures.

2.11.3 Water Withdrawal

The total volume of water taken from the production wells of the Schomberg Water Supply system for January 1 – December 31, 2007 was 264,758,654 or 725,366 litres per day.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 32.

TABLE 32: Permitted and Actual Maximum Daily Withdrawal from the Schomberg Production Wells for January 1 – December 31, 2007

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Percentage of Permitted Withdrawal During Peak Demand
Well 2	1,636,560	1,576,375 – January 24, 2007	96.3%
Well 3	2,290,000	2,259,844 – January 24, 2007	98.7%

The maximum permitted water withdrawal and the actual annual withdrawal recorded daily water taking are presented in Table 33.

TABLE 33: Permitted and Actual Maximum Withdrawal from the Schomberg Production Wells for January 1 – December 31, 2007

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Withdrawal
1,433,194,400	264,758,654	18.5%

The monthly average flow rates, maximum daily flow, and the permitted daily withdrawal are presented in Figures 64 and 65.

Figure 64: Schomberg Well No. 2
Monthly Average Flow and Maximum Daily Flow 2007

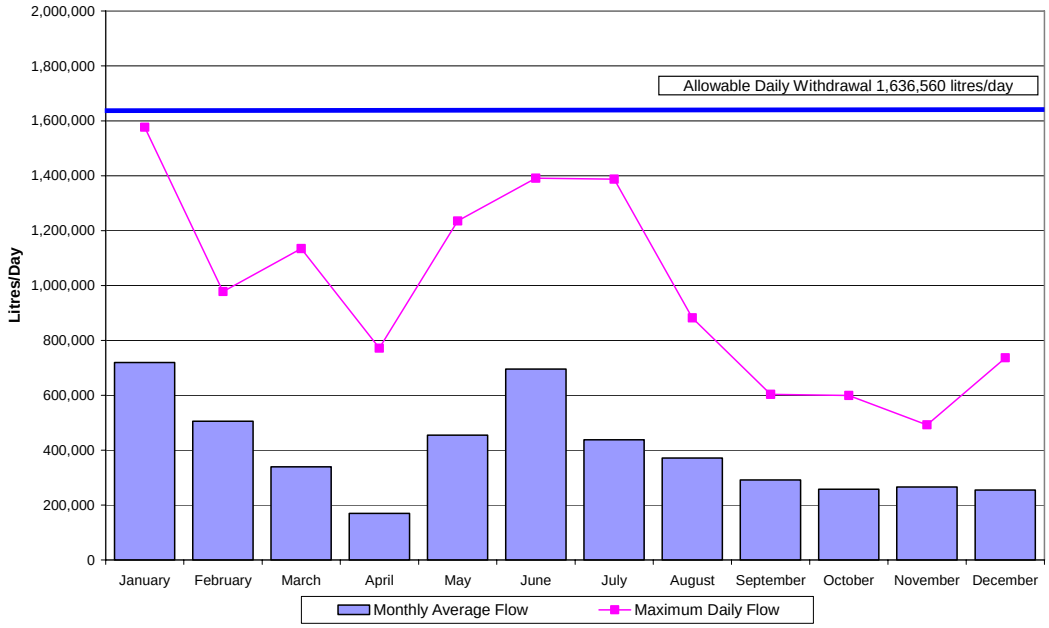
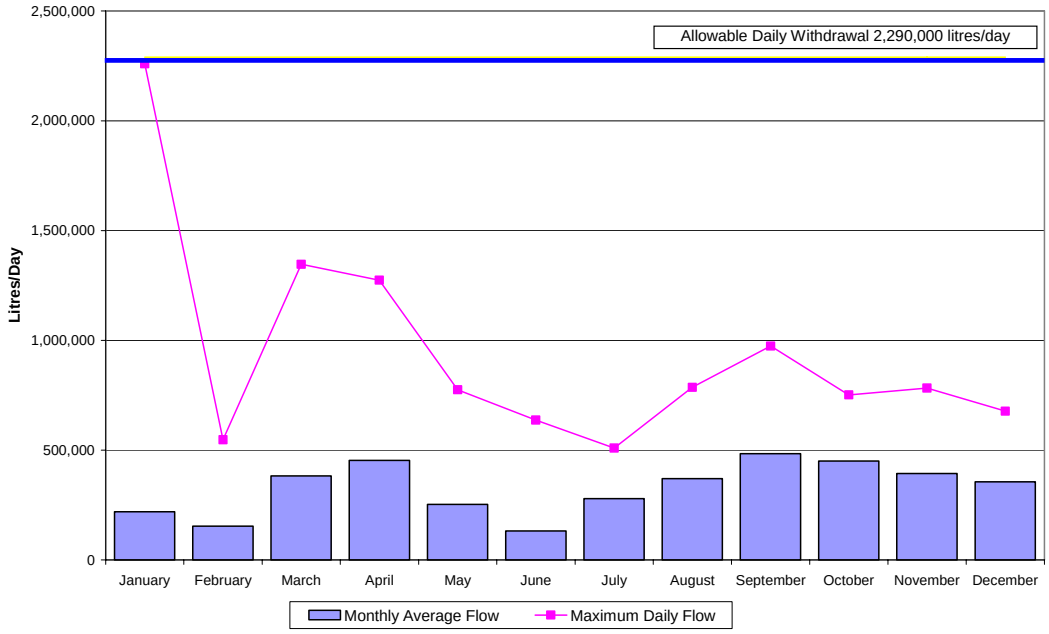


Figure 65: Schomberg Well No. 3
Monthly Average Flow and Average Daily Flow 2007



The actual volumes of water taken from the Schomberg production wells in the period of January 1 – December 31, 2007 did not exceed the permitted daily withdrawal volumes.

The *'Daily Instantaneous Peak Flow (litres)'* for January 1- December 31, 2007 are presented in Figures 66 and 67.

Figure 66: Schomberg Well No. 2
Daily Instantaneous Peak Flow 2007

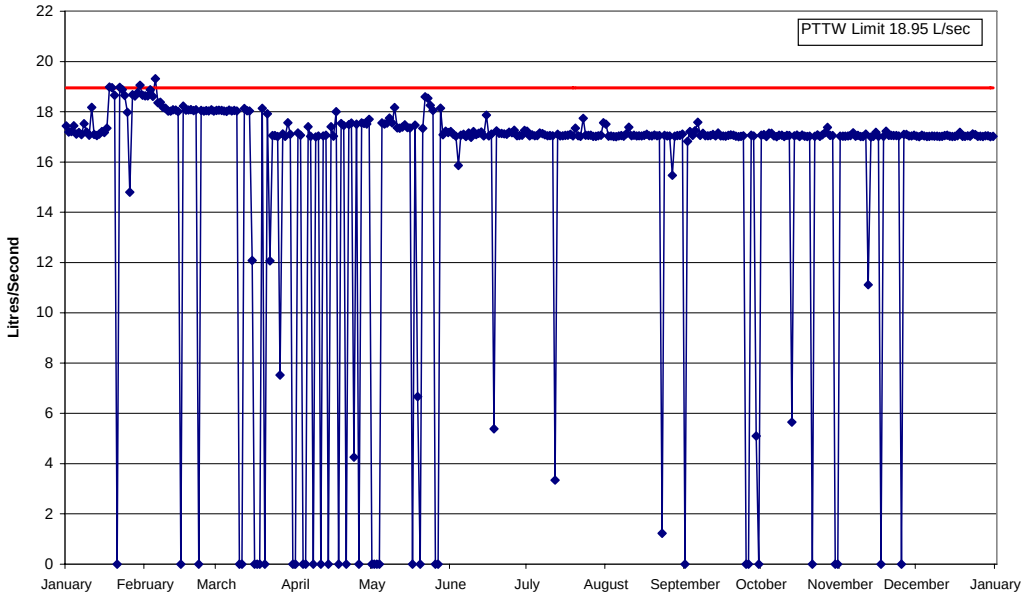


Figure 67: Schomberg Well No. 3
Daily Instantaneous Peak Flow 2007

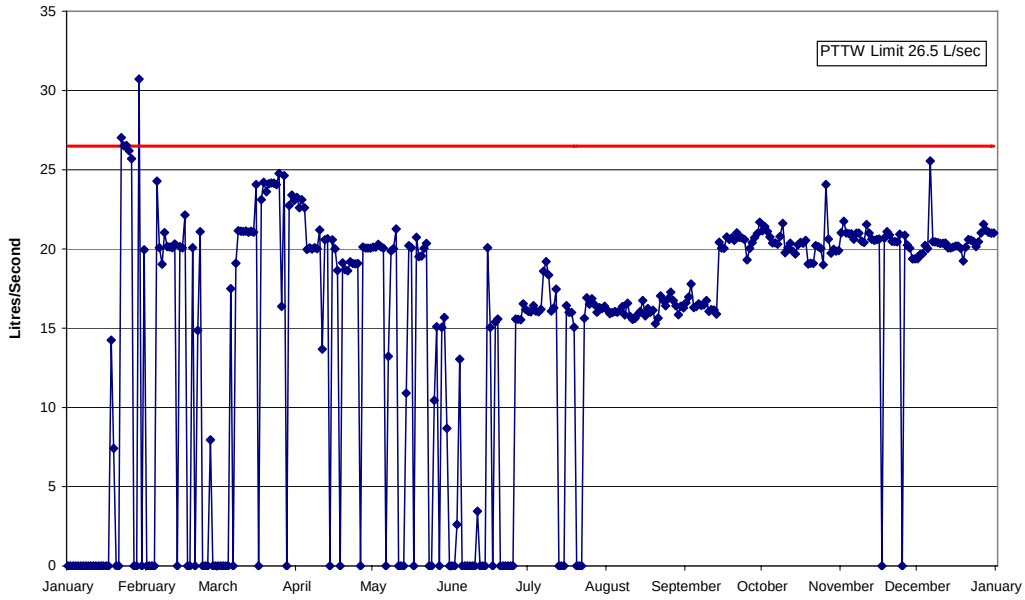


Figure 67 shows instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure or a change in the distribution system pressure.

2.12 Stouffville

York Region operates a water supply system to service Stouffville, Town of Whitchurch-Stouffville, under authority of a C of A issued by the MOE. The C of A includes reference to the valid PTTW also issued by the MOE. Details of the C of A and PTTW and other relevant classification information for the Stouffville Water Supply are presented in Table 34. All system upgrades required by the C of A have been completed.

TABLE 34: Stouffville Water Supply – Summary of Approvals and Permit

Current Certificate of Approval Number: Issue Date:	8721-6KRKE7 January 23, 2006
Current Permit to Take Water Number: Issue Date: Expiry Date:	5722-74LPXE June 29, 2007 June 30, 2012
MOE Waterworks Number:	220002333
System Classification:	Water Distribution III (WD III)

2.12.1 Water Taking

The PTTW for the Stouffville Water Supply System allows York Region to withdraw up to 14,238,720 litres per day from production wells 1, 2, 3, 5 and 6.

York Region monitors the water taking through flow meters placed downstream of each production well. Flow is monitored and alarmed on a continuous basis to ensure that the regulated flows are not exceeded.

2.12.2 Measuring Points

Flow meters are in place downstream of each production well and record the instantaneous flow rate and total volume of water that has passed through the meter. The flow meters are calibrated annually to meet the monitoring conditions of the C of A.

Flow data is retrieved and stored using two methods which provides York Region with the opportunity to compare and contrast data, in the event one method should fail.

1. York Region staff manually record the flow rates and total flow data on regular operational visits to the well sites. Average flow rates are also calculated using records of total flow and number of operating pump hours. This ‘manual’ data was used to generate the maximum daily withdrawal and monthly average flow tables and figures.
2. The flow meters are also connected to the Supervisory Control and Data Acquisition (SCADA) system so that data can be monitored remotely and stored electronically. This data was used to generate the instantaneous peak flow rate figures.

2.12.3 Water Withdrawal

The total volume of water taken from the production wells of the Stouffville Water Supply system from January 1 – December 31, 2007 was 2,052,233,761 litres or 5,622,558 litres per day.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 35.

TABLE 35: Permitted and Actual Maximum Daily Withdrawal from the Stouffville Production Wells for January 1 – December 31, 2007

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Percentage of Permitted Withdrawal During Peak Demand
Well 1	2,946,240	2,591,938 – December 15, 2007	87.9%
Well 2	2,946,240	2,591,867 – March 1, 2007	87.9%
Well 3	2,946,240	2,723,469 – January 7, 2007	92.4%
Well 5	2,289,600	2,136,221 – March 3, 2007	93.3%
Well 6	3,110,400	1,789,500 – December 26, 2007	57.5%

The maximum permitted water withdrawal and the actual annual withdrawal recorded daily water taking are presented in Table 36.

TABLE 36: Permitted and Actual Maximum Withdrawal from the Stouffville Production Wells for January 1 – December 31, 2007

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Withdrawal
5,197,132,800	2,052,233,761	39.5%

The monthly average flow rates, maximum daily flow, and the permitted daily withdrawal are presented in Figures 68 through 72.

Figure 68: Stouffville Well No. 1
Monthly Average Flow and Maximum Daily Flow 2007

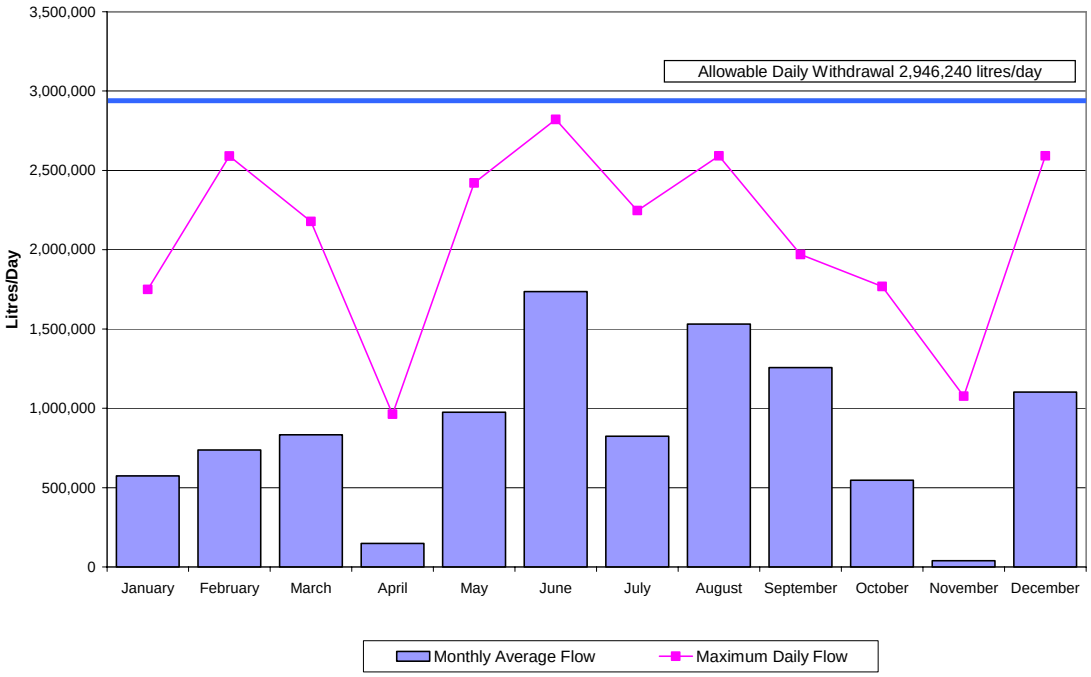


Figure 68 shows a reduced monthly average flow or no monthly average flow recorded for the months of April and November 2007. This reduction in flow due to the scheduled and unscheduled maintenance conducted on the well annually to improve the overall operation of the water system.

Figure 69: Stouffville Well No. 2
Monthly Average Flow and Maximum Daily Flow 2007

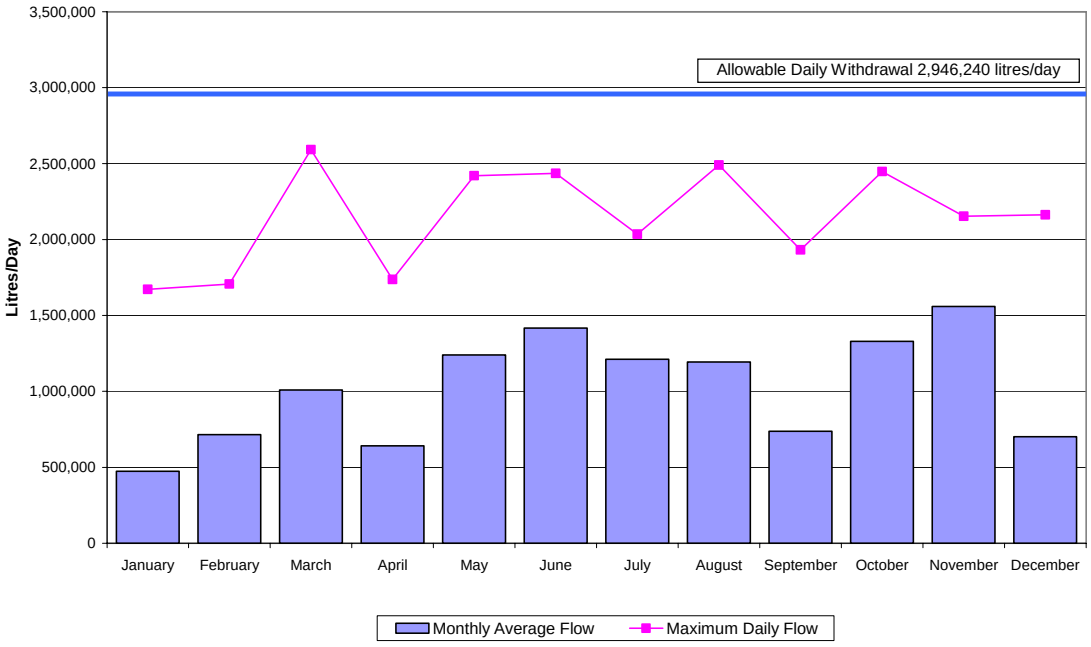


Figure 70: Stouffville Well No. 3
Monthly Average Flow and Maximum Daily Flow 2007

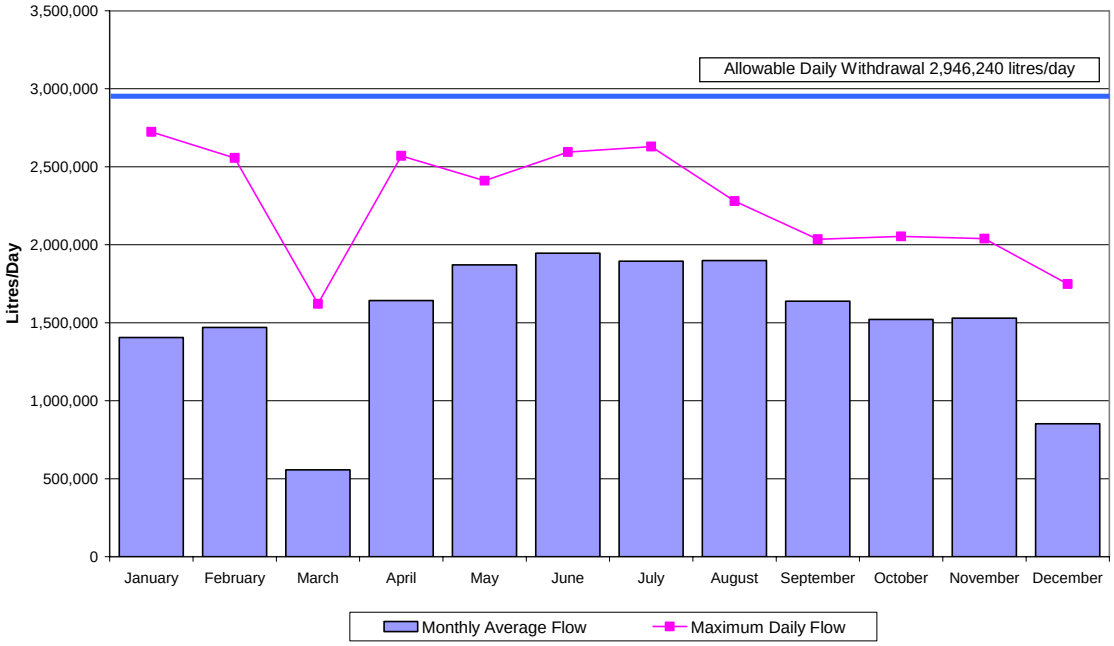


Figure 71: Stouffville Well No. 5
Monthly Average Flow and Maximum Daily Flow 2007

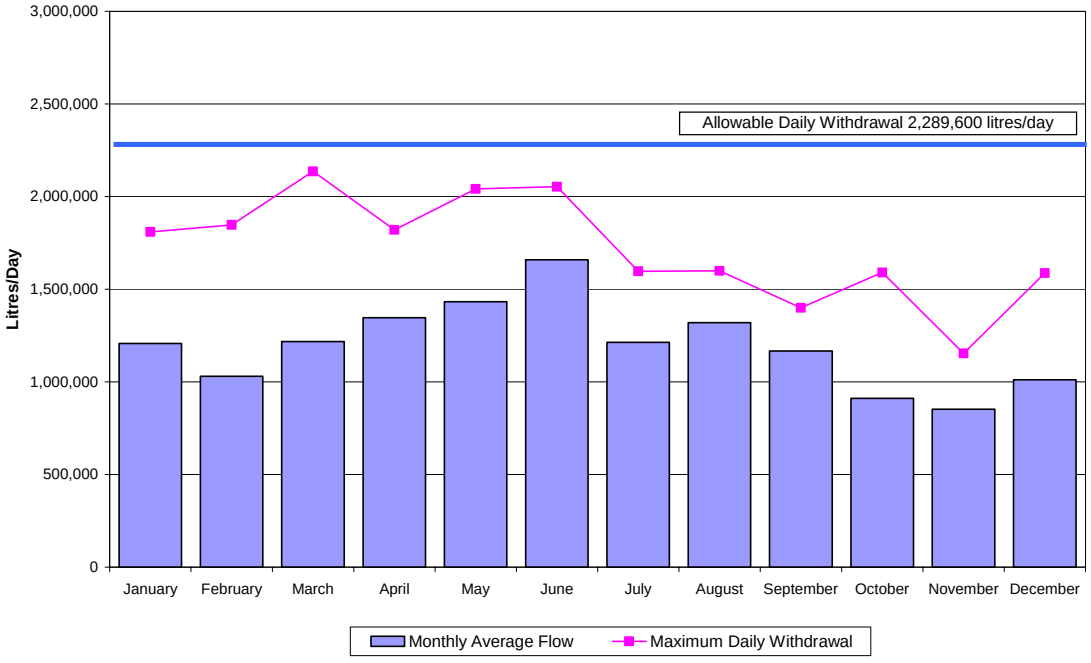
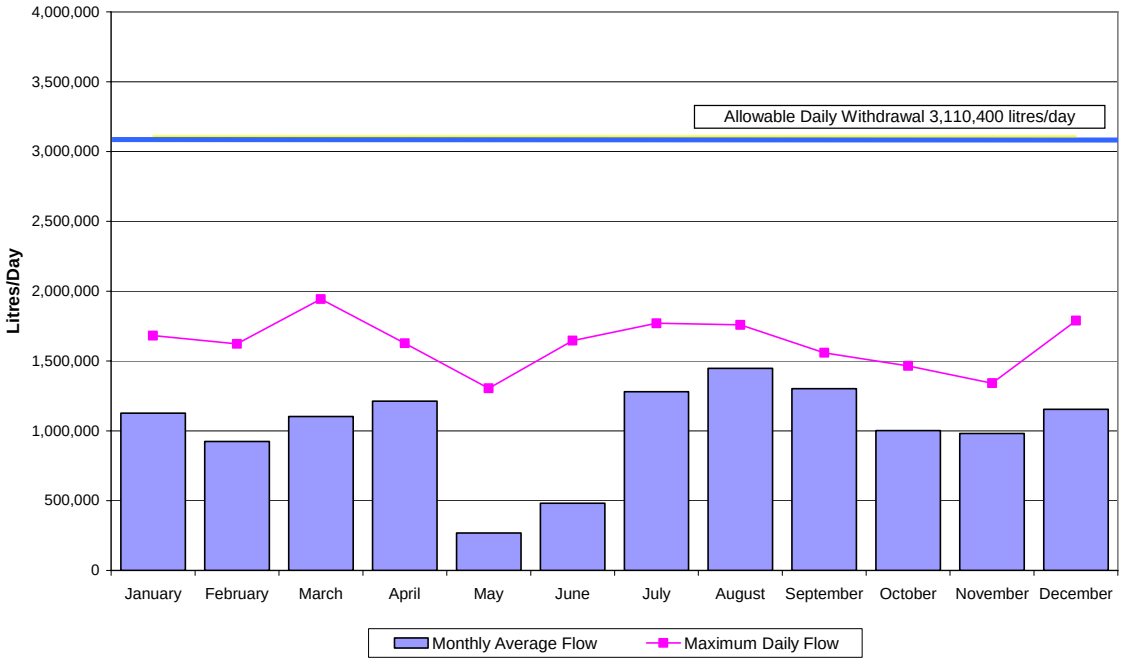


Figure 72: Stouffville Well No. 6
Monthly Average Flow and Maximum Daily Flow 2007



The actual volumes of water taken from the Stouffville production wells for January 1 – December 31, 2007 did not exceed the permitted daily withdrawal volumes.

The *'Daily Instantaneous Peak Flow (litres)'* for January 1- December 31, 2007 are presented in Figures 73 through 77.

Figure 73: Stouffville Well No. 1
Daily Instantaneous Peak Flow 2007

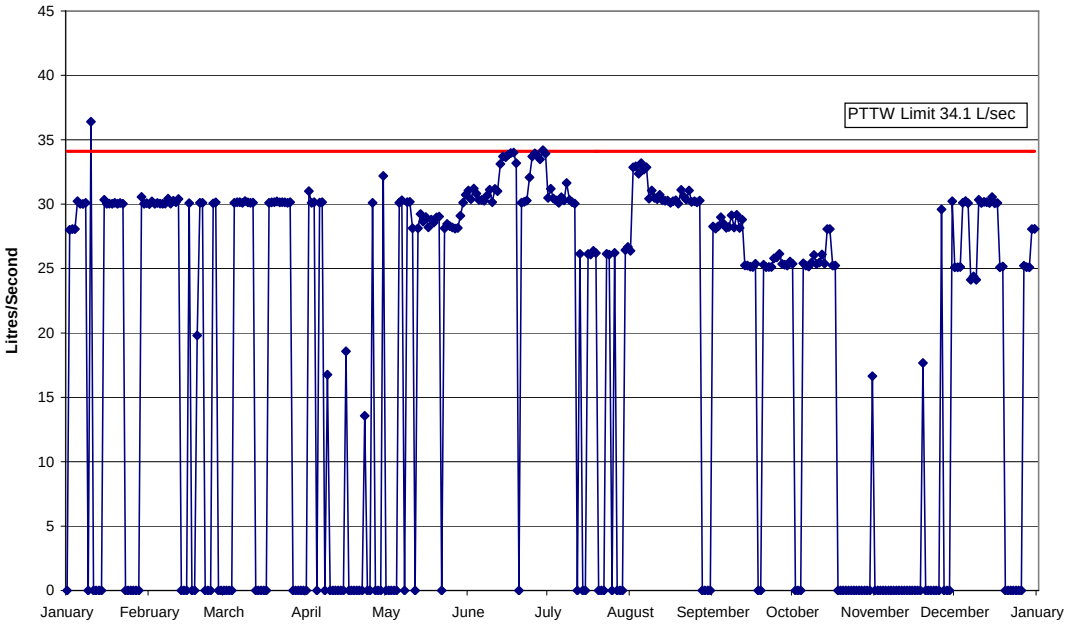


Figure 73 shows instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure or a change in the distribution system pressure.

Figure 74: Stouffville Well No. 2
Daily Instantaneous Peak Flow 2007

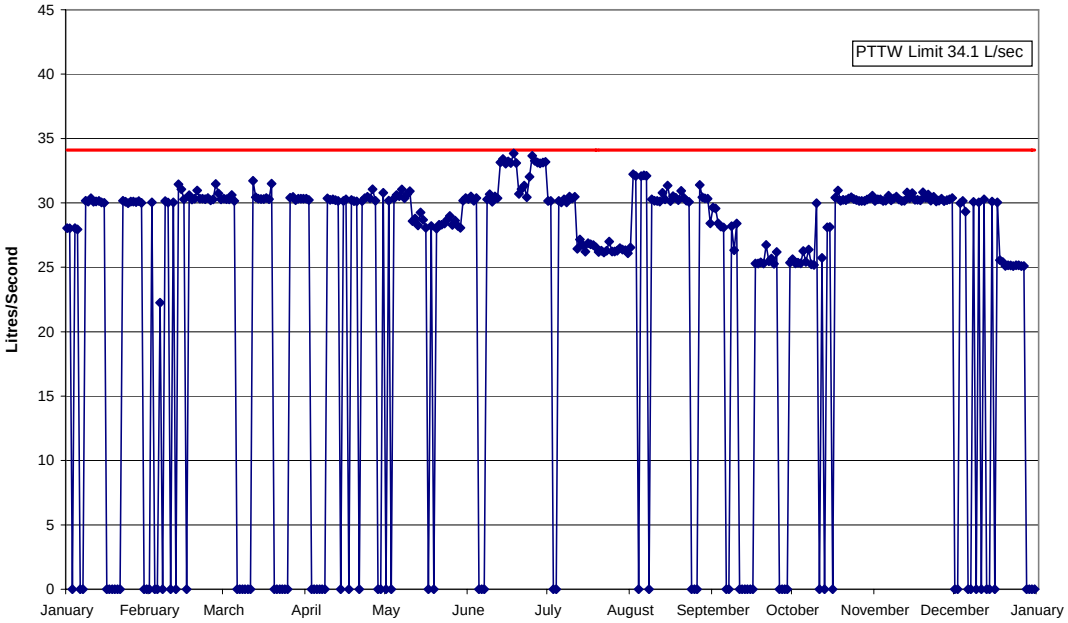


Figure 75: Stouffville Well No. 3
Daily Instantaneous Peak Flow 2007

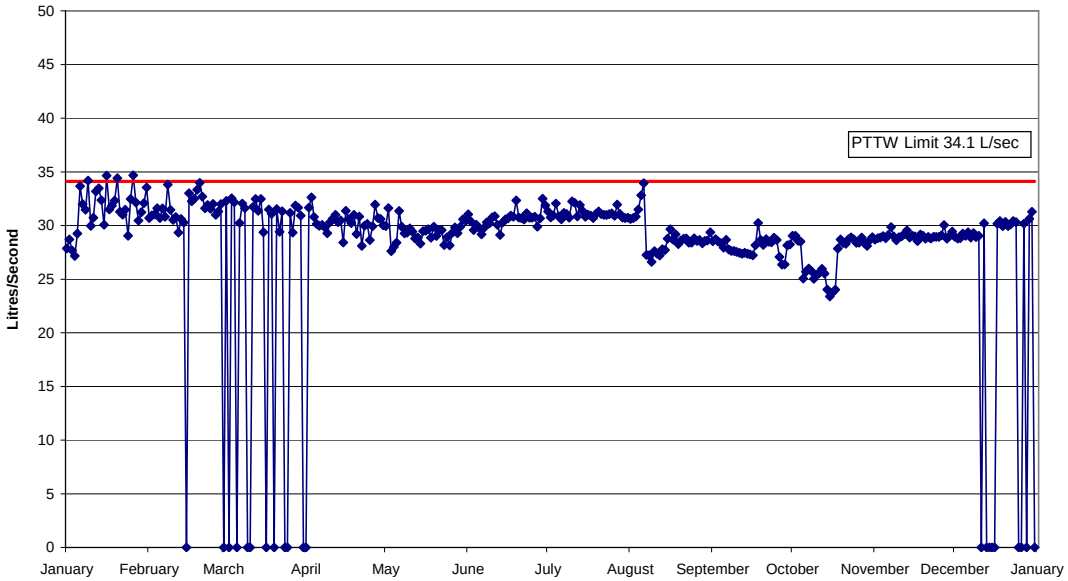


Figure 76: Stouffville Well No. 5
Daily Instantaneous Peak Flow 2007

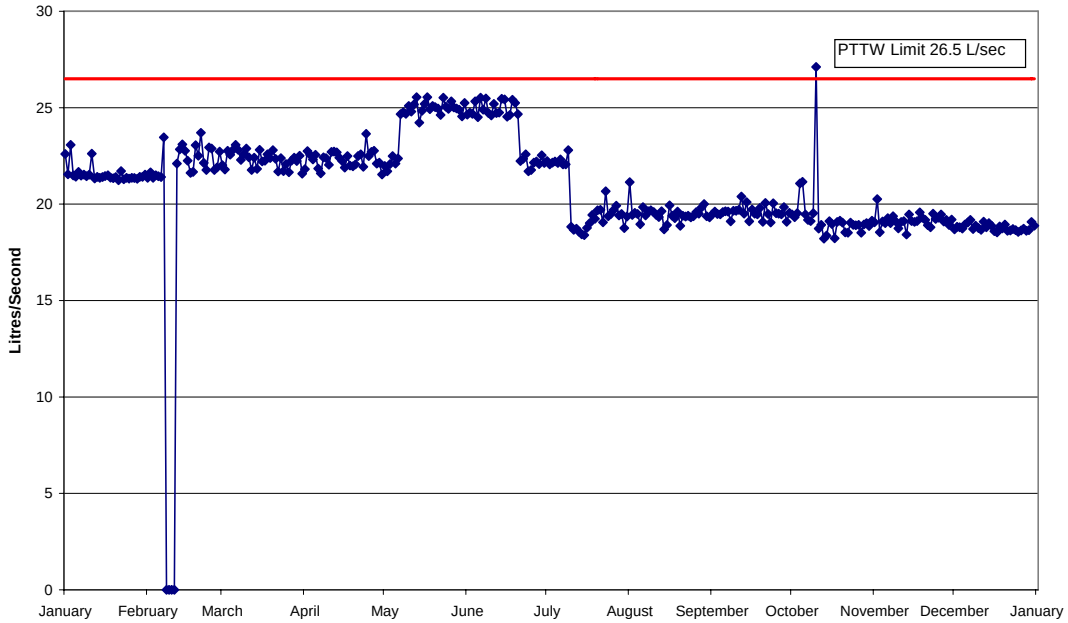
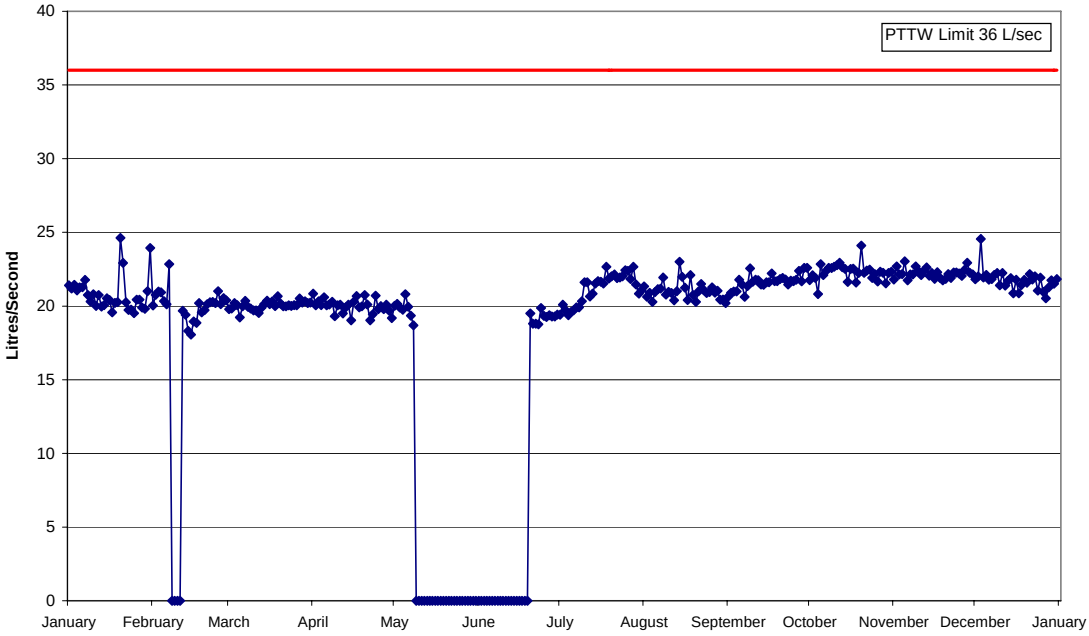


Figure 75 and 76 show instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure or a change in the distribution system pressure.

Figure 77: Stouffville Well No. 6
Daily Instantaneous Peak Flow 2007

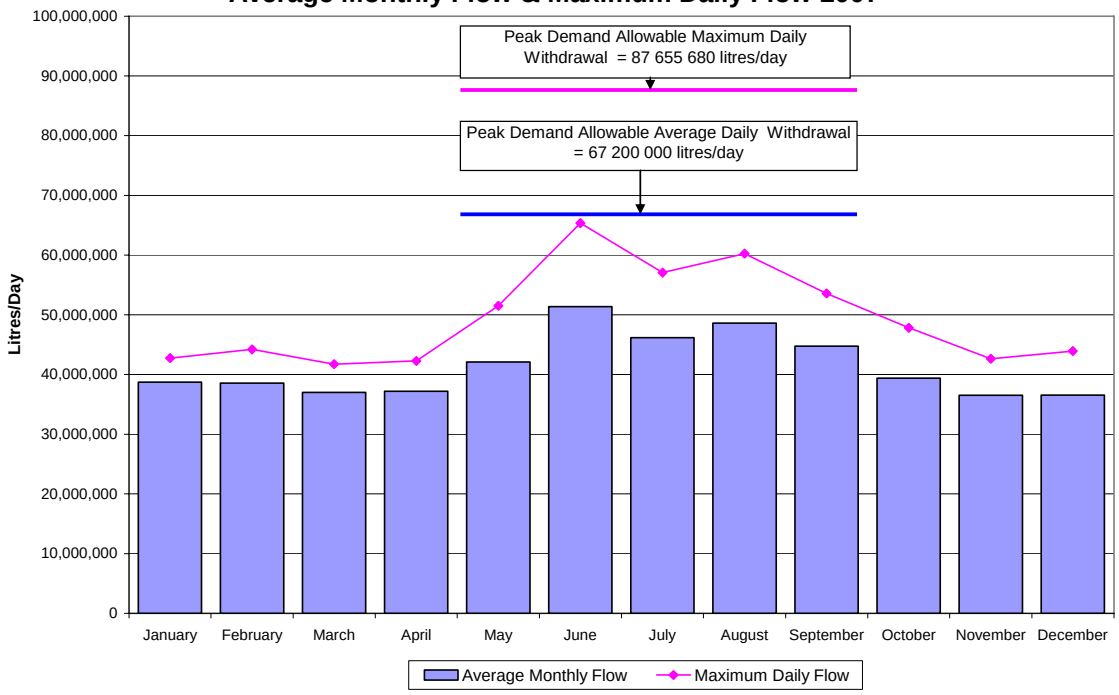


2.13 Yonge Street Aquifer

The Yonge Street Aquifer is the name given to the source aquifer that supplies groundwater to the communities of Aurora, Newmarket, Holland Landing, Queensville and Sharon. There are 20 wells in total that obtain water from the Yonge Street Aquifer, which are captured under one Permit to Take Water 6623-68QQ6L.

Detailed information about the individual wells has been provided in separate sections and appears in this report under the 'Aurora' or 'Newmarket / East Gwillimbury' headings. However, for the purposes of understanding the accumulative impact of our water taking on the Yonge Street Aquifer, Figure 78 is provided below.

Figure 78: Yonge Street Aquifer
Average Monthly Flow & Maximum Daily Flow 2007



The total volume of water taken from the Yonge Street Aquifer from January 1 – December 31, 2007 was 15,118,240,288 litres or 41,419,836 litres per day.

As prescribed by the PTTW, during the peak demand period of May to September the permitted average daily water taking for the Yonge Street Aquifer is limited to 67,200,000 litres per day with a maximum withdrawal limit of 87,656,000. In 2007, the recorded permitted average daily water taking was 51,370,691 litres per day with a maximum withdrawal of 65,342,000, below the limit prescribed in the PTTW.

As prescribed by the PTTW, the annual average daily water for the Yonge Street Aquifer is limited to 42,000,000 litres per day. In 2007, the recorded annual average daily water taking was 41,407,871 litres per day, below the limit prescribed in the PTTW.

The limits prescribed by the PTTW for the Yonge Street Aquifer during the Peak Demand Period are presented in Table 37 and 38.

TABLE 37: Permitted and Actual Peak Demand Maximum Daily Withdrawal from the Yonge Street Aquifer for May 1 – September 30, 2007

Location	Permitted Maximum Daily Withdrawal May – September (Litres)	Actual Maximum Daily Withdrawal May – September (Litres)	Percentage of Permitted Maximum Daily Withdrawal During Peak Demand
YSA	87,656,000	65,342,000	74.5%

TABLE 38: Permitted and Actual Peak Demand Average Daily Withdrawal from the Yonge Street Aquifer for May 1 – September 30, 2007

Location	Permitted Average Daily Withdrawal May – September (Litres)	Actual Average Daily Withdrawal May – September (Litres)	Percentage of Permitted Average Daily Withdrawal During Peak Demand
YSA	67,200,000	51,370,691	76.4%

2.14 York Water System

York Region operates a water supply system to service the Town of Markham, the Town of Richmond Hill, the City of Vaughan, and parts of the Town of Aurora and Newmarket. The York Water System is classified as a 'Large Municipal System receiving water from a Large Municipal System'. It distributes water supplied from the City of Toronto and Regional Municipality of Peel to the area municipalities. As such, it does not have a requirement for a Permit to Take Water. Although there is a Certificate of Approvals (C of A) issued by the Ontario Ministry of the Environment (MOE) for the operation of the York Water System; the amount of water withdrawn for the system is limited to the amount set within the agreements between York Region and Region of Peel and City of Toronto.

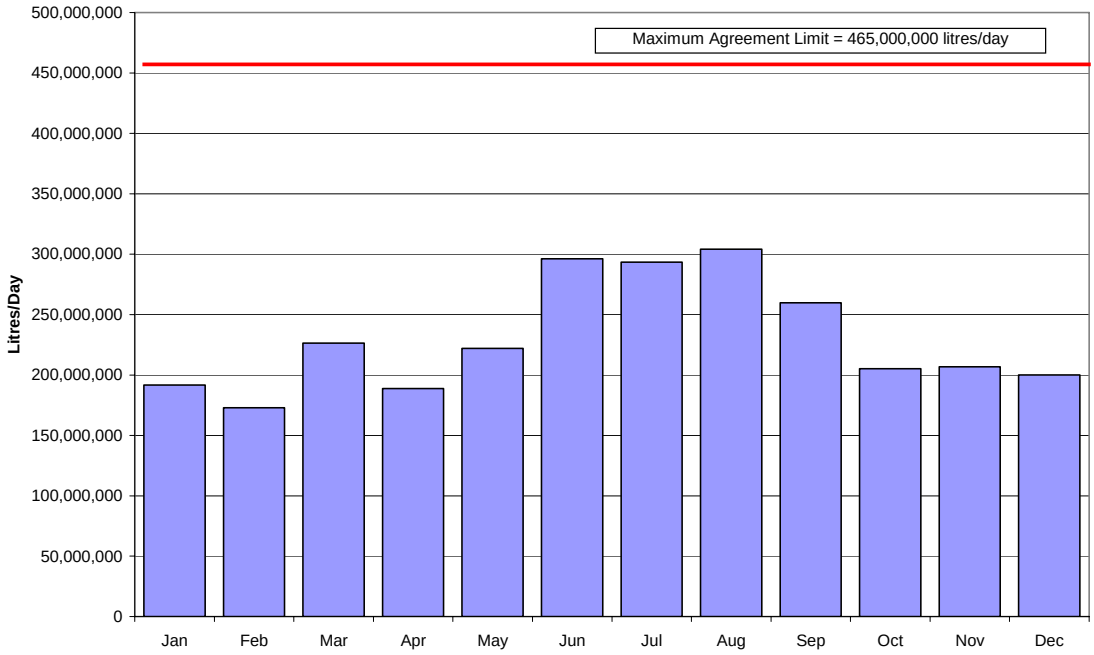
2.14.1 Toronto Water Supplied to York Region

The agreements between the City of Toronto and York Region (Toronto/York Water Supply Agreement) allows for a daily maximum of 465,000,000 litres per day or 465 megalitres per day in 2007.

The total volume of water supplied from Toronto to the York Water System for the reporting period of January 1 – December 31, 2007 was 230,620,083 litres per day. The system operated at 49.5% of the maximum permitted withdrawal as prescribed in the operating agreement.

The total water supplied by Toronto to the York Water System monthly flow rates are presented in Figure 79.

Figure 79: Toronto Supply Daily Average Flow 2007



2.14.2 Peel Water Supplied to York Region

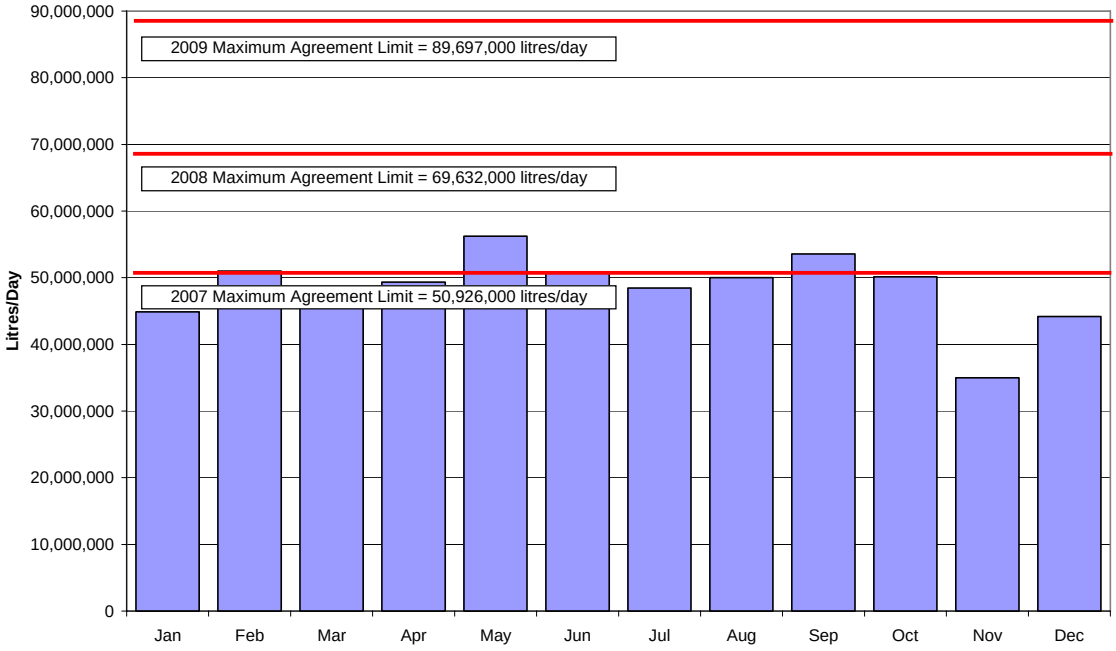
The agreement between the Region of Peel and York Region (Peel/York Water Supply Agreement) allows for the daily maximum of 50,926,000 litres per day or 50 megalitres per day in 2007.

The total volume of water supplied from Peel to the York Water System for the reporting period of January 1 – December 31, 2006 was 48,338,167 litres per day. The system operated at 94.9% of the maximum permitted withdrawal as prescribed in the operating agreement.

Withdrawal from the Region of Peel supply for the months of February, May and September exceeded the maximum permitted withdrawal as identified in the Peel/York Water Supply Agreement due to increased demand pressures.

The total water supplied by Peel to the York Water System monthly flow rates are presented in Figure 80.

Figure 80: Peel Supply Daily Average Flow 2007



The monthly flow rates for each municipality served by the York Water System are presented in Figures 81 through 84.

Figure 81: Markham Monthly Average Flow 2007

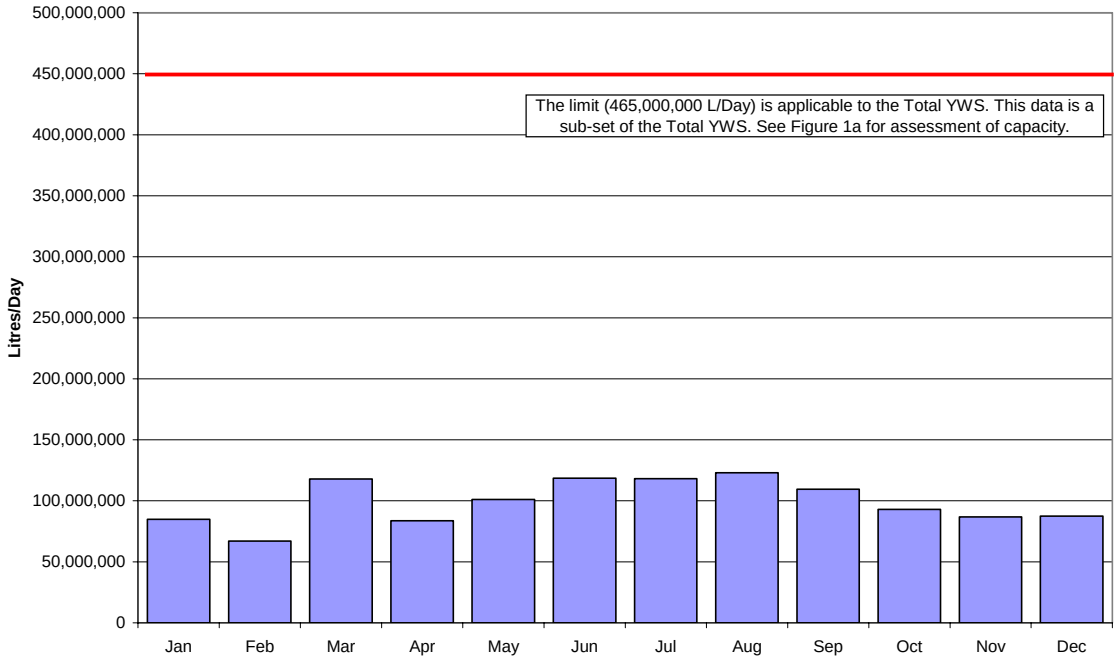


Figure 82: Richmond Hill Monthly Average Flow 2007

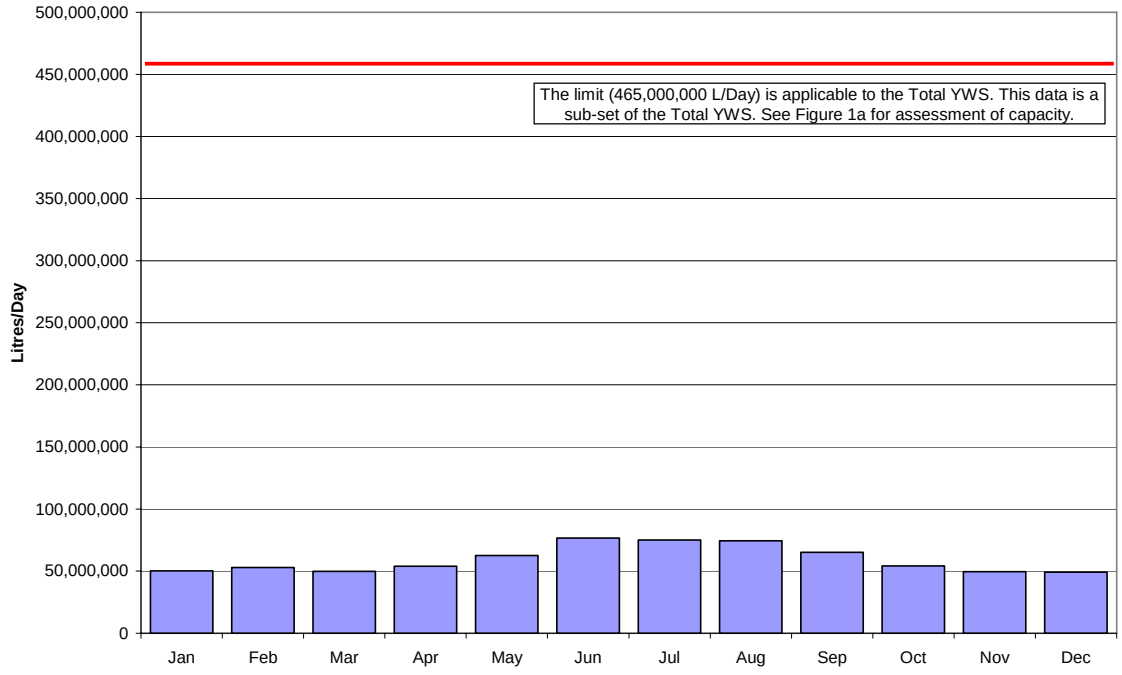


Figure 83: Vaughan Monthly Average Flow 2007

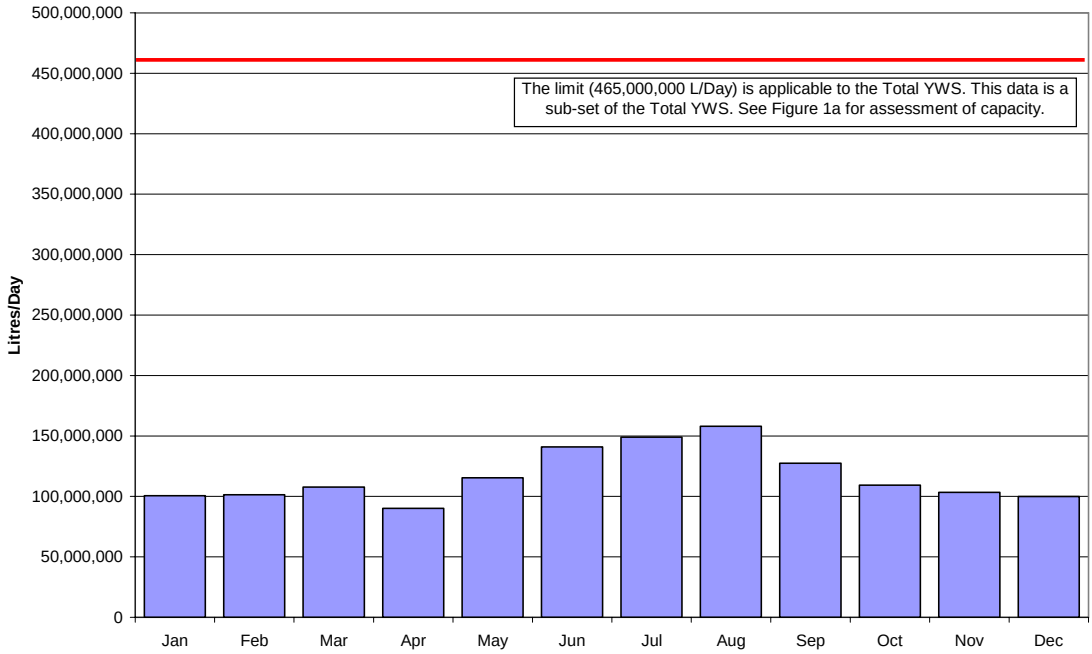
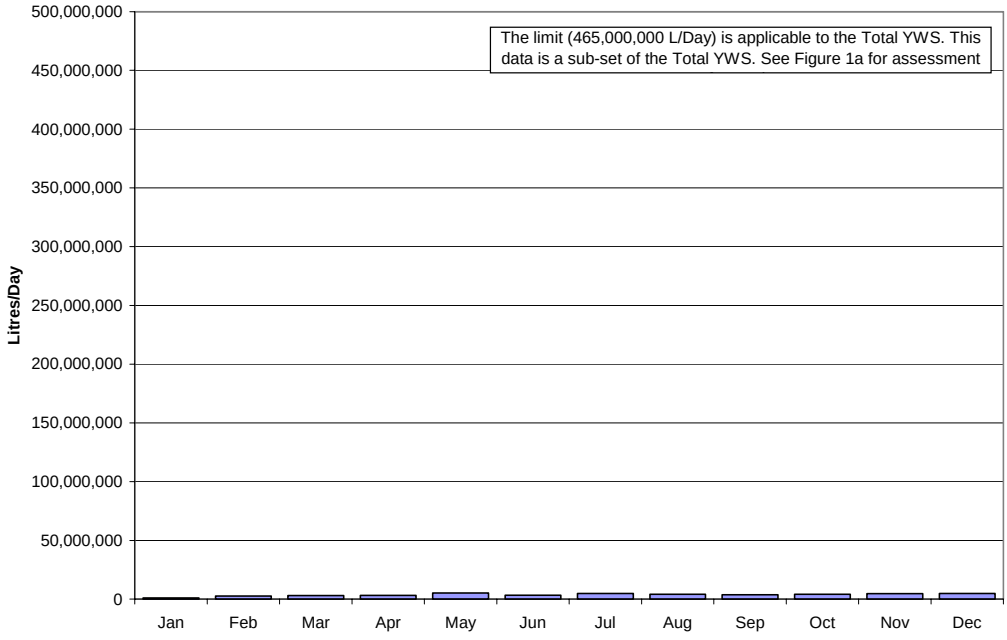


Figure 84: Aurora Monthly Average Flow 2007



The *'Daily Instantaneous Peak Flow (litres)'* for January 1- December 31, 2007 are is reported for the York Water System because flow is dependant on the demand and limited only by the maximum permitted withdrawal identified in the Peel/York Water Supply Agreement and not a PTTW.