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MANDATED REGULATORY REPORTING TO COUNCIL 2010 DRINKING WATER SYSTEM SCHEDULE 22 SUMMARY REPORT

The Environmental Services Committee recommends the adoption of the recommendation contained in the following report dated February 15, 2011, from the Commissioner of Environmental Services.

1. RECOMMENDATION

It is recommended that:

1. The Regional Clerk circulate this report to the Clerks of the local municipalities.

2. PURPOSE

This report fulfills requirements mandated under Schedule 22 of the Ministry of the Environment's Drinking Water Systems Ontario Regulation (O. Reg. 170/03). This regulation requires that Regional Council be provided with an understanding of York Region's drinking water systems capacities for the 2010 reporting year. The 2010 Drinking Water System Schedule 22 Summary Report is required to be submitted to Regional Council no later than March 31st of the reporting year (*see Attachment 1*).

3. BACKGROUND

York Region's drinking water system is multi-jurisdictional and encompasses a variety of sources

Water servicing in York Region is a multi-jurisdictional undertaking, based on the Region's location and two tier municipal governance structure. Sources of York Region's drinking water include surface water from Lake Ontario and Lake Simcoe, and groundwater from Regional aquifers. Approximately 80% of York's drinking water is sourced from Lake Ontario, 3% from Lake Simcoe, and 17% from groundwater.

The water system is divided into two distinct service areas 1) the York Water System, which serves the larger urban communities in the Region; and 2) individual systems serving smaller communities located mainly in the northern and central areas of the Region. The York water system services approximately 77% of the Region's population with the remainder being serviced by individual systems.

To provide residents and businesses with safe and secure drinking water, York Region operates and maintains two water treatment facilities, 17 pumping stations, 37 storage facilities (elevated tanks and reservoirs), 38 production wells, and almost 230 kilometres of transmission mains. The supply of treated drinking water is then distributed to local residents and businesses by local municipal systems.

Through long-term partnership agreements with the City of Toronto and Peel Region, water is supplied to York Region. Both Toronto and Peel provide potable water from their treatment plants using Lake Ontario sourced raw water. York Region, in turn supplies drinking water to the Towns of Markham and Richmond Hill, the City of Vaughan, and parts of the Towns of Aurora and Newmarket. The Town of Stouffville was added in April 2009 and King City will have a lake-based drinking water supply in 2011.

Communities served by individual water systems include Ansnorveldt, Aurora, Ballantrae, Georgina, Holland Landing, Keswick, King City, Kleinburg, Mount Albert, Newmarket, Nobleton, Schomberg, Stouffville, and Queensville.

Legislation mandates system owners to report to Council and the Public

Legislative amendments to the *Safe Drinking Water Act, 2002*, released in 2004 by the Ministry of the Environment resulted in substantial changes to water and wastewater operations. Amendments to Ontario Regulation 170/03 increased regulatory compliance requirements on system operations. Reporting under Schedule 22 and Section 11 of Ontario Regulation 170/03 was mandated, requiring the owner of a drinking-water system to prepare an annual report in accordance with the Regulation and submit these reports to Regional Council and the public.

York Region satisfied key elements of Municipal Drinking Water License Program

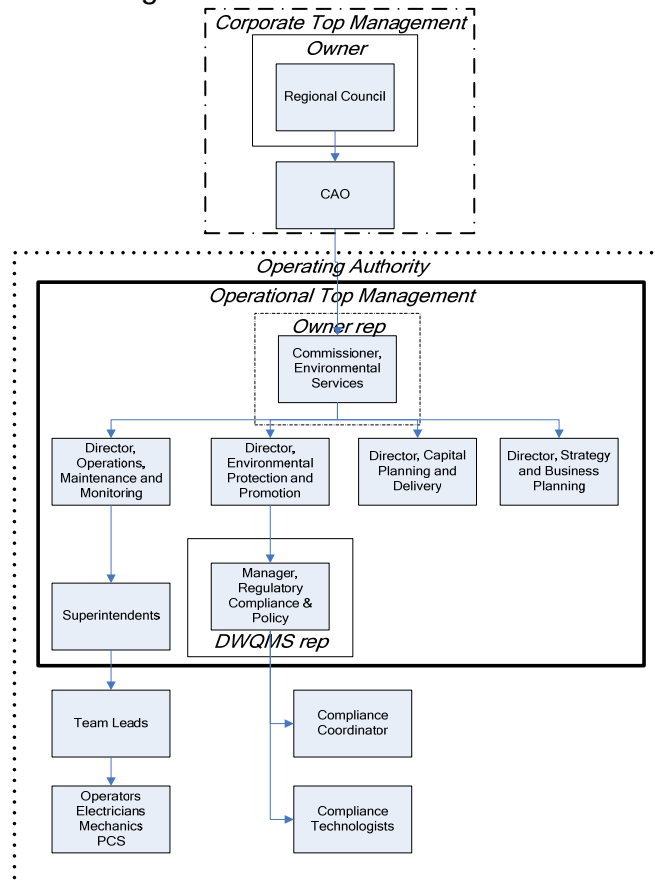
The Ministry of the Environment implemented the Municipal Drinking Water Licensing Program as recommended by Justice O'Connor in the Part II Report of the Walkerton Inquiry. Justice O'Connor recommended a new approvals framework for municipal drinking water systems, which would require owners to obtain a license to operate their drinking water systems as well as incorporate the concept of quality management standards into their operations. In response to these recommendations, the Ministry of the Environment implemented the Municipal Drinking Water Licensing Program, under the *Safe Drinking Water Act, 2002*. Together, the Municipal Drinking Water License (authorizes operation of drinking water systems) and Drinking Water Works Permit (authority to establish or alter a drinking water system) replace Certificates of Approval.

With endorsement of the Water Financial Plan by Regional Council on June 24, 2010, York Region has satisfied all of the following key elements of the licensing program:

- Obtain a Drinking Water Works Permit
- Acceptance of the Operational Plan for the system based on the Drinking Water Quality Management Standard
- Accreditation of the Operational Authority
- Prepare and provide a Water Financial Plan
- Obtain a Permit to Take Water

In accordance with the Drinking Water Quality Management Standard Management Review meetings are held twice annually with Operational Top Management (Figure 1). The purpose is to review the management system to ensure its continuing adequacy, suitability and effectiveness, as well as evaluating the performance of the system, and address any decisions or actions necessary to improve the program. Similar to the Drinking Water System Summary Report, owners of the drinking water system, who also form Corporate Top Management (Regional Council) are to be provided with an understanding of York Region's Drinking Water Quality Management System. An update report on York Region's Drinking Water Quality Management System will be submitted to Regional Council in Spring 2011.

Figure 1
Organizational Structure of Roles



Drinking Water System Schedule 22 Summary Report provides Regional Council with summary of requirements for water systems and capacity

Reporting requirements under Schedule 22 require York Region to submit a Drinking Water System Summary Report to Regional Council no later than March 31 of each reporting year. This report provides the owners of the drinking water system (Regional Council) with an understanding of York Region's drinking water systems status and capacities for the reporting year. The report includes:

- Rated capacity and flow rates approved by each system's Permit to Take Water approval, Drinking Water Works Permit or Municipal Drinking Water License
- Quantities and flow rates of water supplied
- Monthly average, maximum daily flow and daily instantaneous peak flow rates
- Legislative requirements under the *Safe Drinking Water Act 2002*
- Any Provincial Officer Orders the system failed to meet and related corrective actions

Annual Water Quality Report available to local municipalities and the public by February 28 of each reporting year

Reporting under Section 11 of O.Reg. 170/03 requires York Region to submit an Annual Water Quality Report to the local municipalities and the public no later than February 28 of each reporting year. This report provides the local municipalities and the public with a summary of the drinking water system, and the water quality produced, treated and delivered for the reporting year. The Annual Water Quality Report can be accessed through York Region's website after February 28 of each reporting year.

4. ANALYSIS AND OPTIONS

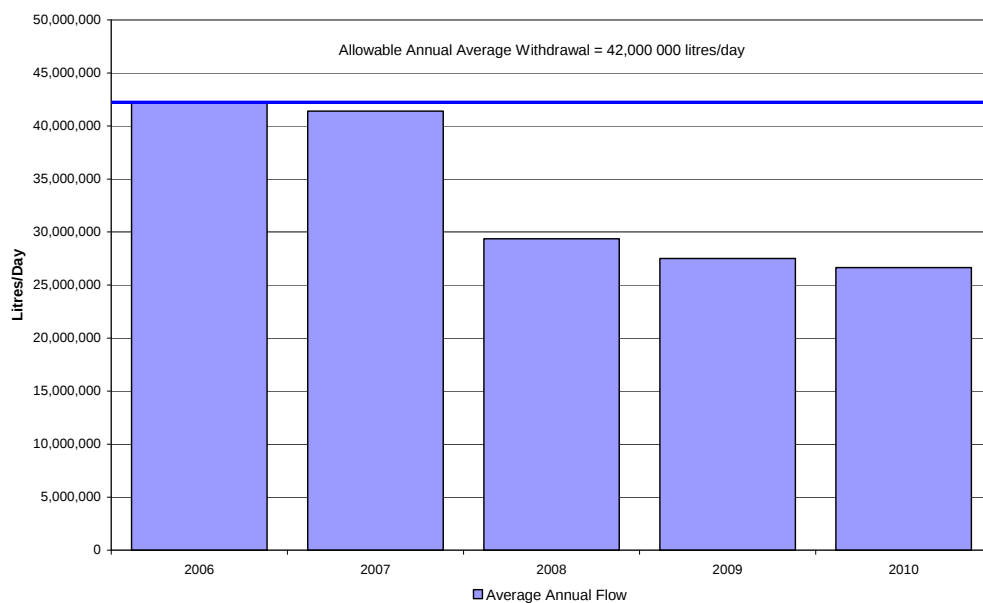
Region continues to meet capacity needs without disruption in services despite off-line wells

In 2010, the Region met capacity needs despite a few wells coming off-line due to routine well maintenance and other events. Newmarket Well 14 remains off-line as reported last year due to ongoing investigation of nearby contamination by a former gas station. Although the well continues to produce safe drinking water that meets all regulatory requirements, it remains off-line as a precautionary measure to enable the investigation to continue without pumping influence from this well. With the additional supply from Peel system, it is expected that there will be no disruption in service during the peak season and this well can remain off-line until local remediation is complete. Ongoing and frequent communication with the Town of Newmarket, Ministry of Environment, and land owners continue to ensure potential source protection concerns are met.

In addition, King City Well 3 was off-line for the later part of 2010 due to a mechanical issue that produces high turbidity conditions. A mechanical failure in the well structure was determined to be the cause. The well is currently off-line and under repair. As part of York Region's long-term water supply initiative to improve water supply and quality, the King City Water Supply System is anticipated to be supplemented with the Region of Peel's lake based water supply by Fall 2011.

With the introduction of the lake based supply, the Yonge Street Aquifer average volume has been reduced by a third of allowable Permit to Take Water volumes as illustrated in Figure 2. This additional capacity provides operational flexibility to take wells off-line for regular maintenance and precautionary measures.

Figure 2
Yonge Street Aquifer
Annual Average Flow 2006 to 2010



Findings of the 2010 Drinking Water System Schedule 22 Summary Report met limits imposed by the Permit to Take Water

All of York Region's Drinking Water Systems met the monthly average flow, maximum daily withdrawal, and allowable daily withdrawal limits imposed by the Permit to Take Water for the 2010 reporting year.

In 2010, 10 of 41 production wells experienced short-term 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 exceeds the Permit to Take Water limits. Flow spikes are generally associated with start-up of well pumps. 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.

York Region Drinking Water Systems in compliance with Ministry inspections

The Ministry of the Environment has a rigorous and comprehensive inspection program for municipal residential drinking water systems. The objective of this program is to determine compliance with requirements under the *Safe Drinking Water Act, 2002*, associated regulations, Ministry Permits to Take Water and Certificates of Approvals. For the 2010 reporting year, the Ministry of the Environment conducted 15 municipal drinking water systems inspections. No orders were issued by the Ministry of the Environment under the *Safe Drinking Water Act*, or the O. Reg. 170/03 for any inspections conducted on York Region's municipal drinking water systems.

In June of each year, the Ministry of the Environment publishes the Ontario Chief Drinking Water Inspector's Annual Report. In this report municipal drinking water systems receive Inspection Report Ratings on a scale of 0-100% based on inspection report results achieved for the prescribed reporting year. Inspection Report Ratings published in the Ontario Chief Drinking Water Inspector's Annual Report are reported for the previous inspection year. Results of the 2008-2009 report ratings reflect the dedication and hard work that goes into complying with and maintaining high standards of drinking water. York Region achieved a 100% compliance score on the Ministry of the Environment inspections, resulting in a first place ranking compared to other Greater Toronto Area (GTA) municipalities. As for samples taken that meet Provincial water quality standards, the Region is again first among GTA municipalities with a score of 99.97%.

5. FINANCIAL IMPLICATIONS

Costs to prepare this work are included in the 2010 Environmental Services Operating Budget.

York Region will continue to proactively address the demands of operating and maintaining its drinking water systems by recommending necessary operational staff and resources in the 2011 budget to comply with increasingly more stringent regulations, as well as support the growth of capital infrastructure resulting in expanded and new drinking water systems. In addition to meeting regulatory performance requirements and supporting design and construction of capital projects, additional operational staff are also necessary to operate and maintain new and rehabilitated infrastructure.

6. LOCAL MUNICIPAL IMPACT

York Region's Drinking Water Systems meet all regulatory compliance requirements prescribed through applicable Federal and Provincial legislation, including the Ontario Ministry of the Environment's Municipal Drinking Water License Program. Satisfying all regulatory compliance requirements enables the Region to deliver safe sustainable supplies of drinking water to the local municipalities.

7. CONCLUSION

Findings from the 2010 reporting year continue to demonstrate that York Region meets all regulatory compliance requirements prescribed through applicable Federal and Provincial legislation with regards to provision of safe drinking water, as well as our commitment to communicate our performance to our stakeholders.

Further, with the introduction of the lake based water supply, the Region has the additional capacity necessary for operational flexibility to take wells off-line when necessary without disruption in services.

For more information on this report, please contact Laura McDowell, Director of Environmental Promotion and Protection at (905)830-4444 Ext. 5077.

The Senior Management Group has reviewed this report.

(The attachment referred to in this clause is attached separately with this report.)

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)**

2010 Reporting Year

**Presented to the York Region Environmental Services 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, Newmarket, East Gwillimbury, and Stouffville which includes a blended supply of ground water and surface water.

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 2010 pumping history for each individual well and system in York Region. In 2010, all of York Region's Drinking Water Systems met the withdrawal limits imposed by its Permits to Take Water (PTTW).

In 2010, 10 of 41 production wells experienced short-term incidents where instantaneous peak flow rates exceeded the PTTW limits. Water production wells may experience brief flow spikes (typically, less than five minutes) where the instantaneous flow rate exceed the PTTW limits. Flow spikes are generally associated with the start-up of production wells. 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
Ansnoerveldt	Withdrawal below allowable limit
Aurora	Withdrawal below allowable limit
Ballantrae	Withdrawal below allowable limit <i>Instantaneous peak flow rates recorded above allowable limit</i>
Georgina	Withdrawal below allowable limit
Keswick	Withdrawal below allowable limit <i>Instantaneous peak flow rates recorded above allowable limit</i>
King City	Withdrawal below allowable limit
Kleinburg	Withdrawal below allowable limit
Mount Albert	Withdrawal below allowable limit
Newmarket/East Gwillimbury	Withdrawal below allowable limit <i>Instantaneous peak flow rates recorded above allowable limit</i>
Nobleton	Withdrawal below allowable limit
Schomberg	Withdrawal below allowable limit <i>Instantaneous peak flow rates recorded above allowable limit</i>
Stouffville	Withdrawal below allowable limit <i>Instantaneous peak flow rates recorded above allowable limit</i>
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 below allowable limit

Water production wells may experience brief flow spikes (typically, less than five minutes) where the instantaneous flow rate exceed the PTTW limits. Flow spikes are generally associated with the start-up of production wells. 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.

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, 2010.

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Introduction

The purpose of the Summary Report is to provide an understanding of the Regional Municipality of York's (York Region) drinking-water system status and capacities for the reporting period of January 1 – December 31, 2010. 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 Environmental Services Department, available on-line through the York Region website, as well as distributed to the local area municipalities serviced by the water system after February 28, 2011.

2.0 Drinking Water Systems Information

2.1 Ansnorveldt

York Region operates a water supply system to service the community of Ansnorveldt, in the Township of King, under authority of a Municipal Drinking Water License (MDWL) and Drinking Water Works Permit (DWWP) issued by the Ontario Ministry of the Environment (MOE). The MDWL includes reference to the valid Permit to Take Water (PTTW) also issued by the MOE. Details of these approvals and other relevant classification information are presented in Table 1.

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

Municipal Drinking Water License Number:	013-108
Issue Number:	Issue 1
Issue Date:	January 29, 2010
Expiry Date:	January 28, 2015
Drinking Water Works Permit Number:	013-208
Issue Date:	January 29, 2010
Permit to Take Water Number:	02-P-3050
Issue Date:	June 21, 2002
Expiry Date:	March 31, 2012
Operational Plan Number:	013-408
Financial Plan Number:	013-301A
MOE Waterworks Number:	260002213
System Classification:	Water Distribution II (WD 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 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 MDWL.

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.
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 maximum daily withdrawal, monthly average flow, and instantaneous peak flow rate tables and 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, 2010 was 14,372,895 litres or 39,378 litres per day on average.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 2. Peak pumping days represent the number of days where the wells pump at or above 80% of the maximum permitted daily withdrawal.

TABLE 2: Permitted and Actual Maximum Daily Withdrawal from the Ansnorveldt Production Wells for January 1 – December 31, 2010

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Peak Pumping Days (% of the year)
Well 1	100,800	33,223 – May 26, 2010	0%
Well 2	184,320	56,672 – June 12, 2010	0%

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 Annual Withdrawal from the Ansnorveldt Production Wells for January 1 – December 31, 2010

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Annual Withdrawal
104,068,800	14,372,895	13.8%

The monthly average flows, the maximum daily withdrawals, and the permitted daily withdrawal for the reporting period of January 1 – December 31, 2010 are shown in Figures 1 and 2.

Figure 1: Ansnorveldt Well No. 1
Monthly Average Flow and Monthly Maximum Daily Flow 2010

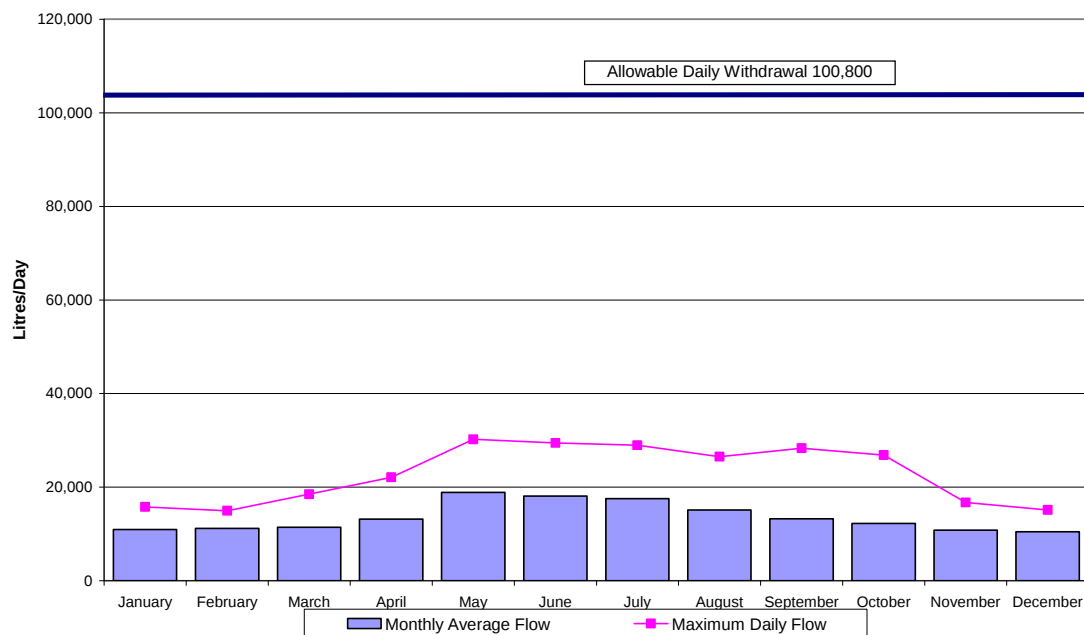
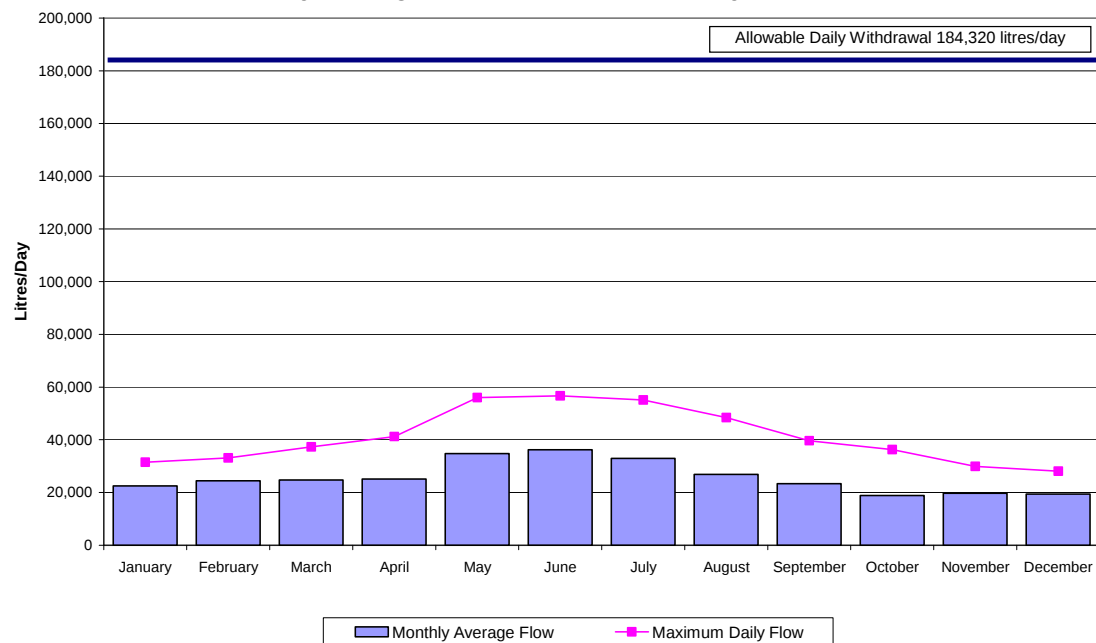


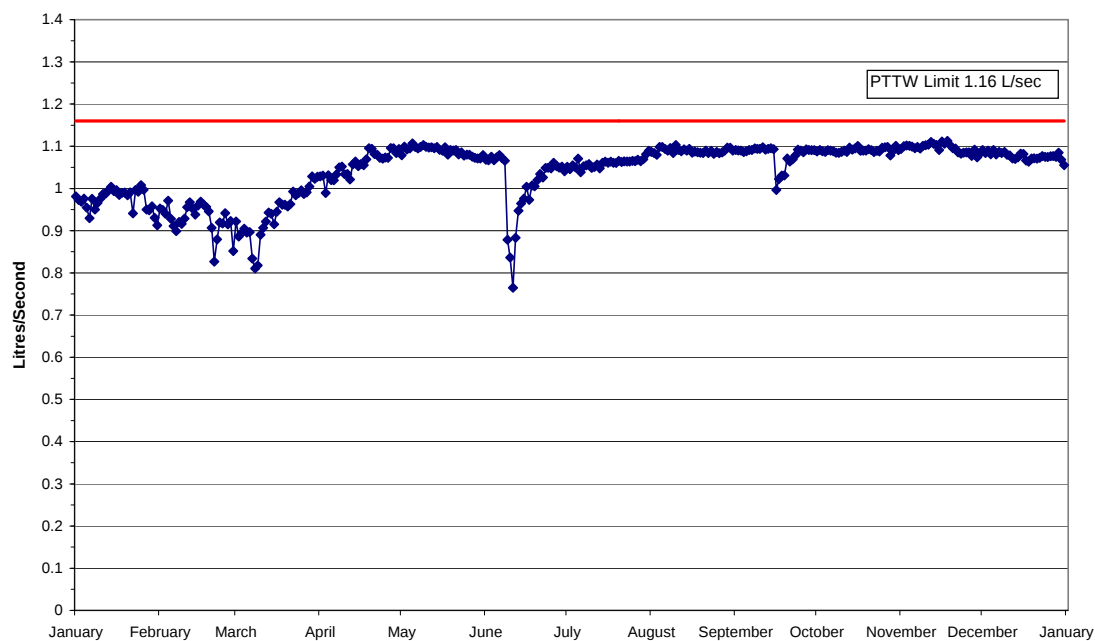
Figure 2: Ansnorveldt Well No. 2
Monthly Average Flow and Maximum Daily Flow 2010



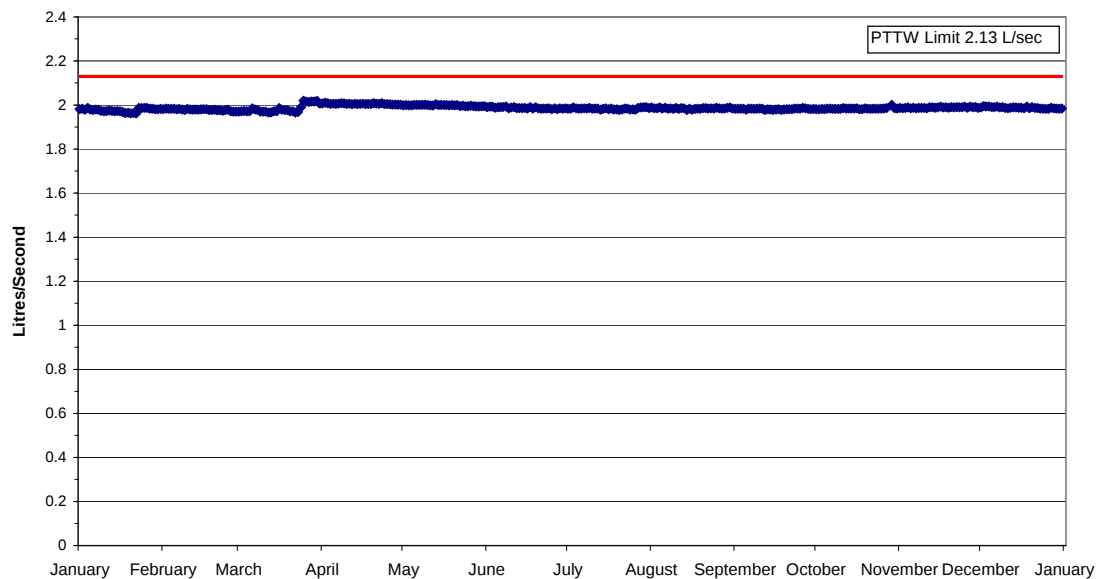
The actual volumes of water taken from the Ansnorveldt production wells during January 1 – December 31, 2010 did not exceed the permitted daily withdrawal volumes.

The 'Daily Instantaneous Peak Flow (litres)' for January 1- December 31, 2010 are presented in Figures 3 and 4.

**Figure 3: Ansnorveldt Well No. 1
Daily Instantaneous Peak Flow 2010**



**Figure 4: Ansnorveldt Well No. 2
Daily Instantaneous Peak Flow 2010**



2.2 Aurora

York Region operates a water supply system to service the Town of Aurora, under authority of a Municipal Drinking Water License (MDWL) and Drinking Water Works Permit (DWWP) issued by the Ontario Ministry of the Environment (MOE). The MDWL includes reference to the valid Permit to Take Water (PTTW) also issued by the MOE. Details of these approvals and other relevant classification information are presented in Table 4. As part of York Regions long-term water supply initiative to improve water supply and quality, the Aurora Water Supply System is also supplemented with the City of Toronto lake based water supply. The monthly average flow for Aurora is represented in Figure 85.

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

Municipal Drinking Water License Number:	013-101
Issue Number:	Issue 1
Issue Date:	March 12, 2010
Expiry Date:	March 11, 2015
Drinking Water Works Permit Number:	013-201
Issue Date:	March 11, 2010
Permit to Take Water Number:	6623-68QQ6L
Issue Date:	March 10, 2005
Expiry Date:	March 31, 2015
Operational Plan Number:	013-401
Financial Plan Number:	013-301A
MOE Waterworks Number:	220002440
System Classification:	Water Distribution & Supply III (WDS 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 MDWL.

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.
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 maximum daily withdrawal, monthly average flow, and instantaneous peak flow rate tables and 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, 2010 was 2,224,306,969 litres or 6,093,992 litres per day.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 5. Peak pumping days represent the number of days where the wells pump at or above 80% of the maximum permitted daily withdrawal.

TABLE 5: Permitted and Actual Maximum Daily Withdrawal from the Aurora Production Wells for January 1 – December 31, 2010

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Peak Pumping Days (% of the year)
Well 1	3,273,120	2,836,844 – July 8, 2010	0.5%
Well 2	5,891,760	4,725,500 – July 8, 2010	0.3%
Well 3	5,237,136	4,756,750 – April 16, 2010	0.8%
Well 4	7,855,632	5,149,000 – July 8, 2010	0%
Well 5	5,891,760	4,242,750 – July 8, 2010	0%
Well 6	3,469,536	1,762,875 – April 16, 2010	0%

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 Annual Withdrawal from the Aurora Production Wells for January 1 – December 31, 2010

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Annual Withdrawal
11,540,914,560	2,224,306,969	19.3%

The monthly average flows, the maximum daily withdrawals, and the permitted daily withdrawal for the reporting period of January 1 – December 31, 2010 are shown in Figures 5 through 10.

Figure 5: Aurora Well No. 1
Monthly Average Flow and Maximum Daily Flow 2010

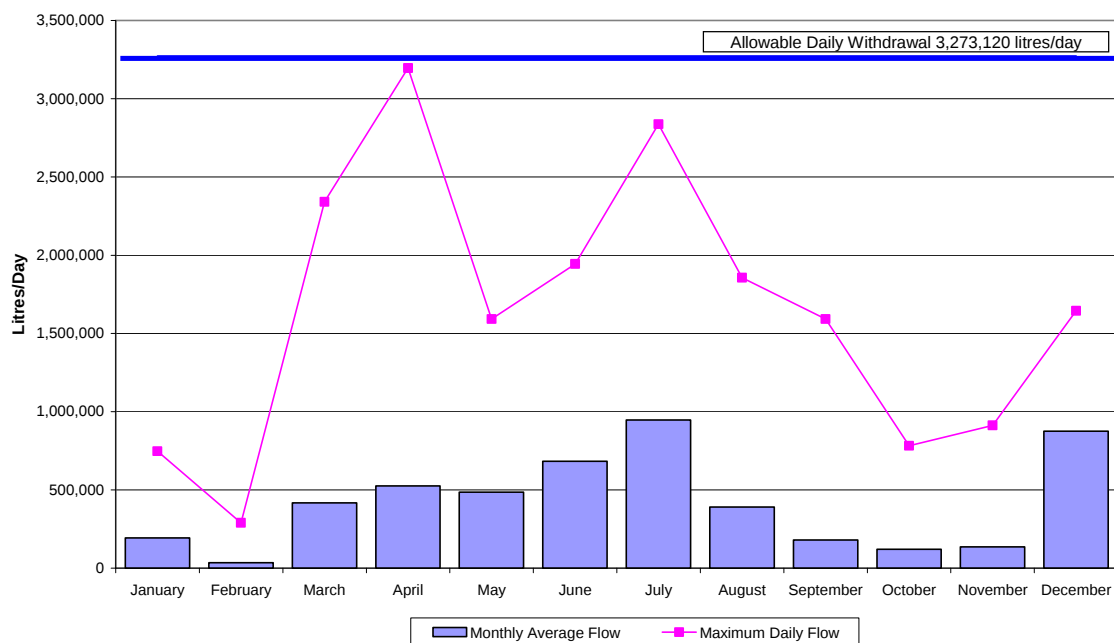


Figure 6: Aurora Well No. 2
Monthly Average Flow and Maximum Daily Flow 2010

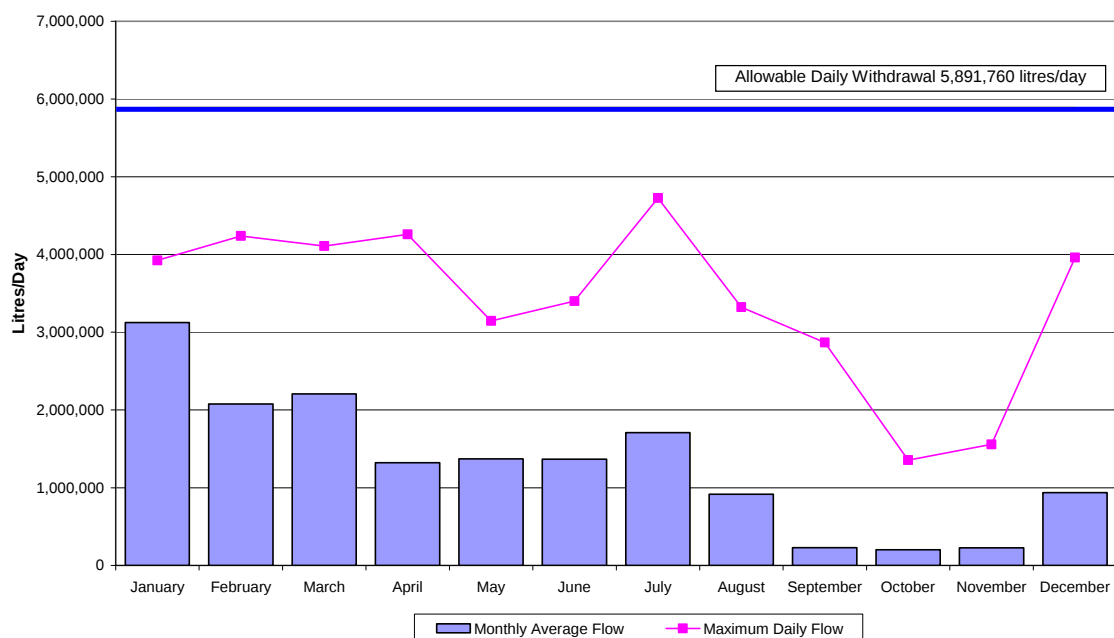


Figure 7: Aurora Well No. 3
Monthly Average Flow and Maximum Daily Flow 2010

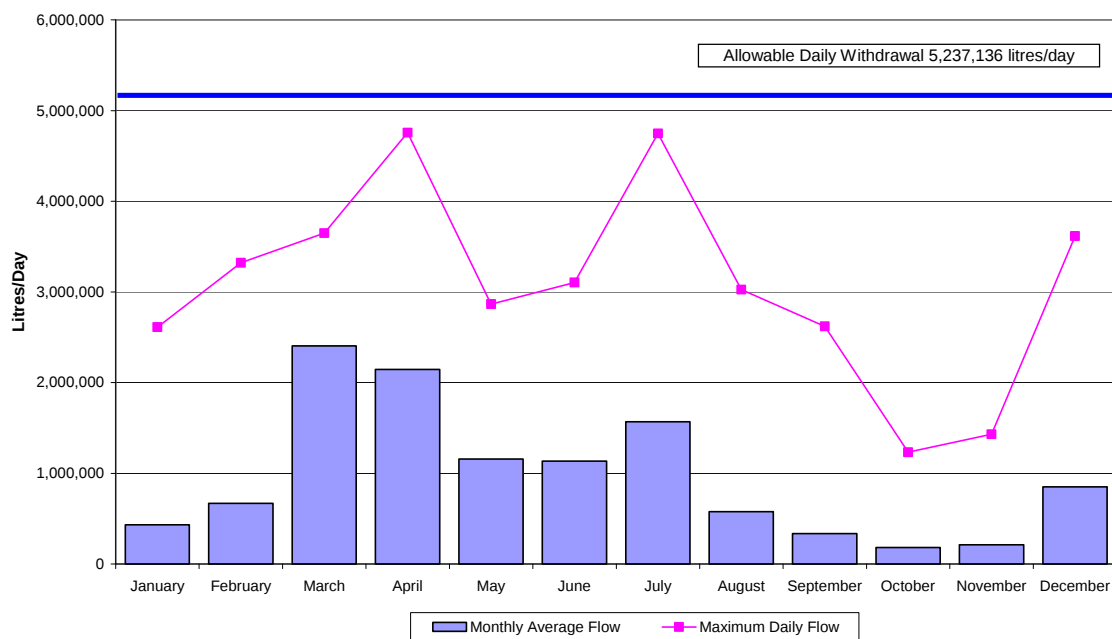


Figure 8: Aurora Well No. 4
Monthly Average Flow and Maximum Daily Flow 2010

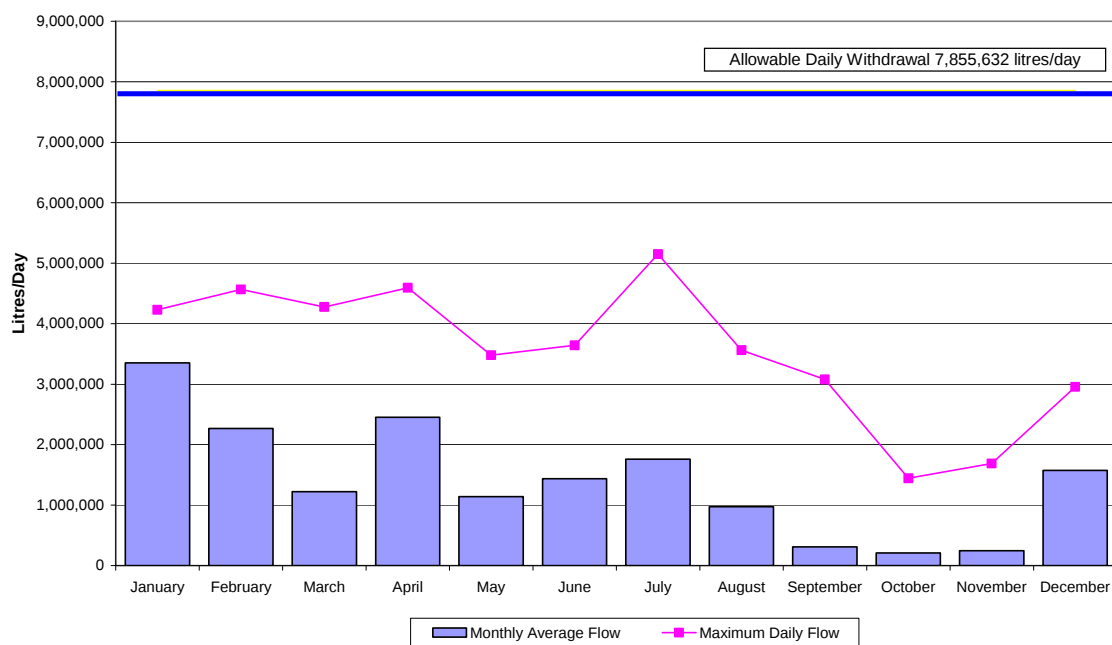


Figure 9: Aurora Well No. 5
Monthly Average Flow and Maximum Daily Flow 2010

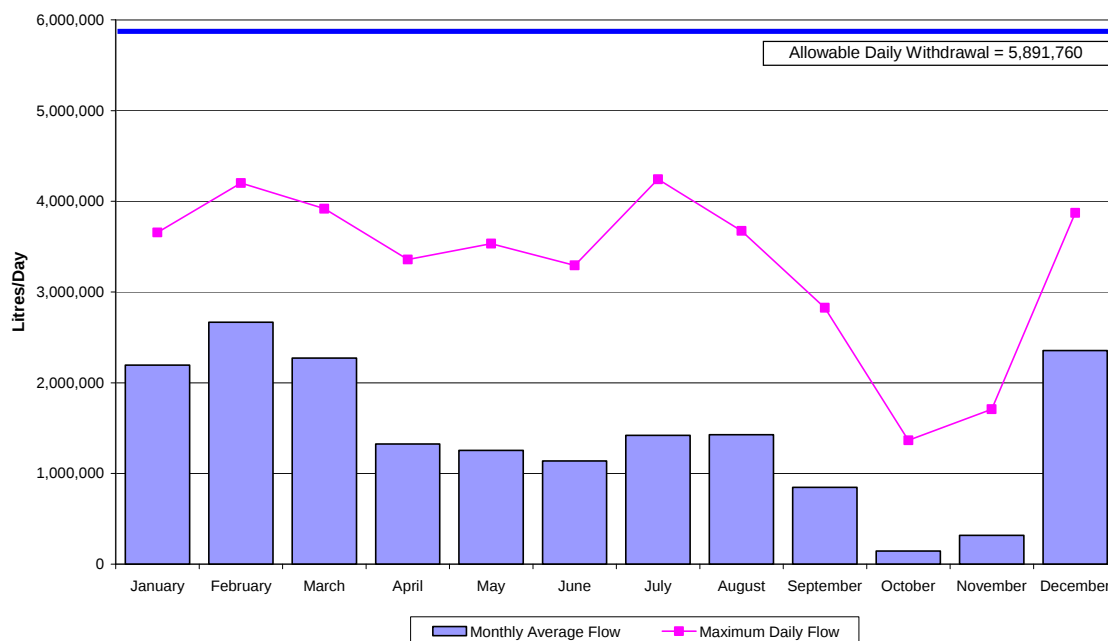
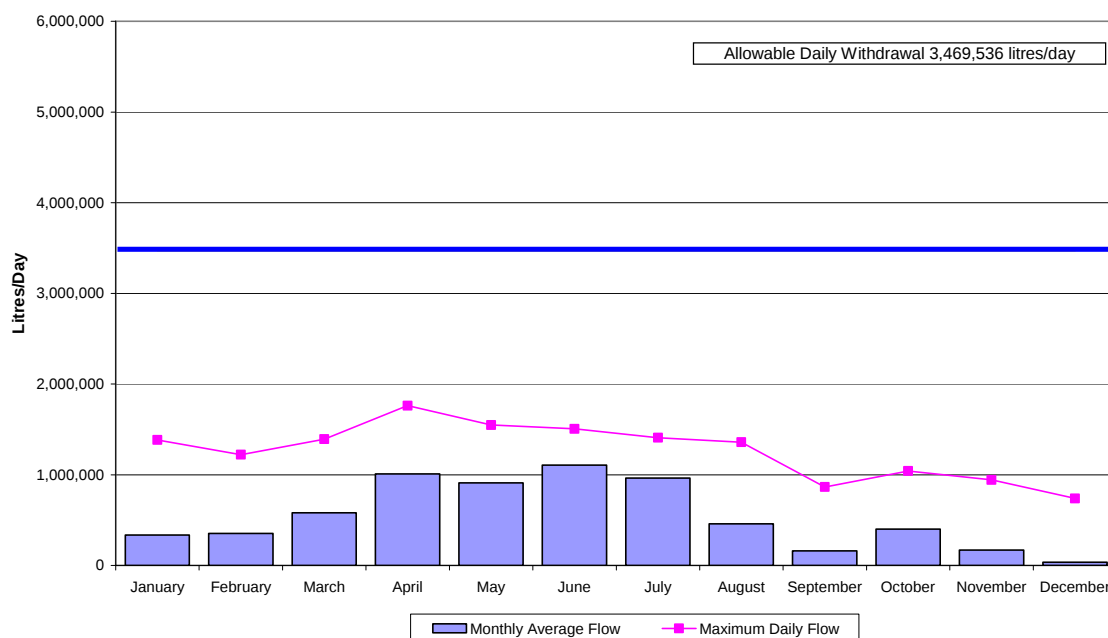


Figure 10: Aurora Well No. 6
Monthly Average Flow and Maximum Daily Flow 2010



Actual volumes of water taken from the Aurora production wells during January 1 – December 31, 2010 did not exceed the permitted daily withdrawal.

The 'Daily Instantaneous Peak Flow (litres)' for January 1- December 31, 2010 are presented in Figures 11 through 16.

Figure 11: Aurora Well No. 1
Daily Instantaneous Peak Flow 2010

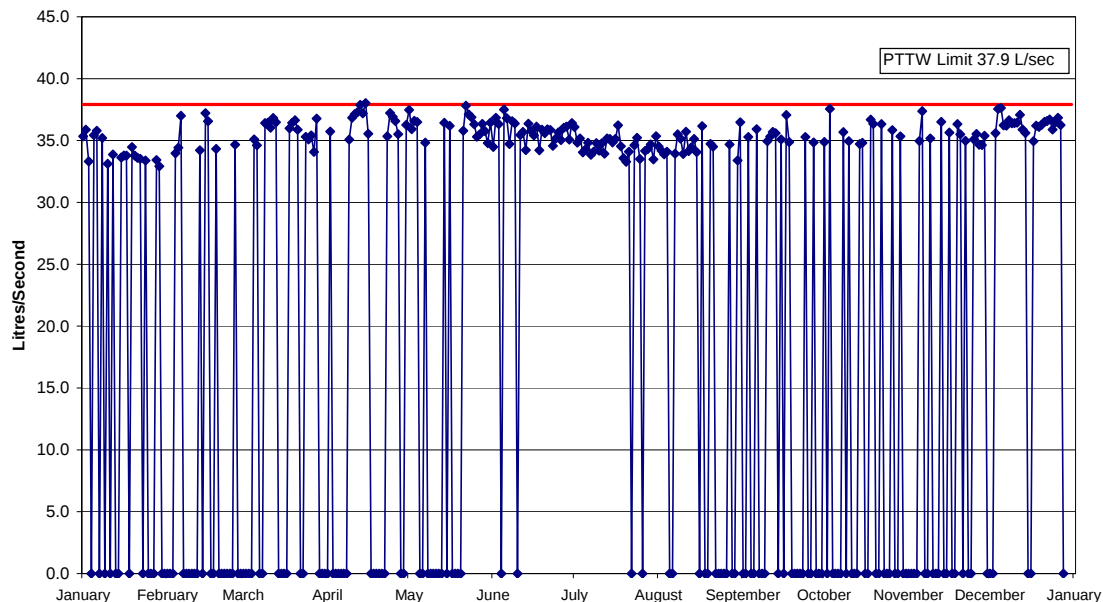


Figure 12: Aurora Well No. 2
Daily Instantaneous Peak Flow 2010

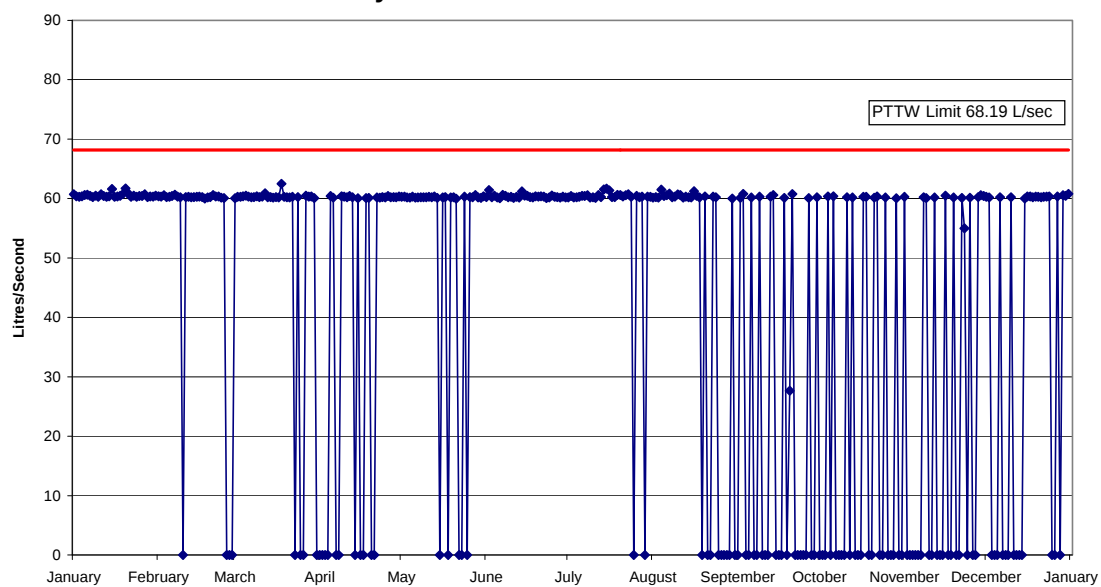


Figure 13: Aurora Well No. 3
Daily Instantaneous Peak Flow 2010

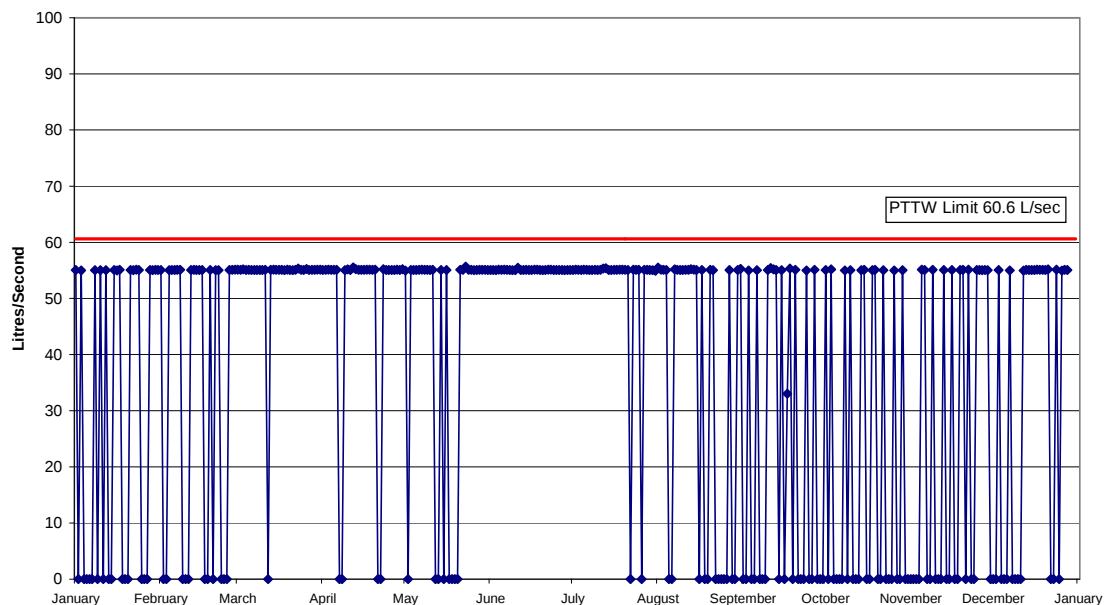
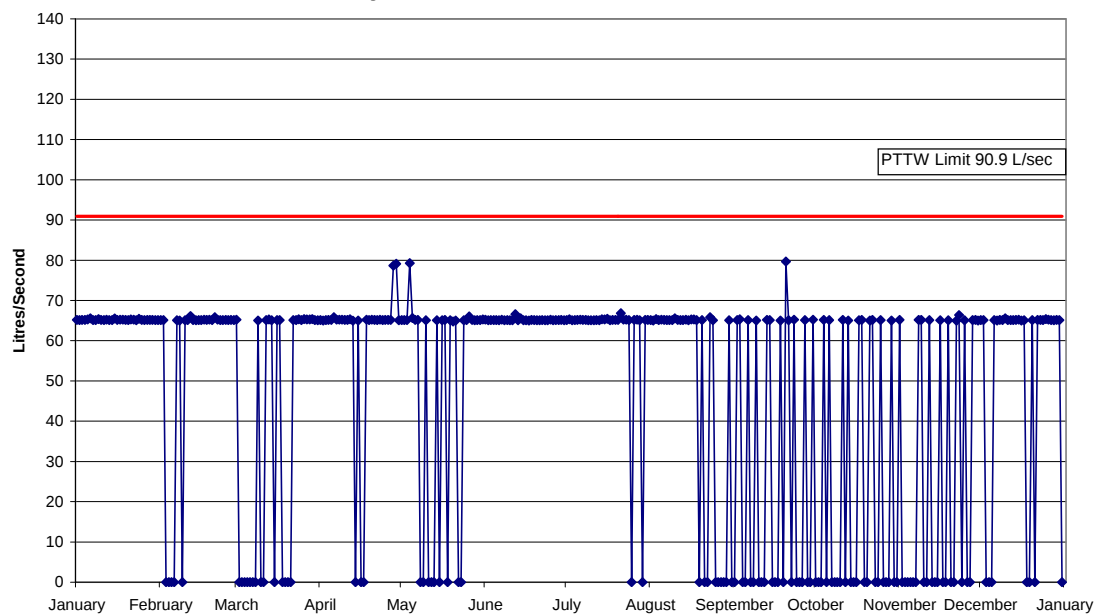
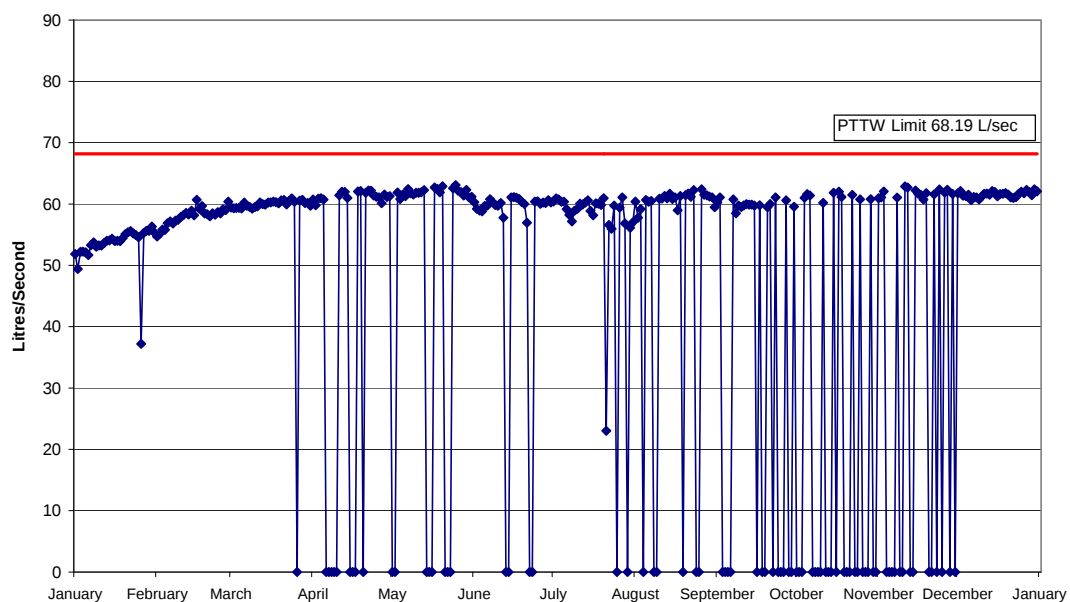


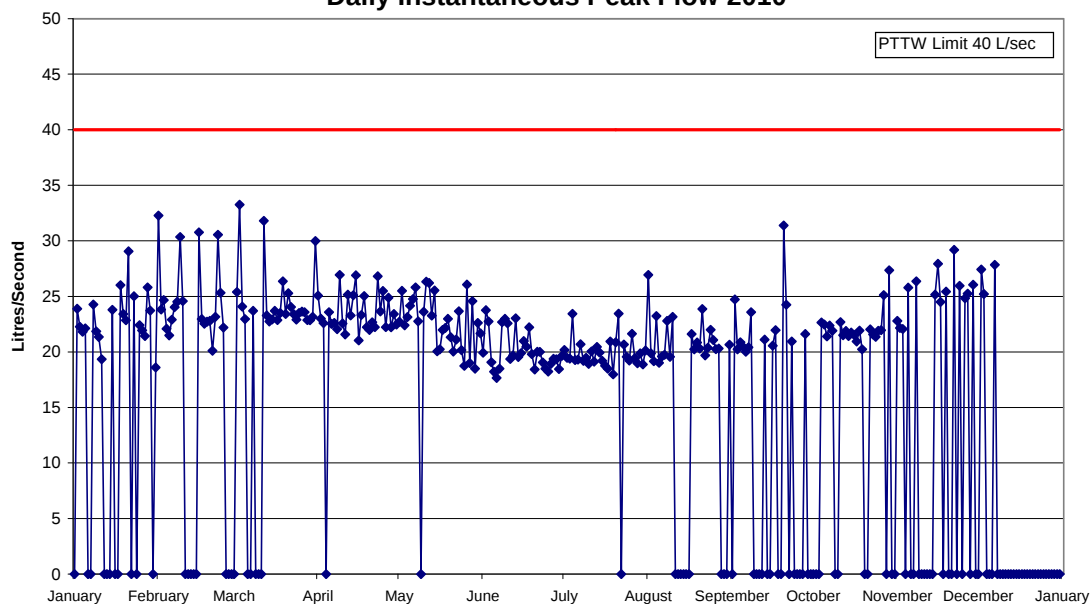
Figure 14: Aurora Well No. 4
Daily Instantaneous Peak Flow 2010



**Figure 15: Aurora Well No. 5
Daily Instantaneous Peak Flow 2010**



**Figure 16: Aurora Well No. 6
Daily Instantaneous Peak Flow 2010**



2.3 Ballantrae

York Region operates a water supply system to service the community of Ballantrae/Musselman's Lake, in the Town of Whitchurch-Stouffville, under authority of a Municipal Drinking Water License (MDWL) and Drinking Water Works Permit (DWWP) issued by the Ontario Ministry of the Environment (MOE). The MDWL includes reference to the valid Permit to Take Water (PTTW) also issued by the MOE. Details of these approvals and other relevant classification information are presented in Table 7.

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

Municipal Drinking Water License Number:	013-106
Issue Number:	Issue 1
Issue Date:	January 29, 2010
Expiry Date:	January 28, 2015
Drinking Water Works Permit Number:	013-206
Issue Date:	January 29, 2010
Permit to Take Water Number:	4545-7EMR9W
Issue Date:	March 16, 2008
Expiry Date:	March 31, 2013
Operational Plan Number:	013-406
Financial Plan Number:	013-301A
MOE Waterworks Number:	220008658
System Classification:	Water Distribution & Supply II (WDSII)

2.3.1 Water Taking

The PTTW for the Ballantrae/Musselman's Lake Water Supply System allows York Region to withdraw up to 2,647,920 litres per day from production wells 1 or 2 with a maximum combined total permitted withdrawal of 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 MDWL.

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.
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 maximum daily withdrawal, monthly average flow, maximum daily flow, and instantaneous peak flow rate tables and 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, 2010 was 393,515,938 litres or 1,078,126 litres per day on average.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 8. Peak pumping days represent the number of days where the wells pump at or above 80% of the maximum permitted daily withdrawal.

TABLE 8: Permitted and Actual Maximum Daily Withdrawal from the Ballantrae/Musselman's Lake Production Wells for January 1 – December 31, 2010

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Peak Pumping Days (% of the year)
Well 1	2,647,920	1,993,625 – May 26, 2010	0%
Well 2	2,647,920	2,161,125 – July 2, 2010	0.8%
Well 1 & 2	4,580,000	2,916,125 – May 26, 2010	0%

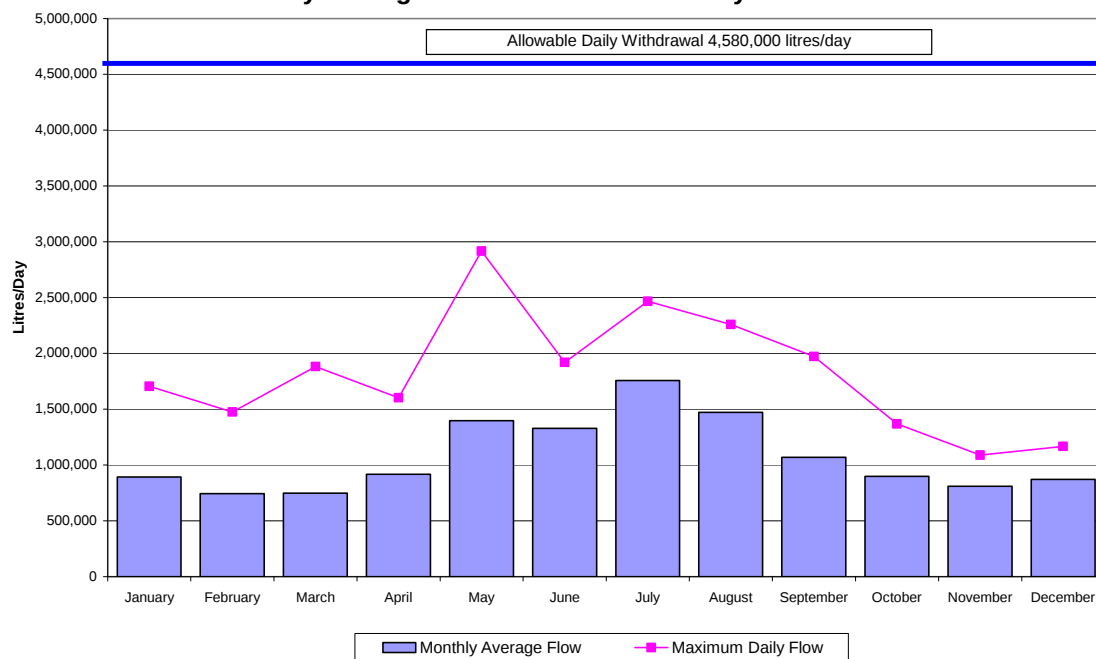
The maximum permitted water withdrawal and the actual annual withdrawal recorded daily water taking are presented in Table 9.

TABLE 9: Permitted and Actual Maximum Annual Withdrawal from the Ballantrae/Musselman's Lake Production Wells for January 1 – December 31, 2010

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Annual Withdrawal
1,598,875,200	393,515,938	24.6%

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 2010**



The actual volume of water taken from the Ballantrae/Musselman's production wells during January 1 – December 31, 2010 did not exceed the permitted daily withdrawal volume.

The '*Daily Instantaneous Peak Flow (litres)*' for January 1- December 31, 2010 are presented in Figures 18 and 19.

**Figure 18: Ballantrae Well No. 1
Daily Instantaneous Peak Flow 2010**

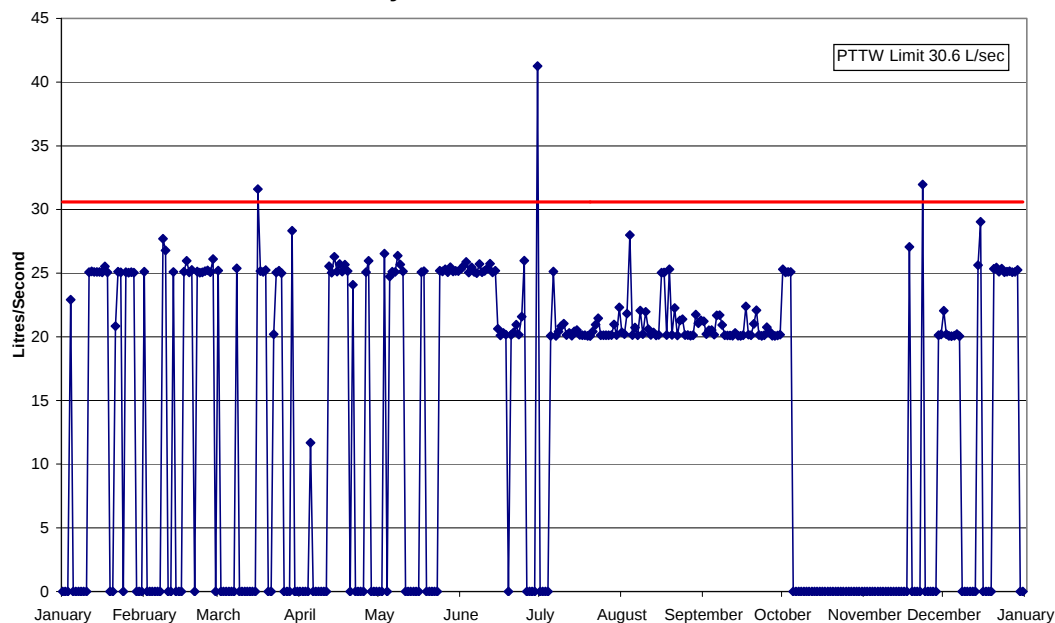
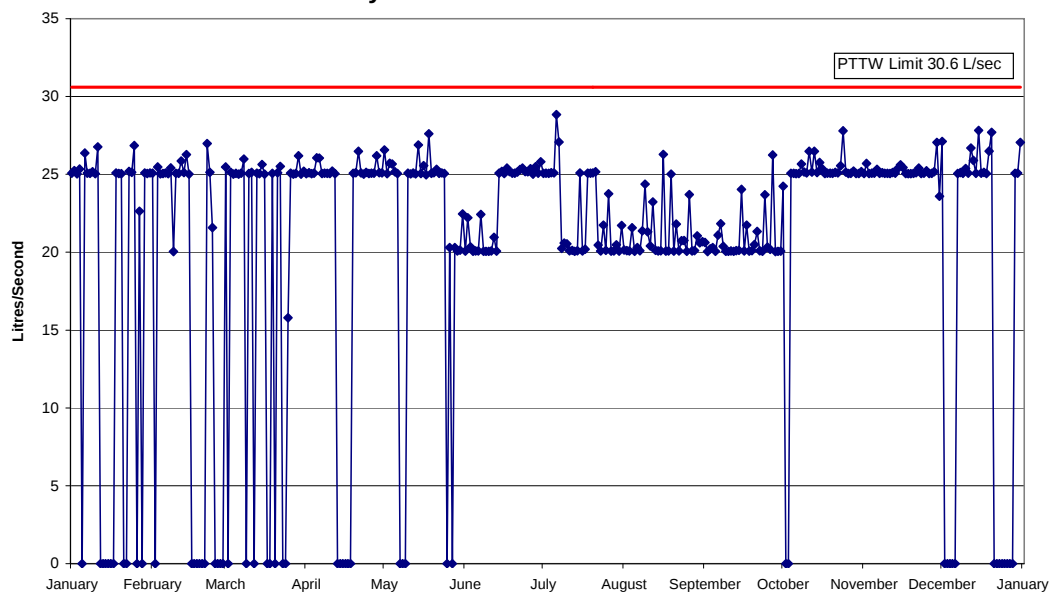


Figure 18 shows instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure or change in the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

**Figure 19: Ballantrae Well No. 2
Daily Instantaneous Peak Flow 2010**



2.4 Georgina

York Region operates a water supply system to service the communities of Sutton and Keswick, Town of Georgina, under authority of a Municipal Drinking Water License (MDWL) and Drinking Water Works Permit (DWWP) issued by the Ontario Ministry of the Environment (MOE). The MDWL includes reference to the valid Permit to Take Water (PTTW) also issued by the MOE. Details of these approvals and other relevant classification information are presented in Table 10.

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

Municipal Drinking Water License Number:	013-104
Issue Number:	Issue 1
Issue Date:	January 29, 2010
Expiry Date:	January 28, 2015
Drinking Water Works Permit Number:	013-204
Issue Date:	January 29, 2010
Permit to Take Water Number:	03-P-3008
Issue Date:	February 12, 2003
Expiry Date:	February 28, 2013
Operational Plan Number:	013-404
Financial Plan Number:	013-301A
MOE Waterworks Number:	260026156
System Classification:	Water Treatment II (WT 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 the water treatment plant 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 MDWL.

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 water treatment plant. Average flow rates are also calculated using records of total flow and number of operating pump hours.
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 maximum daily withdrawal, monthly average flow, maximum daily flow, and instantaneous peak flow rate tables and figures.

2.4.3 Water Withdrawal

The total volume of water withdrawn by the Georgina Water Treatment Plant during January 1 – December 31, 2010 was 2,376,842,810 litres or 6,511,898 litres per day on average.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 11. Peak pumping days represent the number of days where the pumps operate at or above 80% of the maximum permitted daily withdrawal.

TABLE 11: Permitted and Actual Maximum Daily Withdrawal from the Georgina Water Treatment Plant for January 1 – December 31, 2010

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Peak Pumping Days (% of the year)
Water Treatment Plant	49,999,680	10,502,031 – May 31, 2010	0%

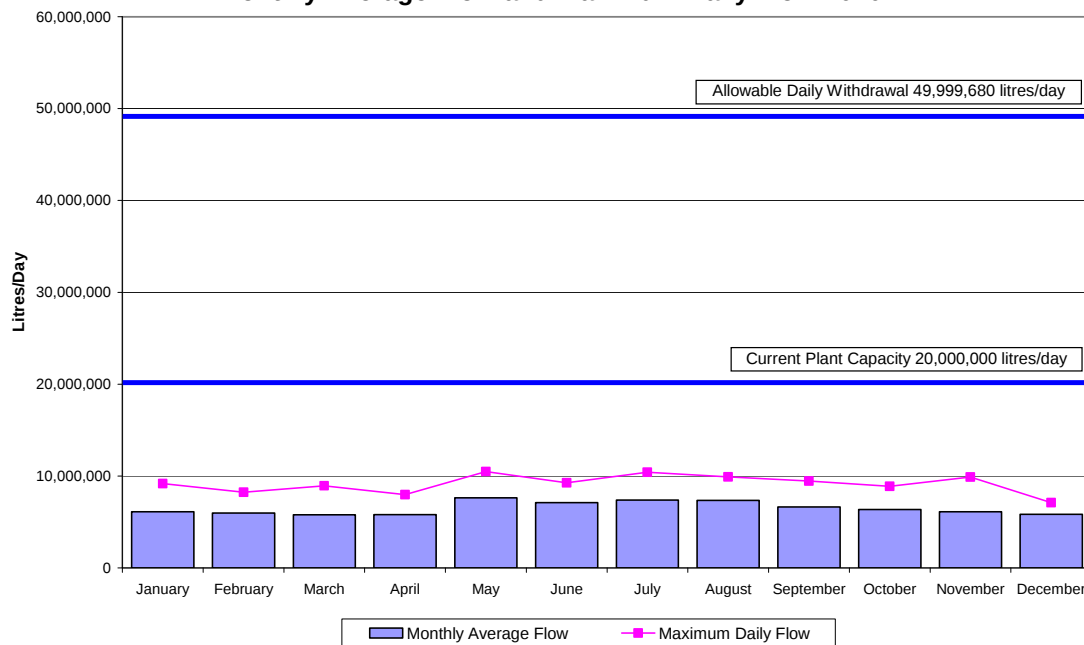
The maximum permitted water withdrawal and the actual annual withdrawal recorded daily water taking are presented in Table 12.

TABLE 12: Permitted and Actual Annual Withdrawal from the Georgina Water Treatment Plant for January 1 – December 31, 2010

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Annual Withdrawal
18,249,883,200	2,376,842,810	13.0%

The monthly average flows, the maximum daily withdrawals, and the permitted daily withdrawal for the reporting period of January 1 – December 31, 2010 are shown in Figure 20.

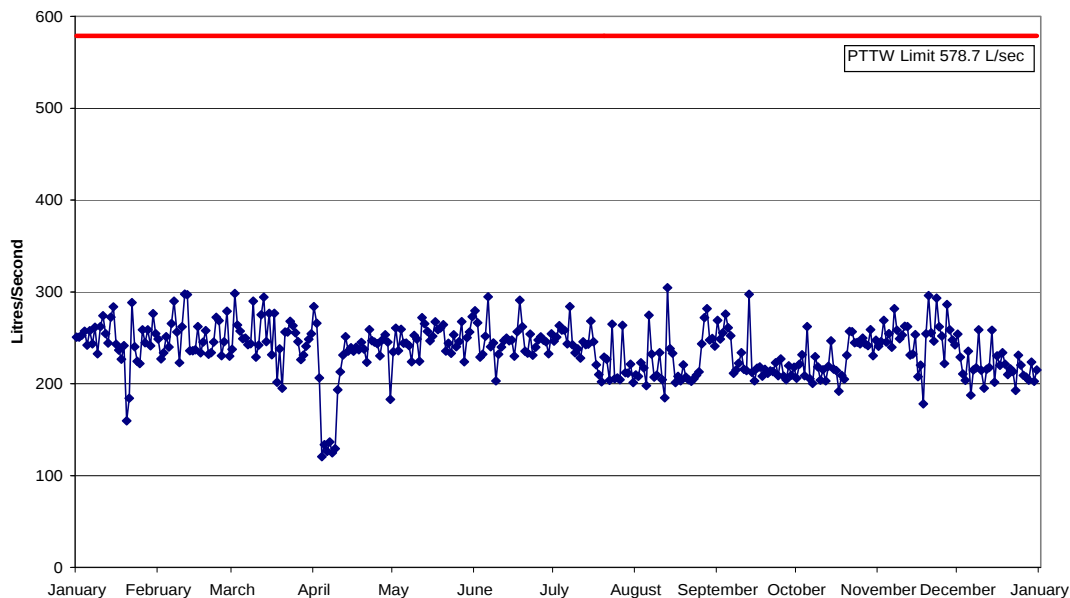
**Figure 20: Georgina Water Treatment Plant
Monthly Average Flow and Maximum Daily Flow 2010**



The withdrawal rates from the Georgina Water Treatment Plant did not exceed the permitted limits for January 1 – December 31, 2010.

The ‘*Daily Instantaneous Peak Flow (litres)*’ for January 1- December 31, 2010 is presented in Figure 21.

**Figure 21: Georgina Water Treatment Plant
Daily Instantaneous Peak Flow 2010**



2.5 Keswick

York Region operates a water supply system to service the community of Keswick, in the of Town of Georgina, under authority of a Municipal Drinking Water License (MDWL) and Drinking Water Works Permit (DWWP) issued by the Ontario Ministry of the Environment (MOE). The MDWL includes reference to the valid Permit to Take Water (PTTW) also issued by the MOE. Details of these approvals and other relevant classification information are presented in Table 13.

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

Municipal Drinking Water License Number:	013-104
Issue Number:	Issue 1
Issue Date:	January 29, 2010
Expiry Date:	January 28, 2015
Drinking Water Works Permit Number:	013-204
Issue Date:	January 29, 2010
Permit to Take Water Number:	1268-636QNK
Issue Date:	July 30, 2004
Expiry Date:	June 30, 2014
Operational Plan Number:	013-404
Financial Plan Number:	013-301A
MOE Waterworks Number:	210003280
System Classification:	Water Treatment III (WT 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 the water treatment plant 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 MDWL.

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 water treatment plant. Average flow rates are also calculated using records of total flow and number of operating pump hours.
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 maximum daily withdrawal, monthly average flow, maximum daily flow, and instantaneous peak flow rate tables and figures.

2.5.3 Water Withdrawal

The total volume of water withdrawn from the Keswick Water Treatment Plant during January 1 – December 31, 2010 was 1,209,024,426 litres or 3,312,396 litres per day on average.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 14. Peak pumping days represent the number of days where the pumps operate at or above 80% of the maximum permitted daily withdrawal.

TABLE 14: Permitted and Actual Maximum Daily Withdrawal from the Keswick Water Treatment Plant for January 1 – December 31, 2010

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Peak Pumping Days (% of the year)
Water Treatment Plant	16,200,000	6,350,000 – April 5, 2010	0%

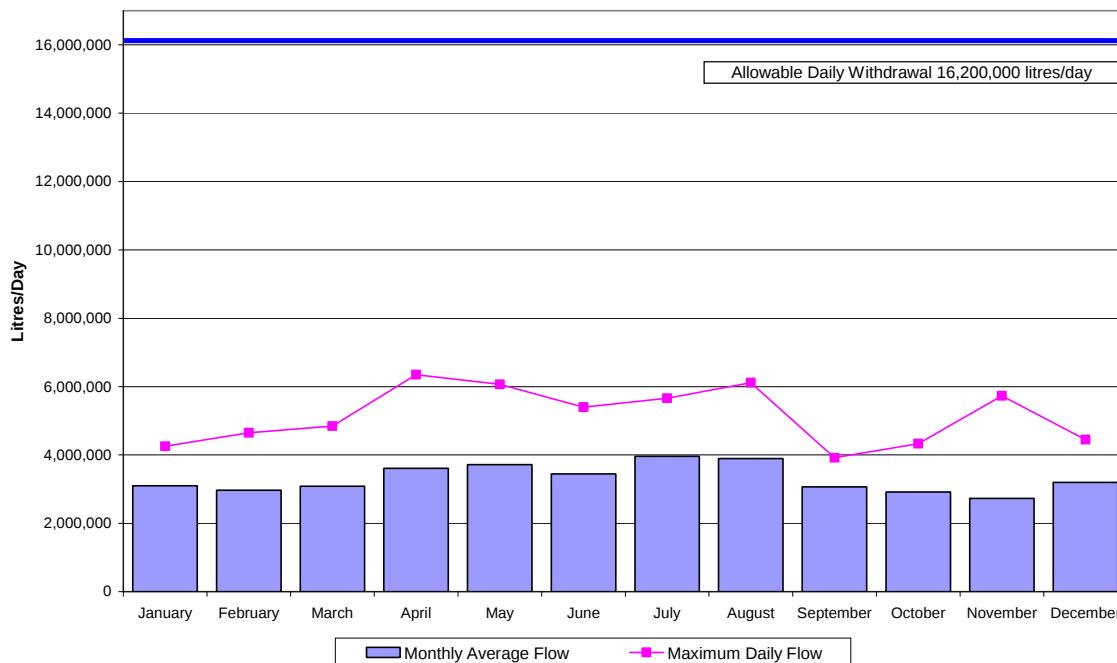
The maximum permitted water withdrawal and the actual annual withdrawal recorded daily water taking are presented in Table 15.

TABLE 15: Permitted and Actual Maximum Annual Withdrawal from the Keswick Water Treatment Plant for January 1 – December 31, 2010

Annual Permitted Withdrawal	Actual Annual Withdrawal	Percentage of Permitted Annual Withdrawal
5,913,000,000	1,209,024,426	20.4%

The monthly average flows, the maximum daily withdrawals, and the permitted daily withdrawal for the reporting period of January 1 – December 31, 2010 are shown in Figure 22.

**Figure 22: Keswick Water Treatment Plant
Monthly Average Flow and Maximum Daily Flow 2010**



Withdrawal rates from the Keswick Water Treatment Plant did not exceed the permitted limits during January 1 – December 31, 2010.

The '*Daily Instantaneous Peak Flow (litres)*' for January 1- December 31, 2010 is presented in Figure 23.

**Figure 23: Keswick Water Treatment Plant
Daily Instantaneous Peak Flow 2010**

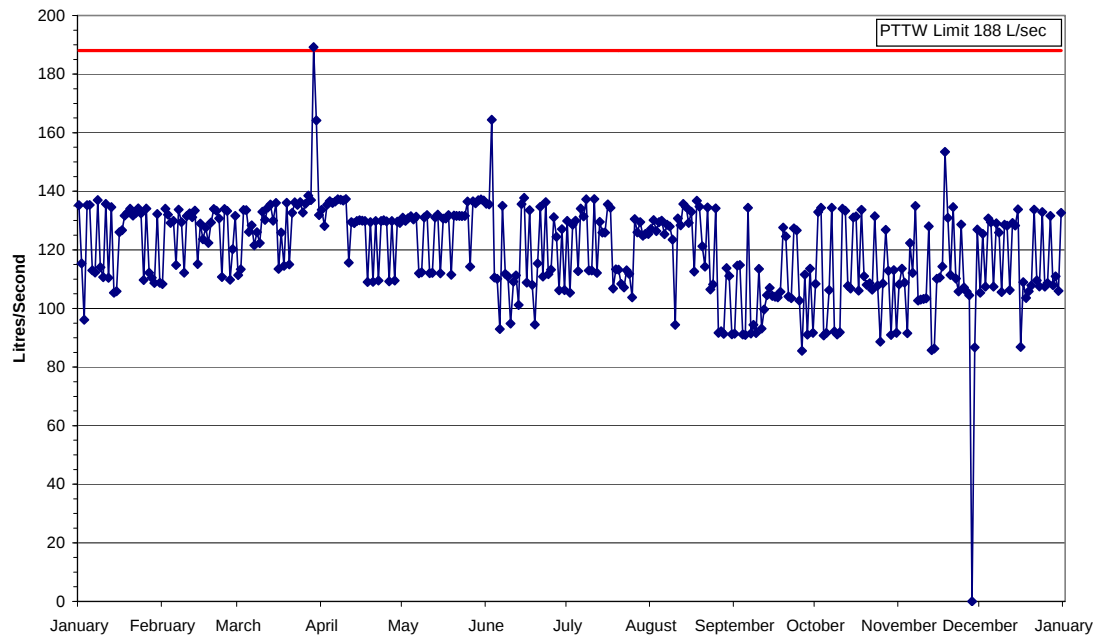


Figure 23 shows instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure or a change in the distribution system pressure.

2.6 King City

York Region operates a water supply system to service the community of King City, in the Township of King, under authority of a Municipal Drinking Water License (MDWL) and Drinking Water Works Permit (DWWP) issued by the Ontario Ministry of the Environment (MOE). The MDWL includes reference to the valid Permit to Take Water (PTTW) also issued by the MOE. Details of these approvals and other relevant classification information are presented in Table 16.

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

Municipal Drinking Water License Number:	013-107
Issue Number:	Issue 1
Issue Date:	January 29, 2010
Expiry Date:	January 28, 2015
Drinking Water Works Permit Number:	013-207
Issue Date:	January 29, 2010
Permit to Take Water Number:	8634-67HR9L
Issue Date:	December 20, 2004
Expiry Date:	January 31, 2015
Operational Plan Number:	013-407
Financial Plan Number:	013-301A
MOE Waterworks Number:	220002299
System Classification:	Water Distribution & Supply II (WDS 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 MDWL.

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.

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 maximum daily withdrawal, monthly average flow, maximum daily flow, and instantaneous peak flow rate tables and 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, 2010 was 441,896,315 litres or 1,210,675 litres per day.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 17. Peak pumping days represent the number of days where the wells pump at or above 80% of the maximum permitted daily withdrawal.

TABLE 17: Permitted and Actual Maximum Daily Withdrawal from the King City Production Wells for January 1 – December 31, 2010

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Peak Pumping Days (% of the year)
Well 3	1,963,915	1,704,938 – August 13, 2010	1.1%
Well 4	2,618,554	2,296,518 – December 4, 2010	0.5%

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 Annual Withdrawal from the King City Production Wells for January 1 – December 31, 2010

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Annual Withdrawal
1,672,601,550	446,297,907	26.7%

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 2010**

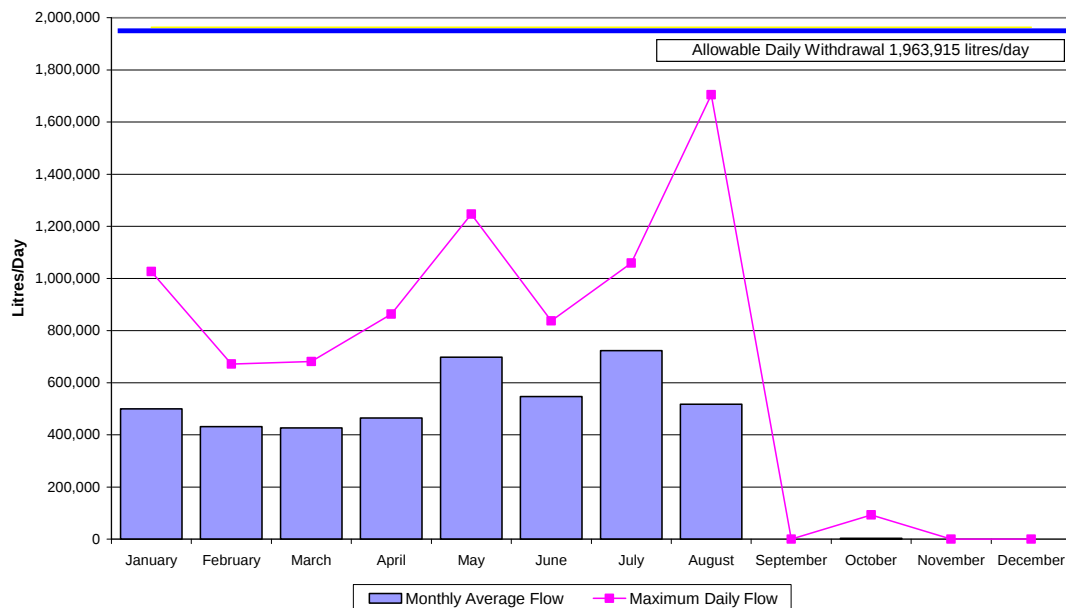
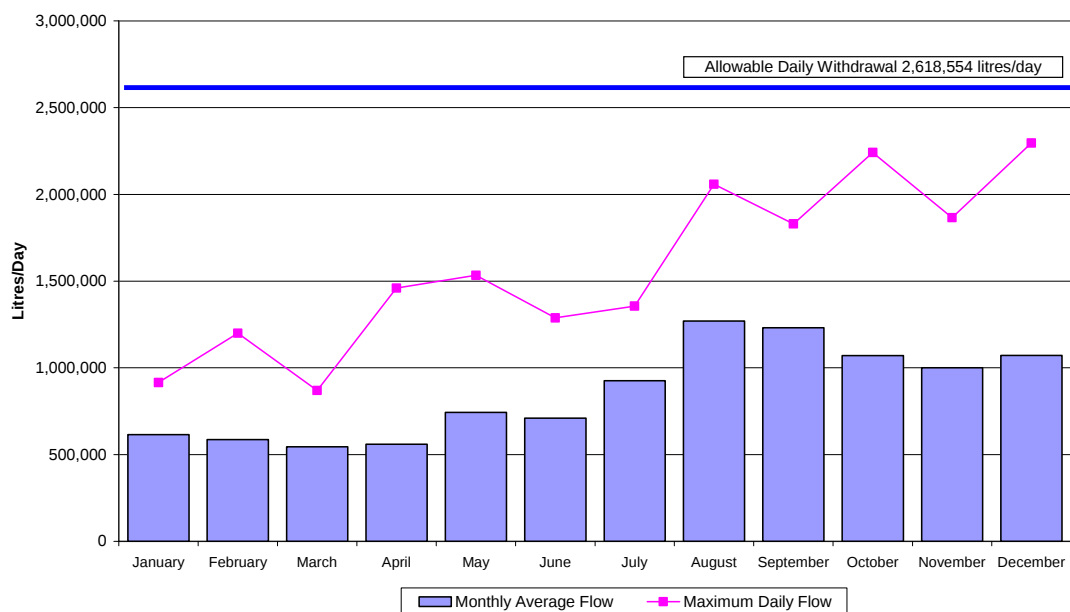


Figure 24 shows a reduced monthly average flow or no monthly average flow recorded for the months of September, October, November and December 2010. During this time, an investigation on the high turbidity conditions was conducted. A mechanical failure in the well structure was determined to be the cause of the high turbidity. The well is currently off-line and under repair. As part of York Regions long-term water supply initiative to improve water supply and quality, the King City Water Supply System is anticipated to be supplemented with the Region of Peel's lake based water supply by Fall 2011.

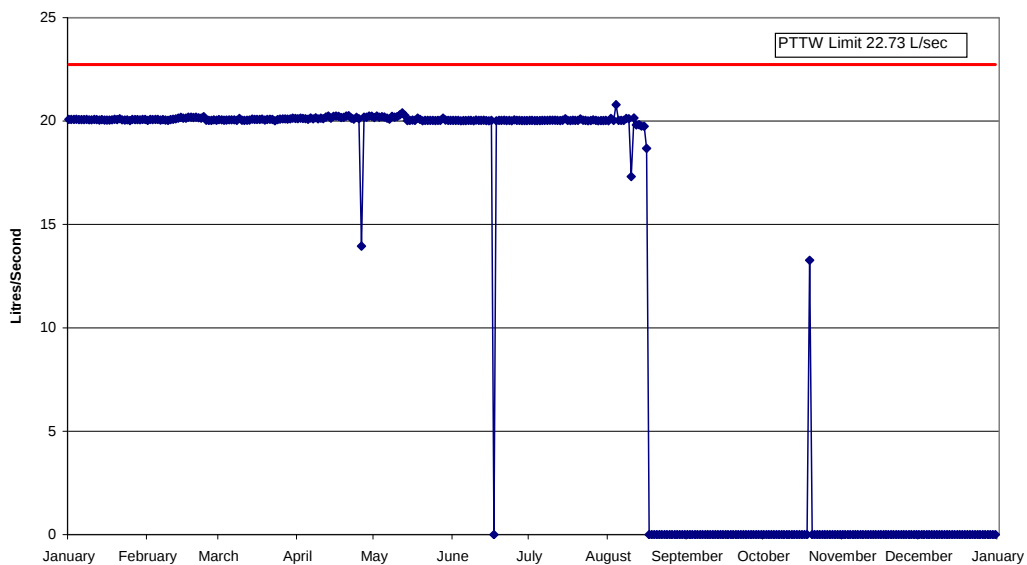
**Figure 25: King City Well No. 4
Monthly Average Flow and Maximum Daily Flow 2010**



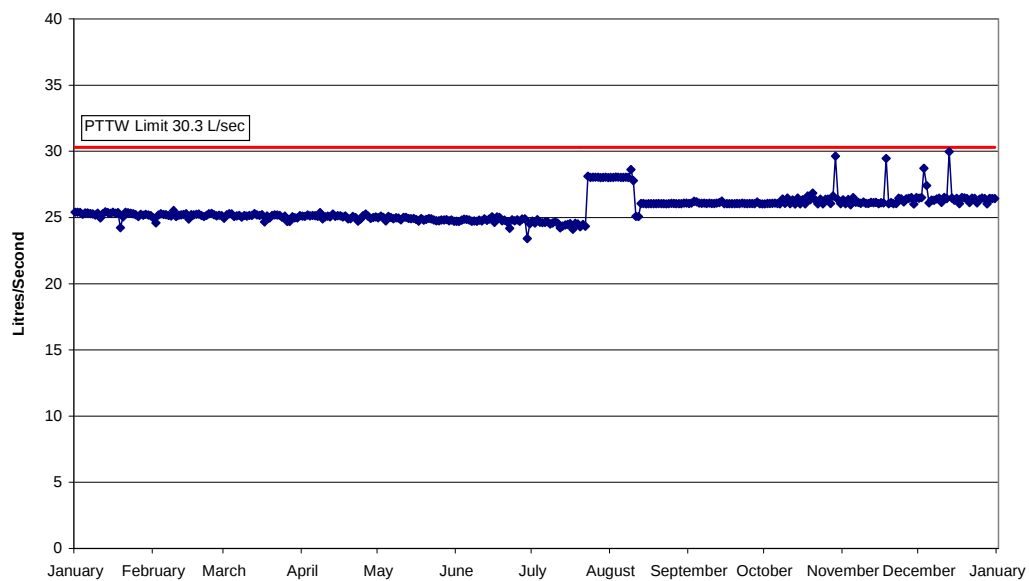
Withdrawal rates from the King City production wells did not exceed the permitted limits during January 1 – December 31, 2010.

The '*Daily Instantaneous Peak Flow (litres)*' for January 1- December 31, 2010 are presented in Figures 26 and 27.

**Figure 26: King City Well No. 3
Daily Instantaneous Peak Flow 2010**



**Figure 27: King City Well No. 4
Daily Instantaneous Peak Flow 2010**



2.7 Kleinburg

York Region operates a water supply system to service the community of Kleinburg in the City of Vaughan, under authority of a Municipal Drinking Water License (MDWL) and Drinking Water Works Permit (DWWP) issued by the Ontario Ministry of the Environment (MOE). The MDWL includes reference to the valid Permit to Take Water (PTTW) also issued by the MOE. Details of these approvals and other relevant classification information are presented in Table 19.

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

Municipal Drinking Water License Number:	013-109
Issue Number:	Issue 1
Issue Date:	January 29, 2010
Expiry Date:	January 28, 2015
Drinking Water Works Permit Number:	013-209
Issue Date:	January 29, 2010
Permit to Take Water Number:	2411-789N8E
Issue Date:	January 22, 2008
Expiry Date:	January 31, 2014
Operational Plan Number:	013-409
Financial Plan Number:	013-301A
MOE Waterworks Number:	220002360
System Classification:	Water Distribution & Supply II (WDS II)

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, limited to continuous operation over 24 hour 3 times per week and 5,237,000 litres per day from production wells 3 and 4 inclusive.

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 MDWL.

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.
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 maximum daily withdrawal, monthly average flow, maximum daily flow, and instantaneous peak flow rate tables and 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, 2010 was 632,205,343 litres or 1,732,069 litres per day.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 20. Peak pumping days represent the number of days where the wells pump at or above 80% of the maximum permitted daily withdrawal.

TABLE 20: Permitted and Actual Maximum Daily Withdrawal from the Kleinburg Production Wells for January 1 – December 31, 2010

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Peak Pumping (% of the year)
Well 2	950,400	51,942 – July 12, 2010	0%
*Wells 3/4	5,237,000	4,273,250 – July 7, 2010	0.3%

**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 Annual Withdrawal from the Kleinburg Production Wells for January 1 – December 31, 2010

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Annual Withdrawal
2,258,401,400	632,205,343	28.0%

The monthly average flow rates, maximum daily flow, and permitted daily withdrawal are presented in Figures 28 and 29.

Figure 28: Kleinburg Well No. 2
Monthly Average Flow and Maximum Daily Flow 2010

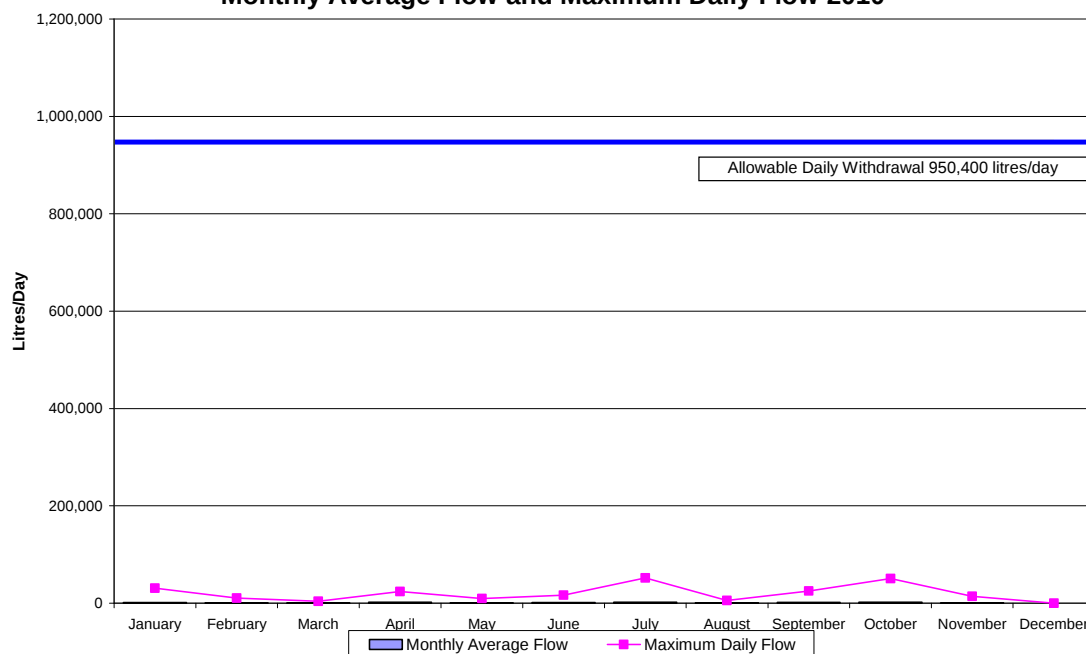
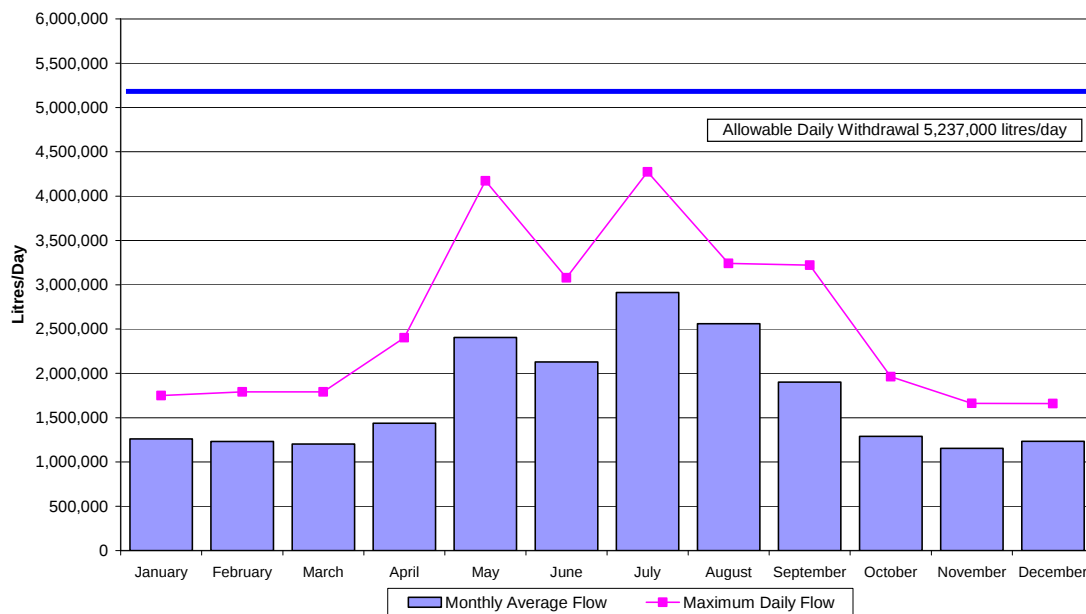
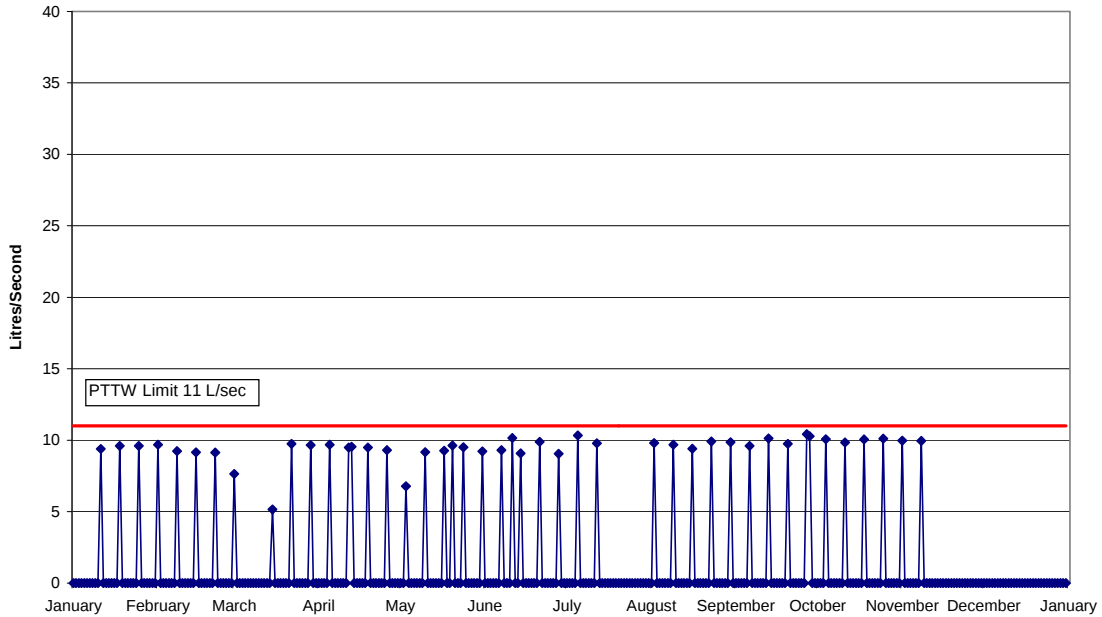


Figure 29: Kleinburg Well No. 3 & 4
Monthly Average Flow and Maximum Daily Flow 2010

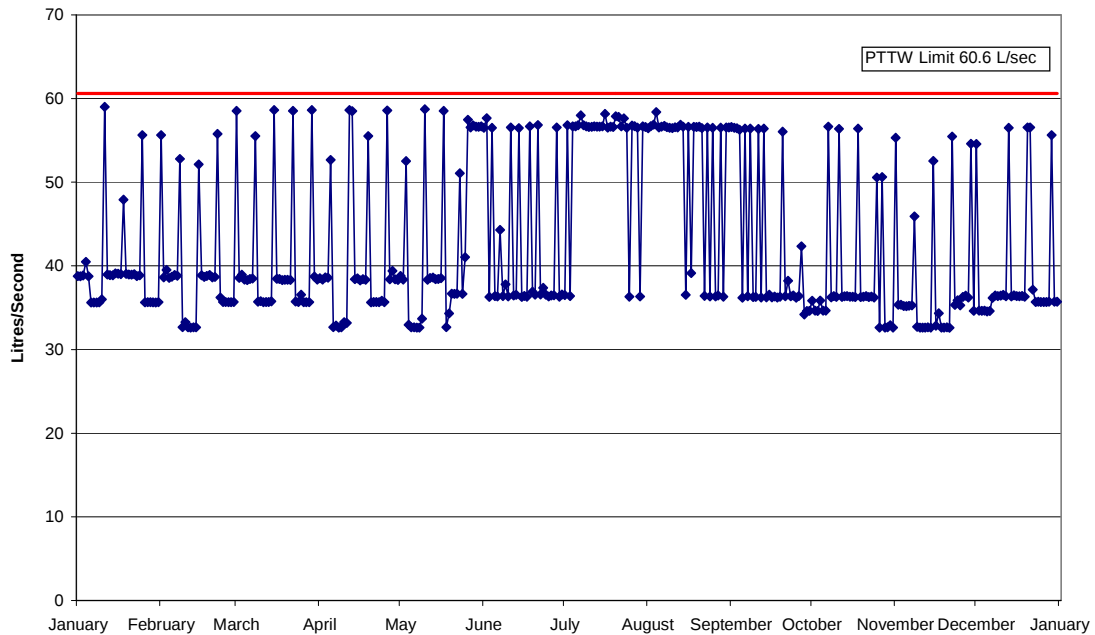


The 'Daily Instantaneous Peak Flow (litres)' for January 1- December 31, 2010 are presented in Figures 30 and 31.

**Figure 30: Kleinburg Well No. 2
Daily Instantaneous Peak Flow 2010**



**Figure 31: Kleinburg Well No. 3 & 4
Daily Instantaneous Peak Flow 2010**



2.8 Mount Albert

York Region operates a water supply system to service the community of Mount Albert, in the Town of East Gwillimbury, under authority of a Municipal Drinking Water License (MDWL) and Drinking Water Works Permit (DWWP) issued by the Ontario Ministry of the Environment (MOE). The MDWL includes reference to the valid Permit to Take Water (PTTW) also issued by the MOE. Details of these approvals and other relevant classification information are presented in Table 22.

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

Municipal Drinking Water License Number:	013-103
Issue Number:	Issue 1
Issue Date:	January 29, 2010
Expiry Date:	January 28, 2015
Drinking Water Works Permit Number:	013-203
Issue Date:	January 29, 2010
Permit to Take Water Number:	0050-7FCMMY
Issue Date:	June 9, 2008
Expiry Date:	March 31, 2018
Operational Plan Number:	013-403
Financial Plan Number:	013-301A
MOE Waterworks Number:	220006543
System Classification:	Water Distribution & Supply II (WDS II)

2.8.1 Water Taking

The PTTW for the Mount Albert Water Supply System allows York Region to withdraw up to 3,273,120 litres per day from production wells 1 or 2 with a maximum combined total permitted withdrawal of 4,990,000 litres per day. Well 3 is currently not in service pending the design and construction of the treatment infrastructure scheduled for completion in Spring 2011. Once in service, well 3 will be included and limited to the maximum combined total permitted withdrawal of 4,990,000 litres per day providing additional water supply and adequate standby capacity to service growth anticipated in the community.

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 MDWL.

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.
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 maximum daily withdrawal, monthly average flow, maximum daily flow, and instantaneous peak flow rate tables and 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, 2010 was 341,259,875 litres or 934,959 litres per day.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 23. Peak pumping days represent the number of days where the wells pump at or above 80% of the maximum permitted daily withdrawal.

TABLE 23: Permitted and Actual Maximum Daily Withdrawal from the Mount Albert Production Wells for January 1 – December 31, 2010

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Peak Pumping Days (% of the year)
Well 1	3,273,120	2,107,813 – January 11, 2010	0%
Well 2	3,273,120	2,483,500 – July 5, 2010	0%
Well 1 & 2*	4,990,000	2,483,500 – July 7, 2010	0%
Well 3*	3,273,120	not yet commissioned	-

**Well 3 to be included and limited to the maximum daily combined total permitted withdrawal of 4,990,000 litres per day for all three wells.*

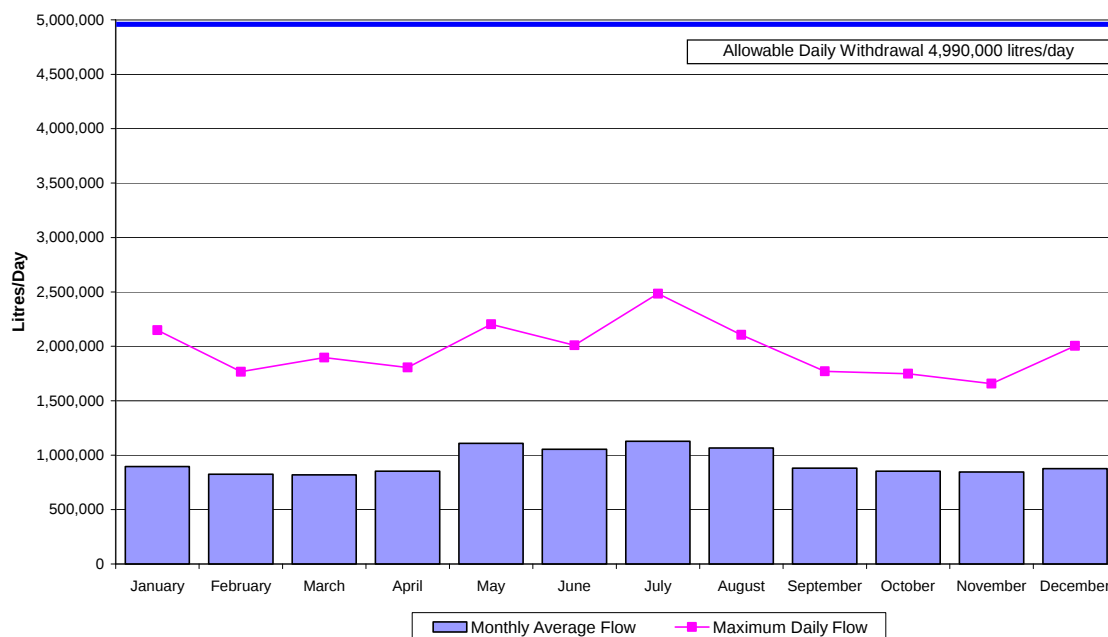
The maximum permitted water withdrawal and the actual annual withdrawal recorded daily water taking are presented in Table 24.

TABLE 24: Permitted and Actual Maximum Annual Withdrawal from the Mount Albert Production Wells for January 1 – December 31, 2010

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Annual Withdrawal
1,826,340,000	341,259,875	18.7%

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

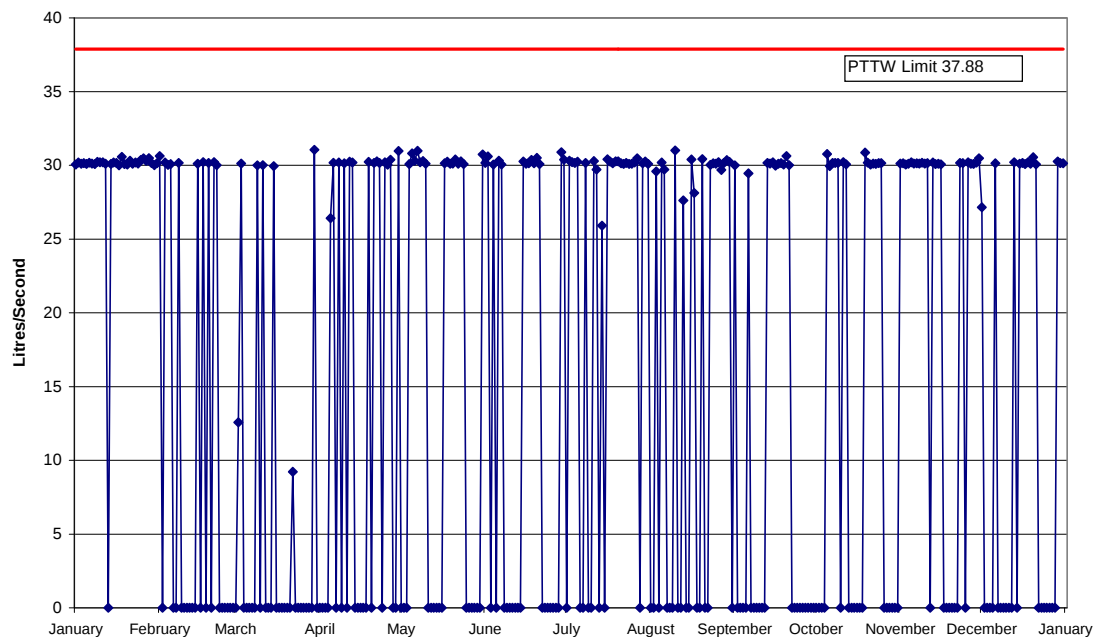
**Figure 32: Mount Albert Well No. 1 & 2
Monthly Average Flow and Maximum Daily Flow 2010**



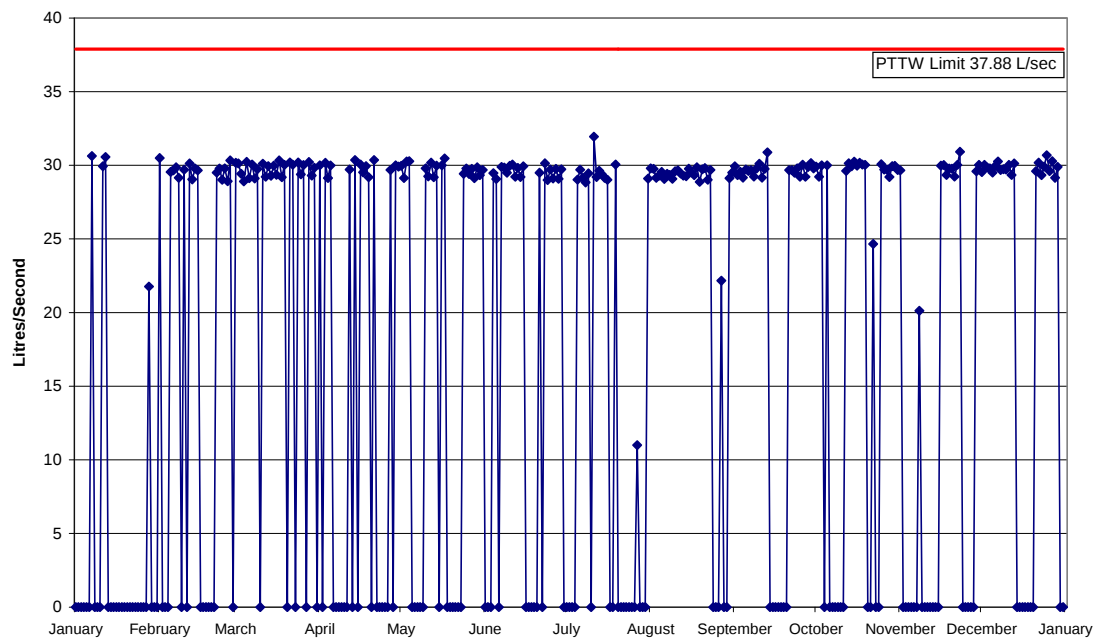
The actual volumes of water taken from the Mount Albert production wells during January 1 – December 31, 2010 did not exceed the permitted daily withdrawal volumes.

The '*Daily Instantaneous Peak Flow (litres)*' for January 1- December 31, 2010 are presented in Figures 33 and 34.

**Figure 33: Mount Albert Well No. 1
Daily Instantaneous Peak Flow 2010**



**Figure 34: Mount Albert Well No. 2
Daily Instantaneous Peak Flow 2010**



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 Municipal Drinking Water License (MDWL) and Drinking Water Works Permit (DWWP) issued by the Ontario Ministry of the Environment (MOE). The MDWL includes reference to the valid Permit to Take Water (PTTW) also issued by the MOE. Details of these approvals and other relevant classification information are presented in Table 25.

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

Municipal Drinking Water License Number:	013-101
Issue Number:	Issue 1
Issue Date:	March 12, 2010
Expiry Date:	March 11, 2015
Drinking Water Works Permit Number:	013-201
Issue Date:	March 11, 2010
Permit to Take Water Number:	6623-68QQ6L
Issue Date:	March 10, 2005
Expiry Date:	March 31, 2015
Operational Plan Number:	013-401
Financial Plan Number:	013-301A
MOE Waterworks Number:	
Holland Landing:	220004046
Newmarket:	220002413
Queensville:	260001955
System Classification:	Water Distribution & Supply III (WDS 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 MDWL.

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.
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 maximum daily withdrawal, monthly average flow, maximum daily flow, and instantaneous peak flow rate tables and 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, 2010 was 7,501,225,126 litres or 20,551,301 litres per day on average.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 26. Peak pumping days represent the number of days where the wells pump at or above 80% of the maximum permitted daily withdrawal.

TABLE 26: Permitted and Actual Maximum Daily Withdrawal from the Newmarket/East Gwillimbury/Holland Landing Production Wells for the January 1 – December 31, 2010

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Peak Pumping Days (% of the year)
Holland Landing Well 1	2,291,184	1,181,688 – January 23, 2010	0%
Holland Landing Well 2	3,600,432	2,593,438 – May 2, 2010	0%
Newmarket Well 1	2,291,184	1,955,750 – February 28, 2010	0.8%
Newmarket Well 2	4,582,512	4,321,500 – October 31, 2010	9.0%
Newmarket Well 13	5,891,760	5,574,500 – October 31, 2010	2.3%
Newmarket Well 14	2,291,184	1,767,688 – July 28, 2010	0%
Newmarket Well 15	3,273,120	2,235,250 – July 2, 2010	0%
Newmarket Well 16	5,629,824	5,238,000 – June 18, 2010	6.3%
Queensville Well 1	6,546,384	6,055,625 – August 5, 2010	4.9%
Queensville Well 2	6,546,384	6,113,000 – July 6, 2010	8.8%
Queensville Well 3	6,546,384	6,137,000 – July 6, 2010	7.9%
Queensville Well 4	6,546,384	6,121,000 – April 30, 2010	9.9%

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, 2010

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Annual Withdrawal
20,453,408,640	7,501,225,126	36.7%

The monthly average flow rates, maximum daily flow, and permitted daily withdrawal are presented in Figures 35 through 46.

**Figure 35: Holland Landing Well No. 1
Monthly Average Flow and Maximum Daily Flow 2010**

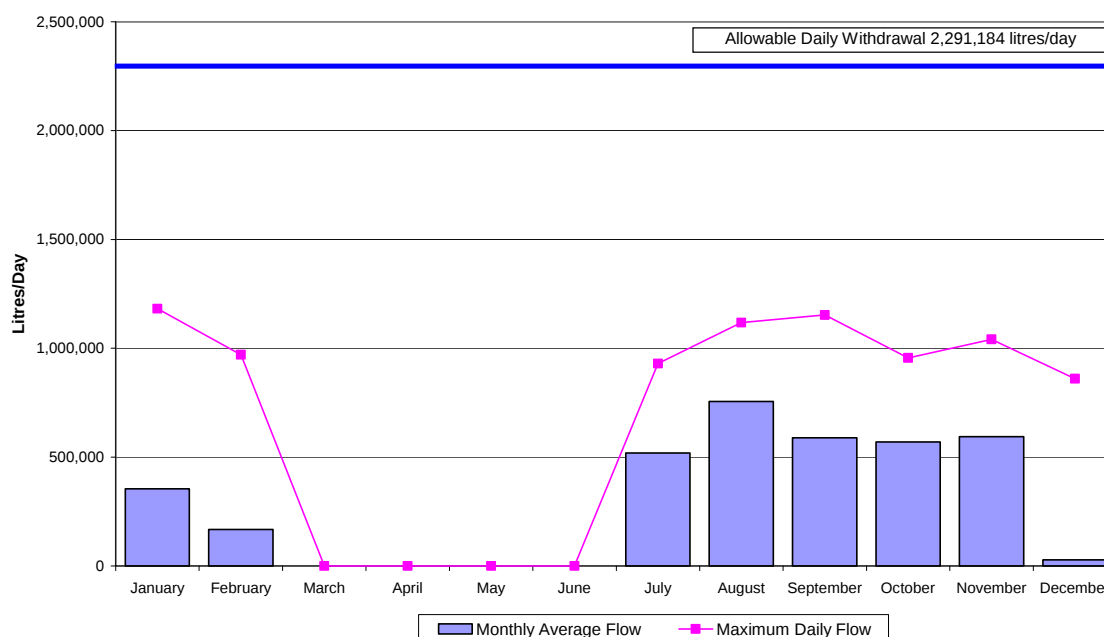


Figure 35 shows a reduced monthly average flow recorded for the months of March, April, May, June and December 2010. This reduction in flow was mainly due to scheduled and or unscheduled maintenance conducted on the well to improve the overall operation of the water system.

Figure 36: Holland Landing Well No. 2
Monthly Average Flow and Maximum Daily Flow 2010

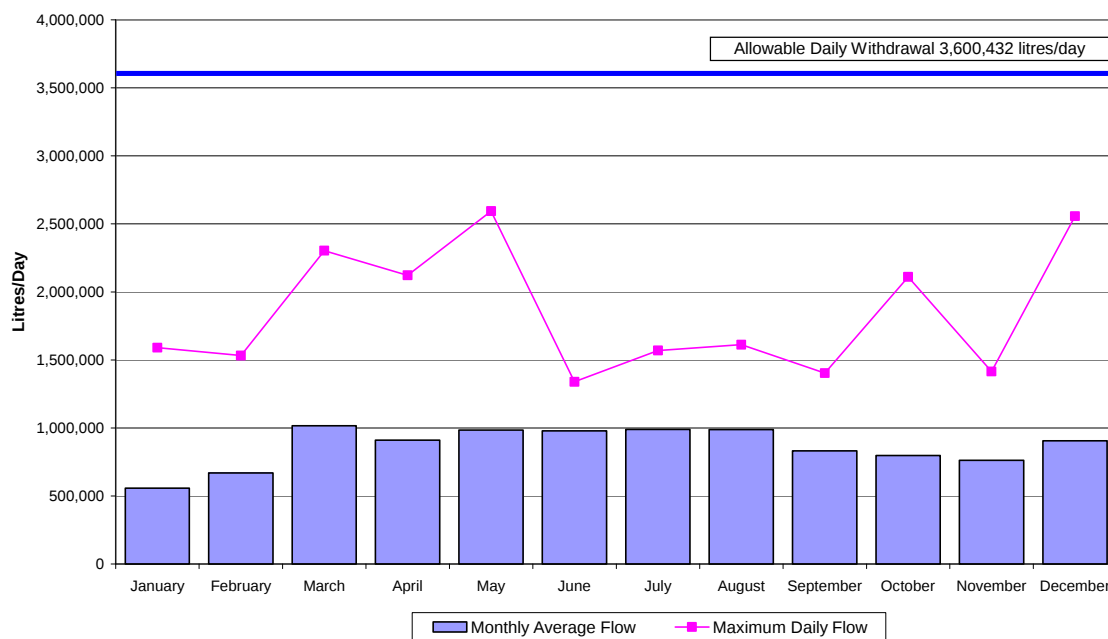


Figure 37: Newmarket Well No. 1
Monthly Average Flow and Maximum Daily Average 2010

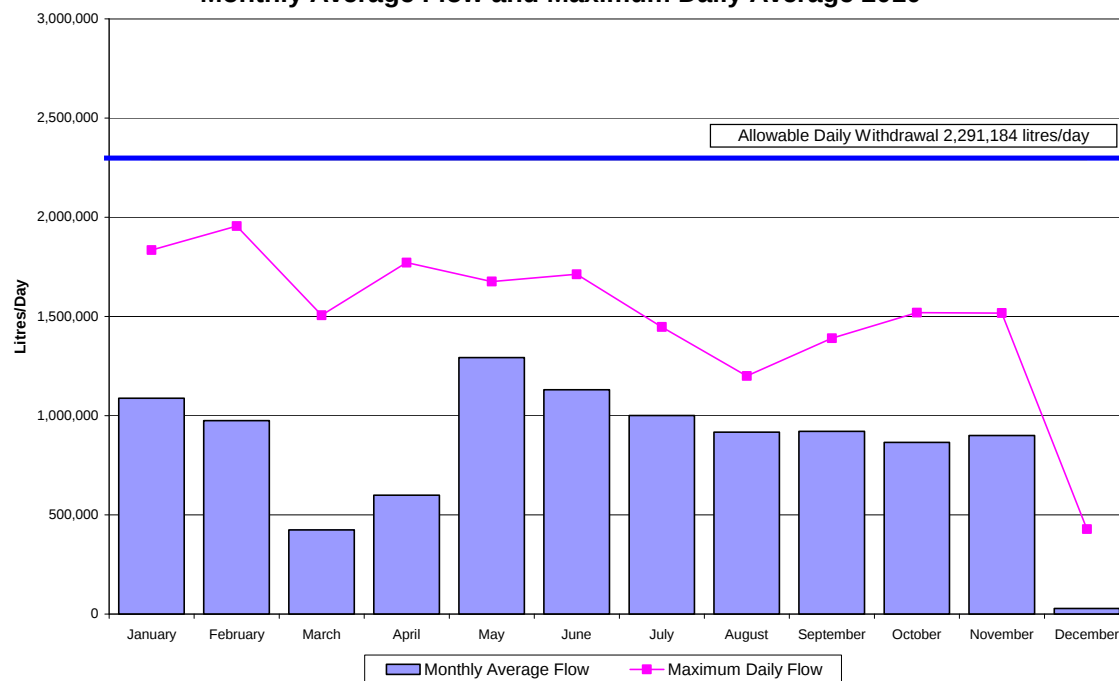


Figure 38: Newmarket Well No. 2
Monthly Average Flow and Maximum Daily Flow 2010

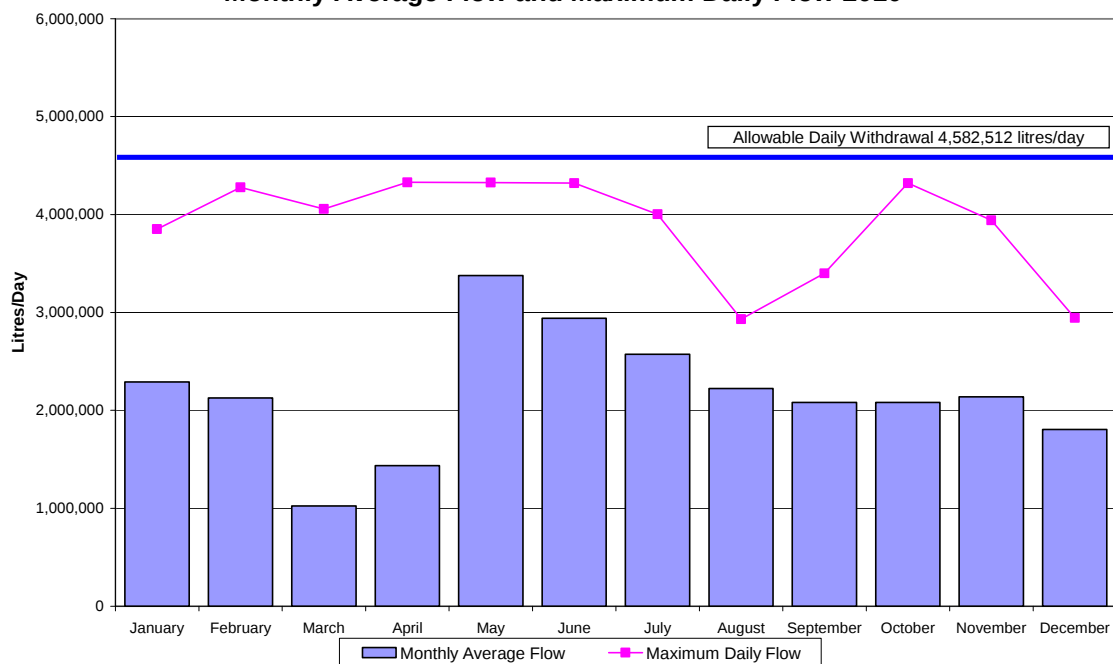


Figure 39: Newmarket Well No. 13
Monthly Average Flow and Maximum Daily Flow 2010

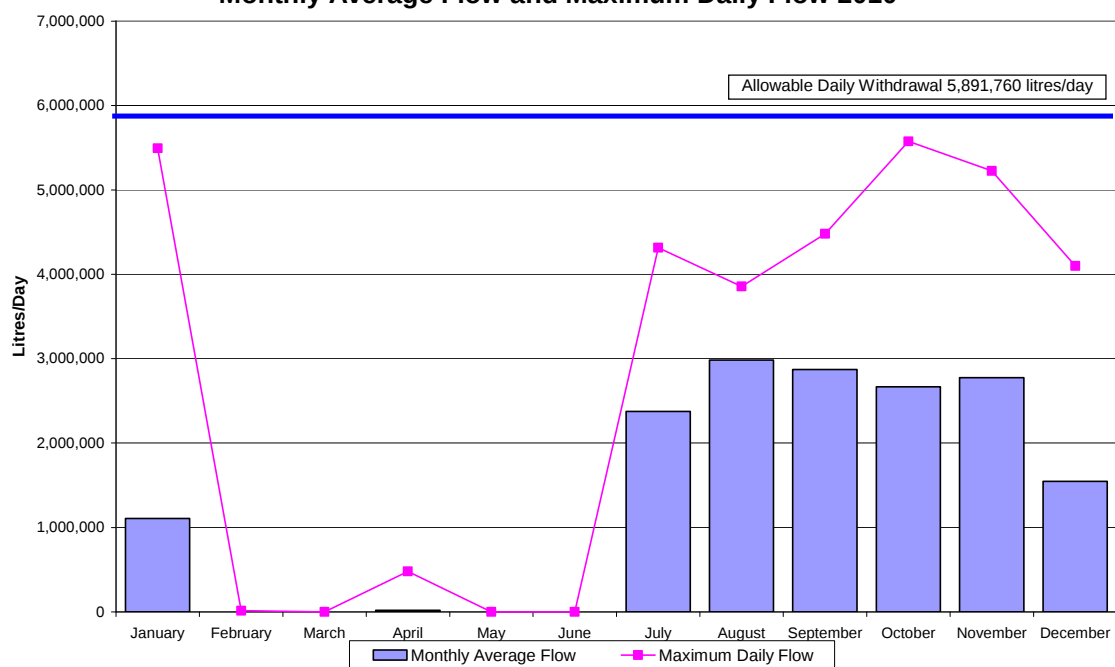


Figure 39 shows a reduced monthly average flow recorded for the months of February, March, April, May and June 2010. This reduction in flow was mainly due to scheduled and or unscheduled maintenance conducted on the well to improve the overall operation of the water system.

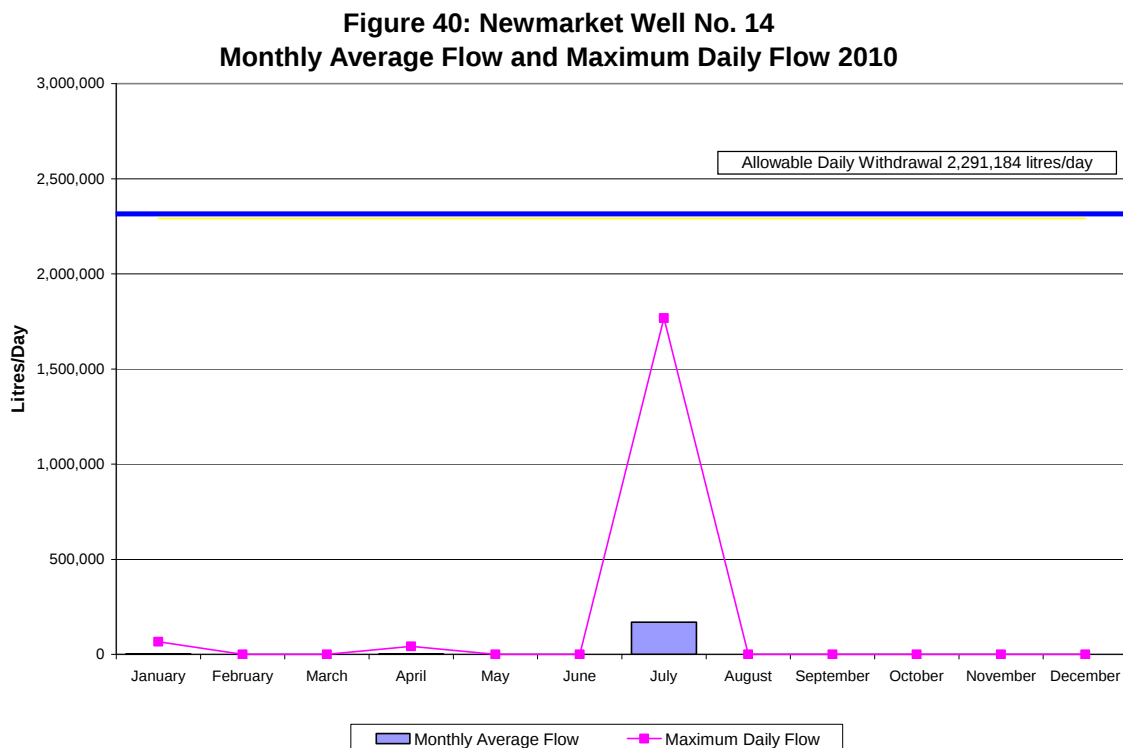


Figure 40 shows a reduced monthly average flow recorded for the months of January to December 2010. The well remains off line pending an ongoing investigation of nearby contamination as previously reported last year. Although the well continues to produce safe drinking water that meets all regulatory requirements, it remains offline as a precautionary measure to enable the investigation to continue without pumping influence from this well. With the additional supply from the Peel system, it is expected that there will be no disruption in services during the peak season and this well can remain off line until local soil remediation is complete. The flow observed in July was a pump test to understand groundwater influence at the site and was conducted without connection to the existing services. Ongoing and frequent communications with the Town of Newmarket, Ministry of Environment and the land owners continue to ensure potential source protection concerns are met.

Figure 41: Newmarket Well No. 15
Monthly Average Flow and Maximum Daily Flow 2010

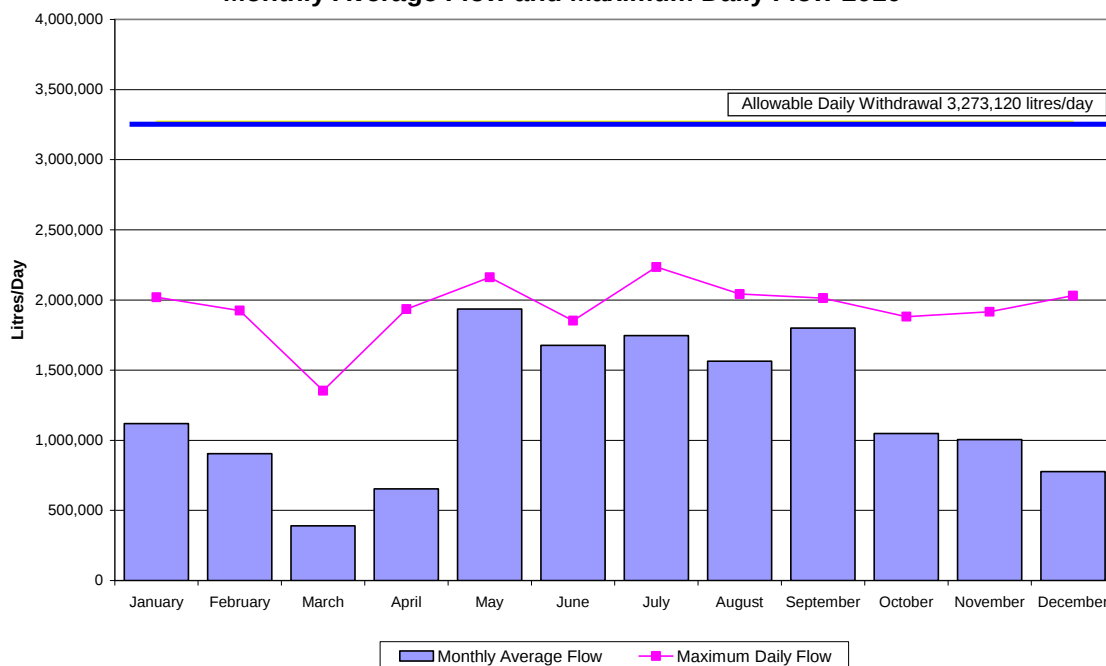
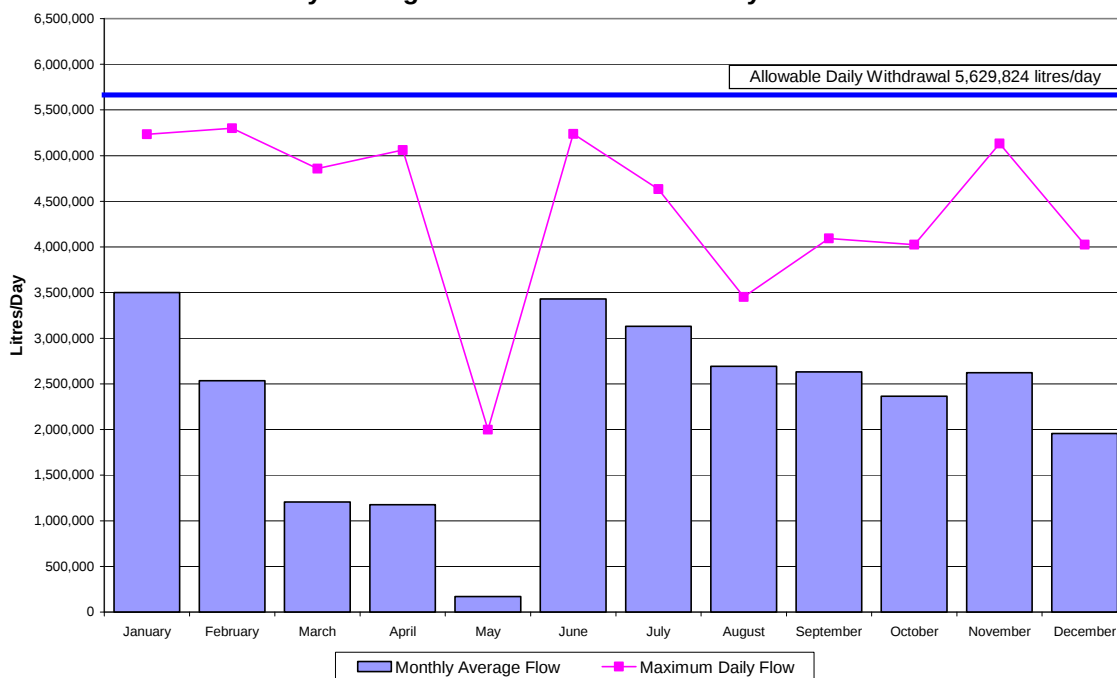


Figure 42: Newmarket Well No. 16
Monthly Average Flow and Maximum Daily Flow 2010



**Figure 43: Queensville Well No. 1
Monthly Average Flow and Maximum Daily Flow 2010**

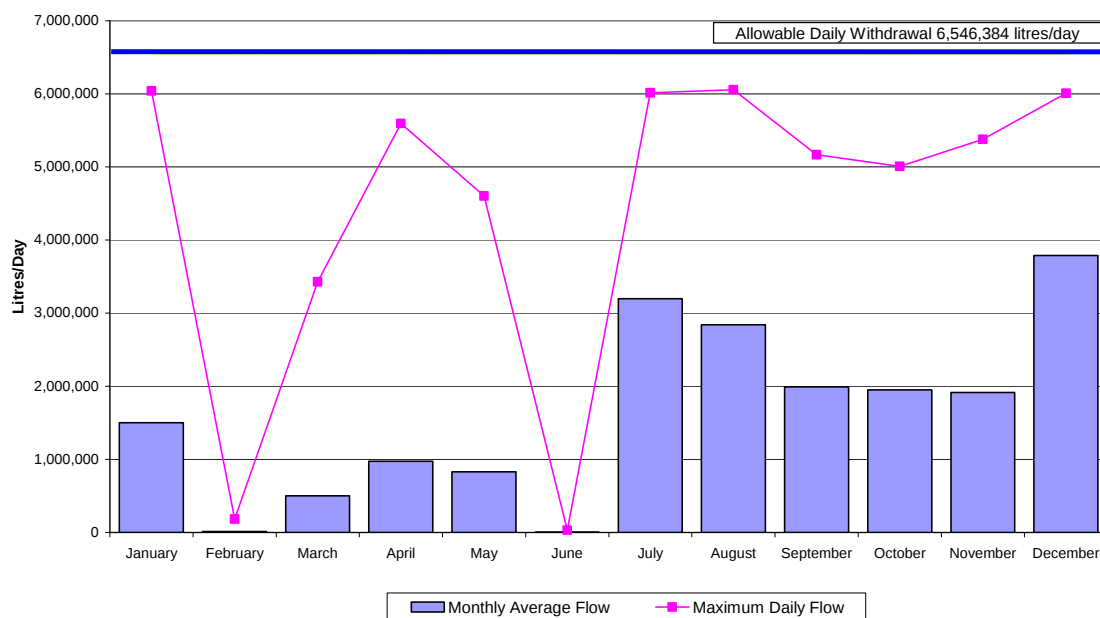


Figure 43 shows a reduced monthly average flow recorded for the months of February and June 2010. This reduction in flow was mainly due to scheduled and or unscheduled maintenance conducted on the well to improve the overall operation of the water system.

**Figure 44: Queensville Well No. 2
Monthly Average Flow and Maximum Daily Flow 2010**

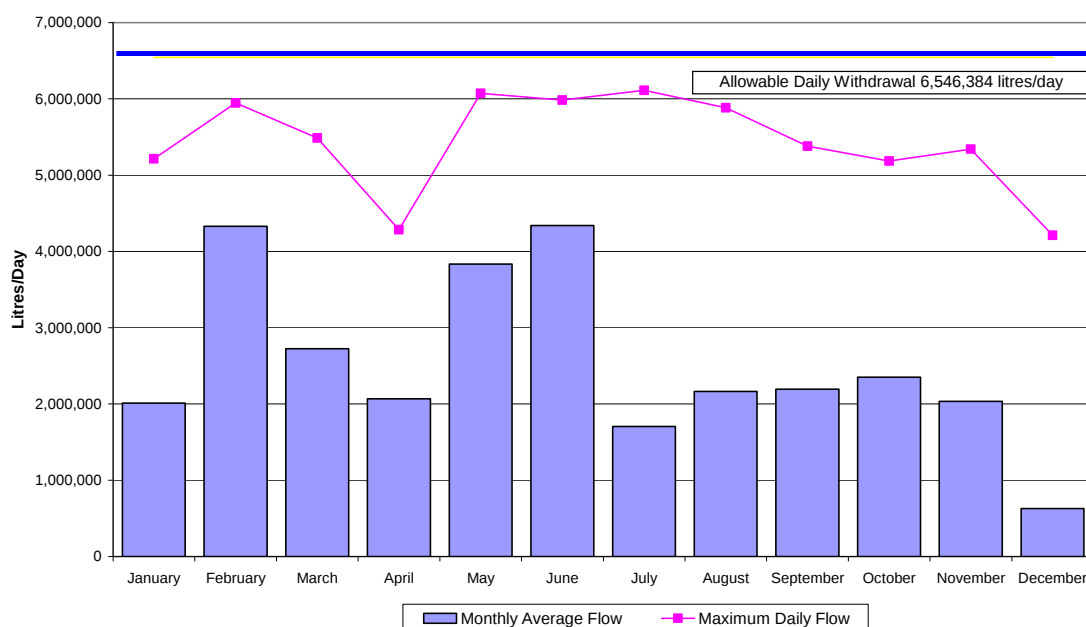


Figure 45: Queensville Well No. 3
Monthly Average Flow and Maximum Daily Flow 2010

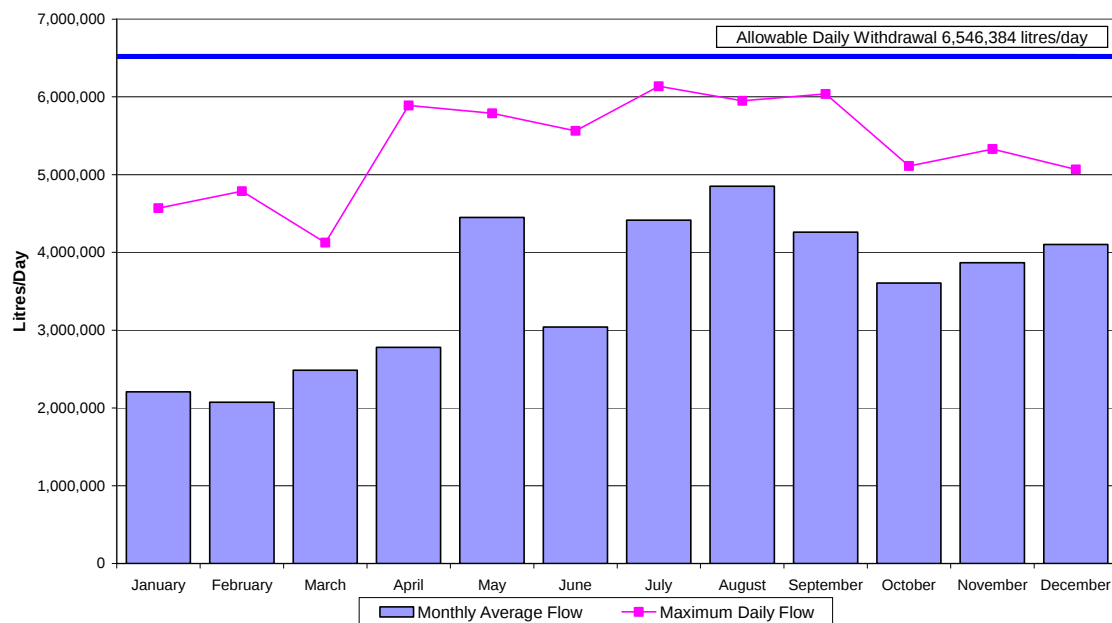
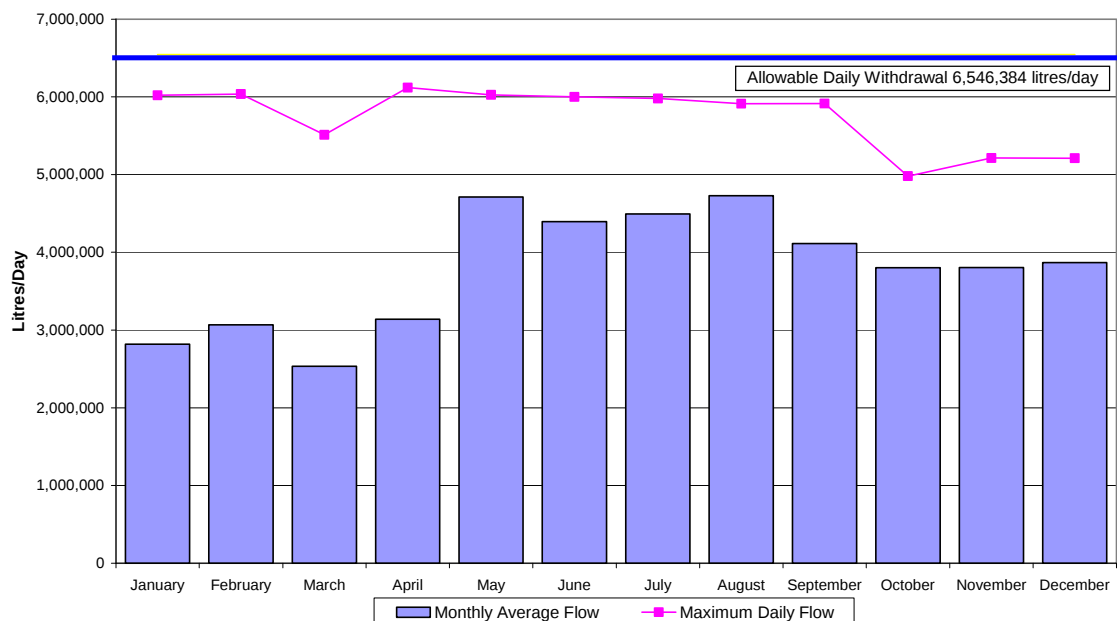


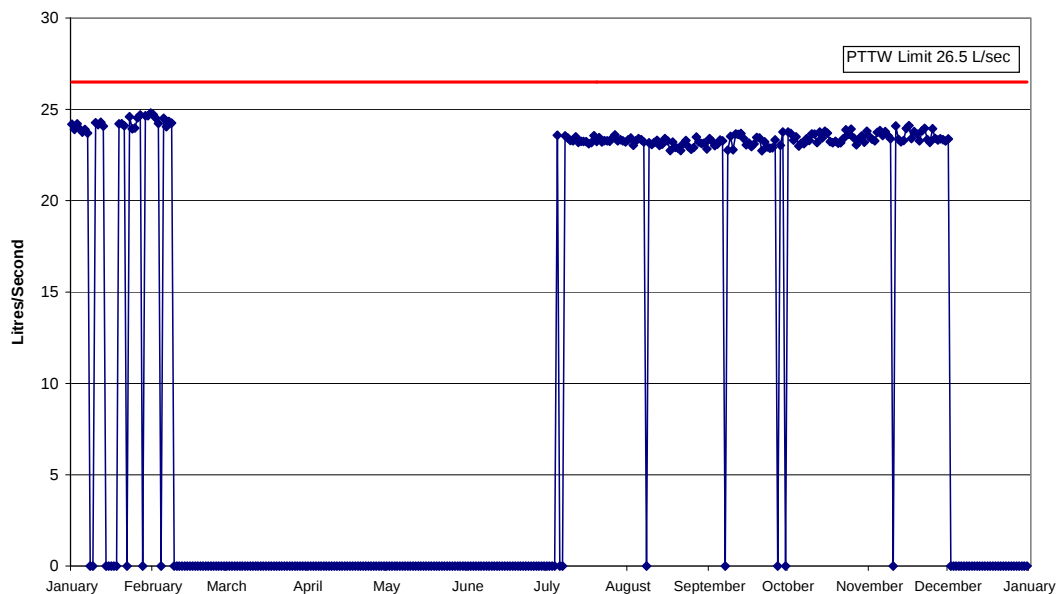
Figure 46: Queensville Well No. 4
Monthly Average Flow and Maximum Daily Flow 2010



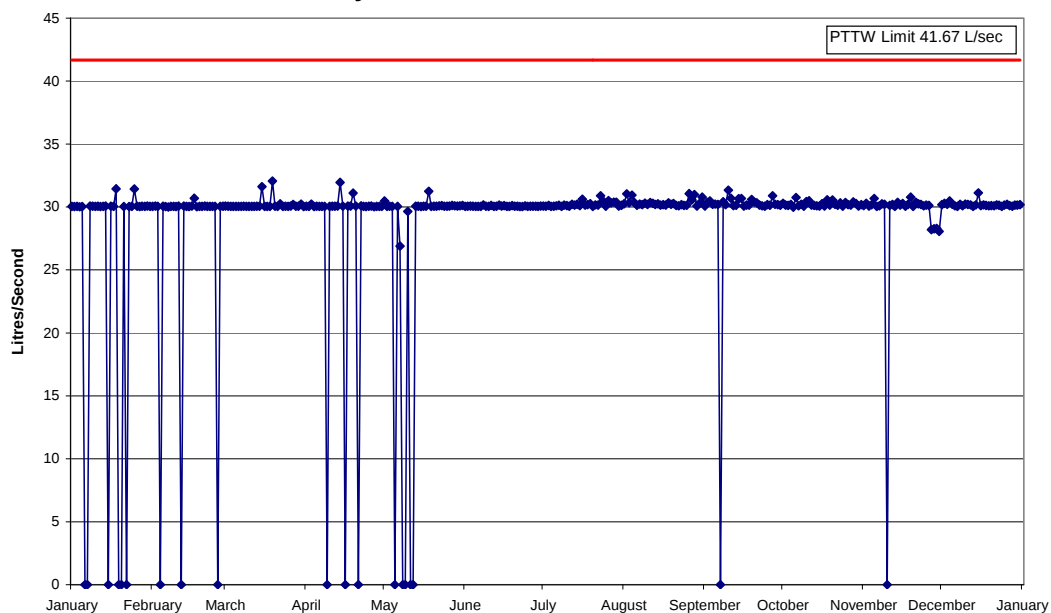
Throughout the period of January 1 – December 31, 2010 the withdrawal rates from the Newmarket/East Gwillimbury production wells did not exceed the permitted limits.

The 'Daily Instantaneous Peak Flow (litres)' for January 1- December 31, 2010 are presented in Figures 47 through 58.

**Figure 47: Holland Landing Well No. 1
Daily Instantaneous Peak Flow 2010**



**Figure 48: Holland Landing Well No. 2
Daily Instantaneous Peak Flow 2010**



**Figure 49: Newmarket Well No. 1
Daily Instantaneous Peak Flow 2010**

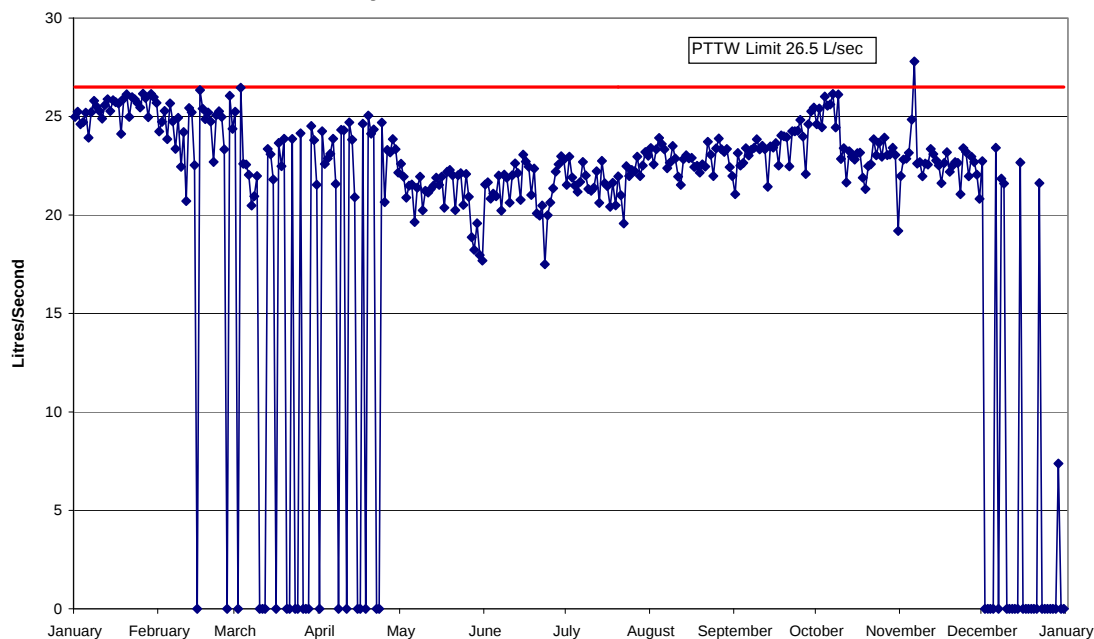
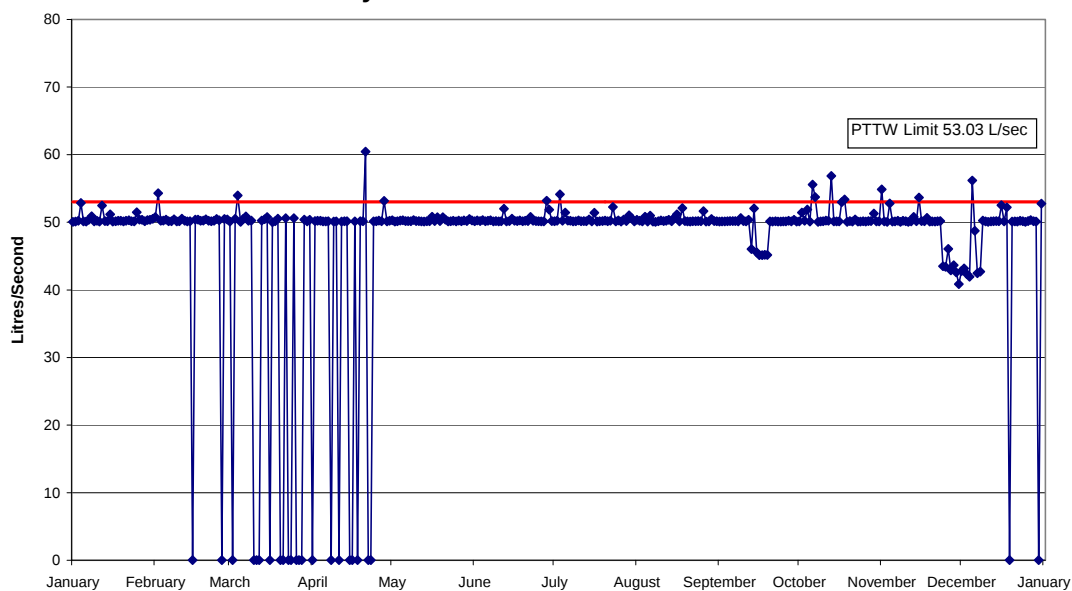


Figure 49 and 50 shows instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure or a change in the distribution system pressure.

**Figure 50: Newmarket Well No. 2
Daily Instantaneous Peak Flow 2010**



**Figure 51: Newmarket Well No. 13
Daily Instantaneous Peak Flow 2010**

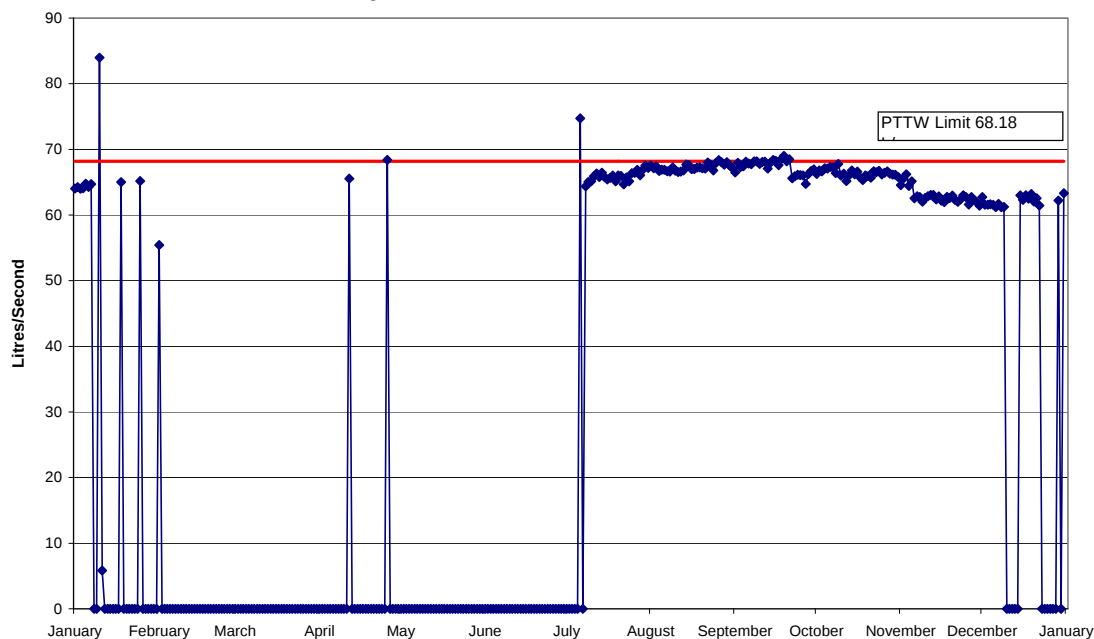
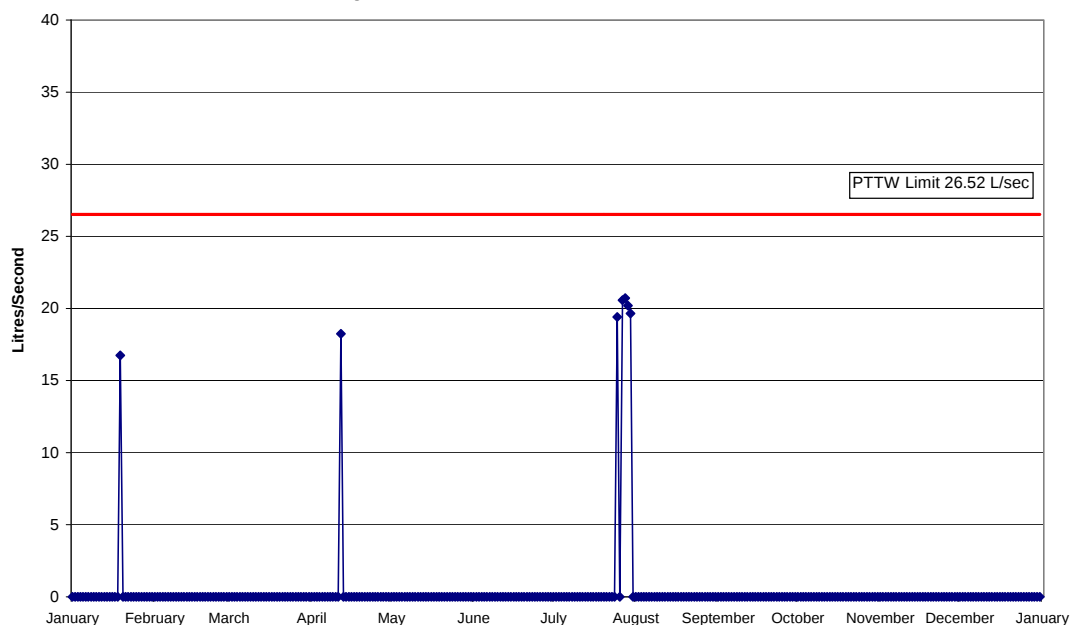
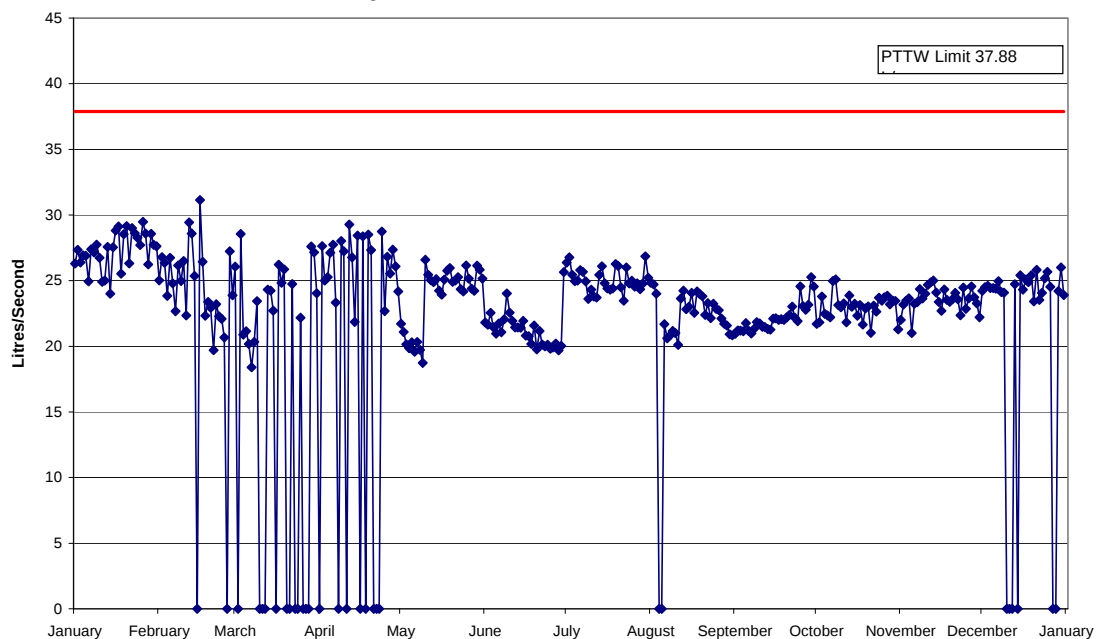


Figure 51 shows instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure or a change in the distribution system pressure.

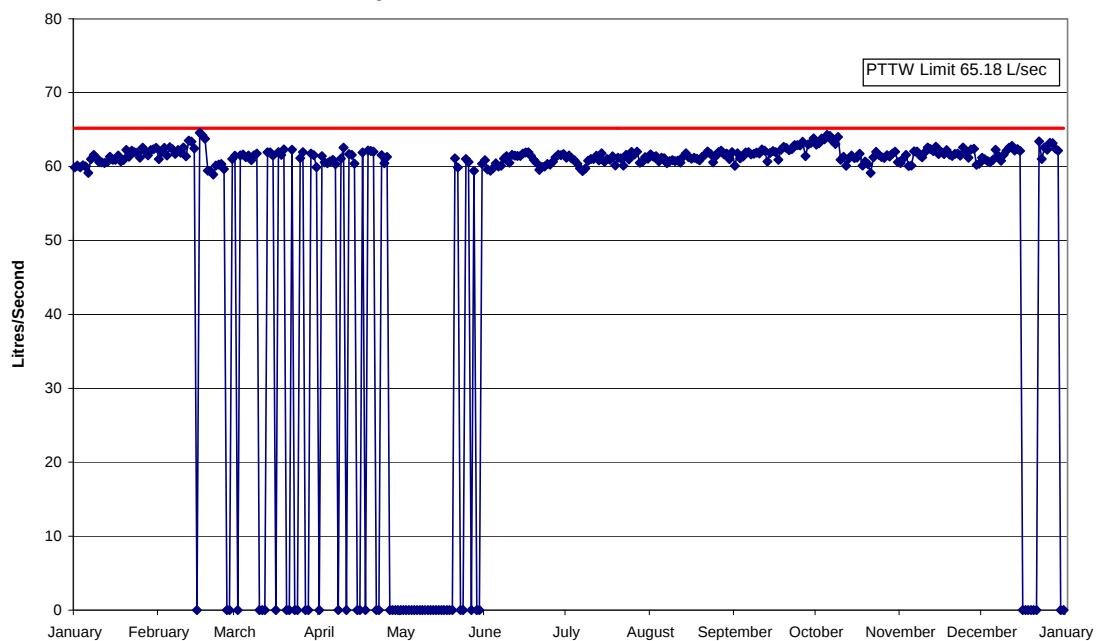
**Figure 52: Newmarket Well No. 14
Daily Instantaneous Peak Flow 2010**



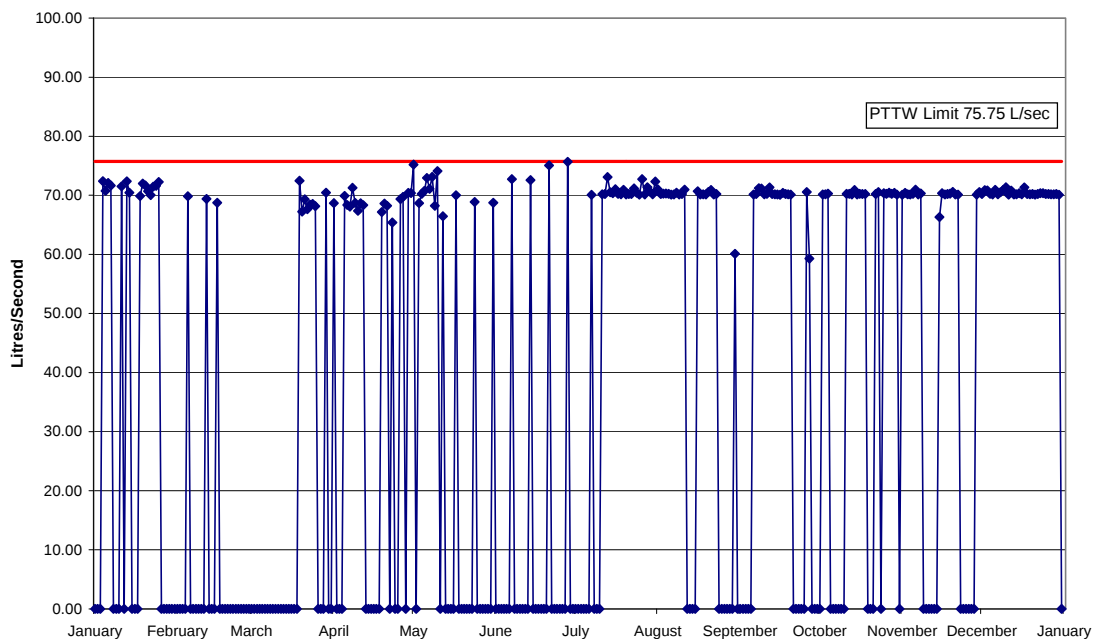
**Figure 53: Newmarket Well No. 15
Daily Instantaneous Peak Flow 2010**



**Figure 54: Newmarket Well No. 16
Daily Instantaneous Peak Flow 2010**



**Figure 55: Queensville Well No. 1
Daily Instantaneous Peak Flow 2010**



**Figure 56: Queensville Well No. 2
Daily Instantaneous Peak Flow 2010**

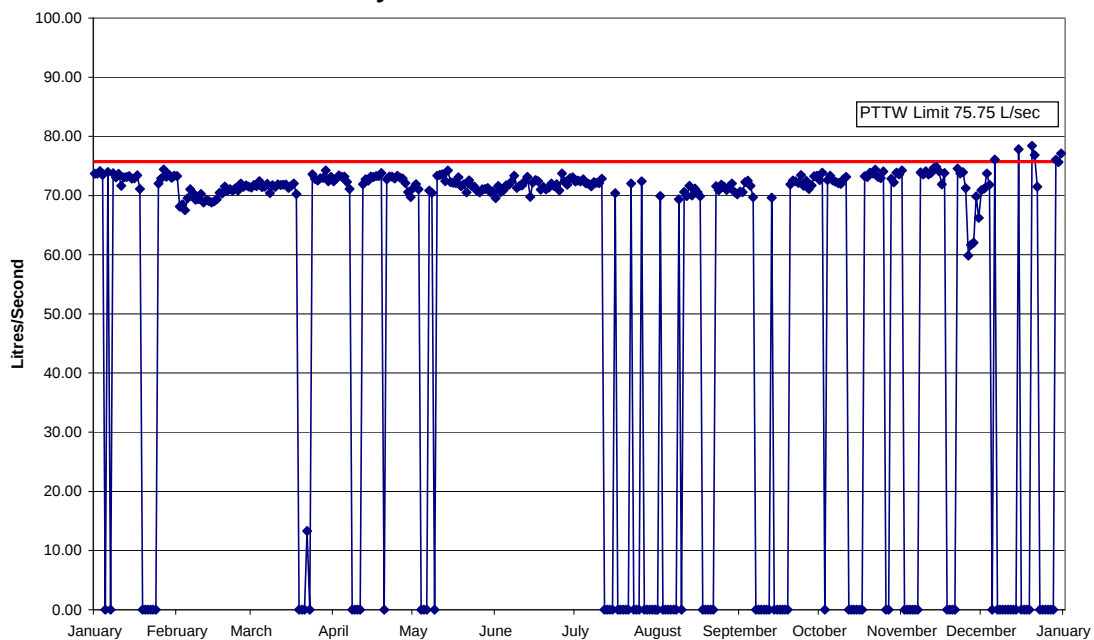
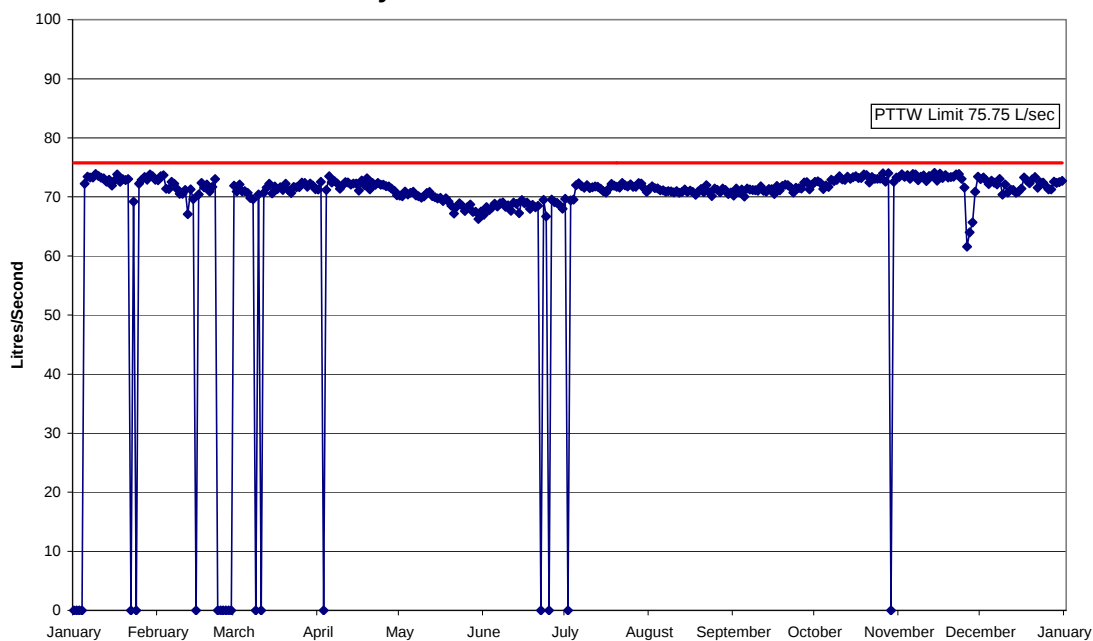


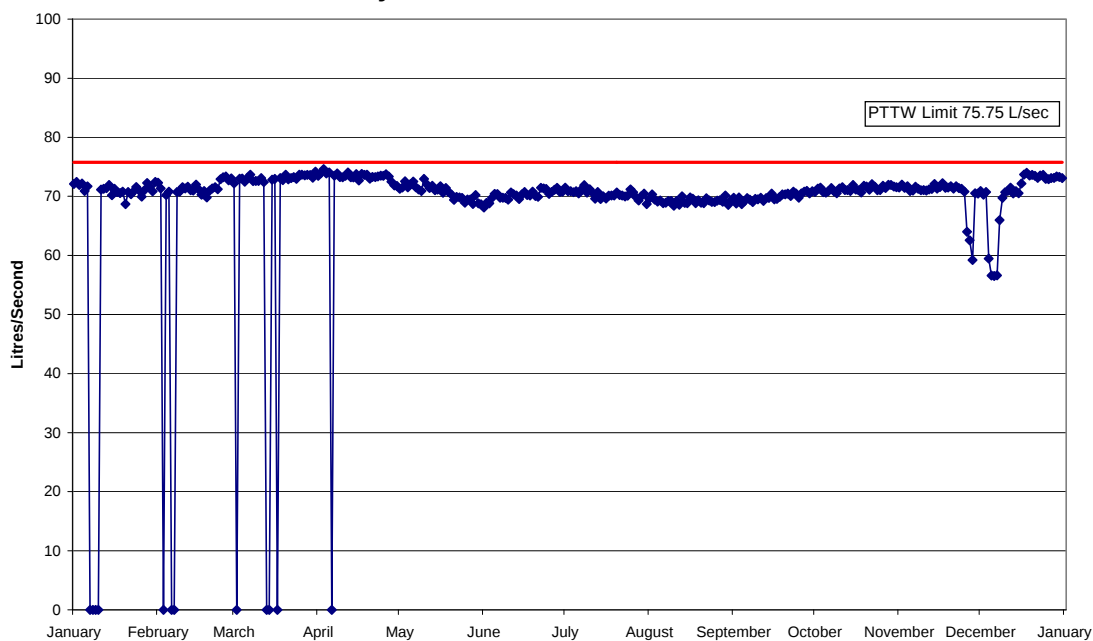
Figure 56 shows instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of

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 57: Queensville Well No. 3
Daily Instantaneous Peak Flow 2010**



**Figure 58: Queensville Well No. 4
Daily Instantaneous Peak Flow 2010**



2.10 Nobleton

York Region operates a water supply system to service the community of Nobleton, in the Township of King, under authority of a Municipal Drinking Water License (MDWL) and Drinking Water Works Permit (DWWP) issued by the Ontario Ministry of the Environment (MOE). The MDWL includes reference to the valid Permit to Take Water (PTTW) also issued by the MOE. Details of these approvals and other relevant classification information are presented in Table 28.

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

Municipal Drinking Water License Number:	013-105
Issue Number:	Issue 1
Issue Date:	January 29, 2010
Expiry Date:	January 28, 2015
Drinking Water Works Permit Number:	013-205
Issue Date:	January 29, 2010
Permit to Take Water Number:	6270-7U5PBL
Issue Date:	July 22, 2009
Expiry Date:	June 30, 2019
Operational Plan Number:	013-405
Financial Plan Number:	013-301A
MOE Waterworks Number:	220002306
System Classification:	Water Distribution & Supply (WDS II)

2.10.1 Water Taking

The PTTW for the Nobleton Water Supply System allows York Region to withdraw up to 1,964,000 litres per day from production well 2, in addition to 2,496,000 litres per day from production well 3, and 2,496,000 litres from production well 4. Production well 4 is currently not in service. It is anticipated to be operational in 2011, pending the design and construction of the treatment infrastructure for the new well.

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 MDWL.

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.
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 maximum daily withdrawal, monthly average flow, maximum daily flow, and instantaneous peak flow rate tables and figures.

2.10.3 Water Withdrawal

The total volume of water taken from the production wells of the Nobleton Water Supply System for January 1 – December 31, 2010 was 338,704,657 litres or 927,958 litres per day on average.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 29. Peak pumping days represent the number of days where the wells pump at or above 80% of the maximum permitted daily withdrawal.

TABLE 29: Permitted and Actual Maximum Daily Withdrawal from the Nobleton Production Wells for January 1 – December 31, 2010

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Peak Pumping Days (% of the year)
Well 2	1,964,000	1,729,438 – May 25, 2010	0.8%
Well 3	2,496,000	1,137,626 – March 5, 2010	0%
Well 4	2,496,000	not yet commissioned	-

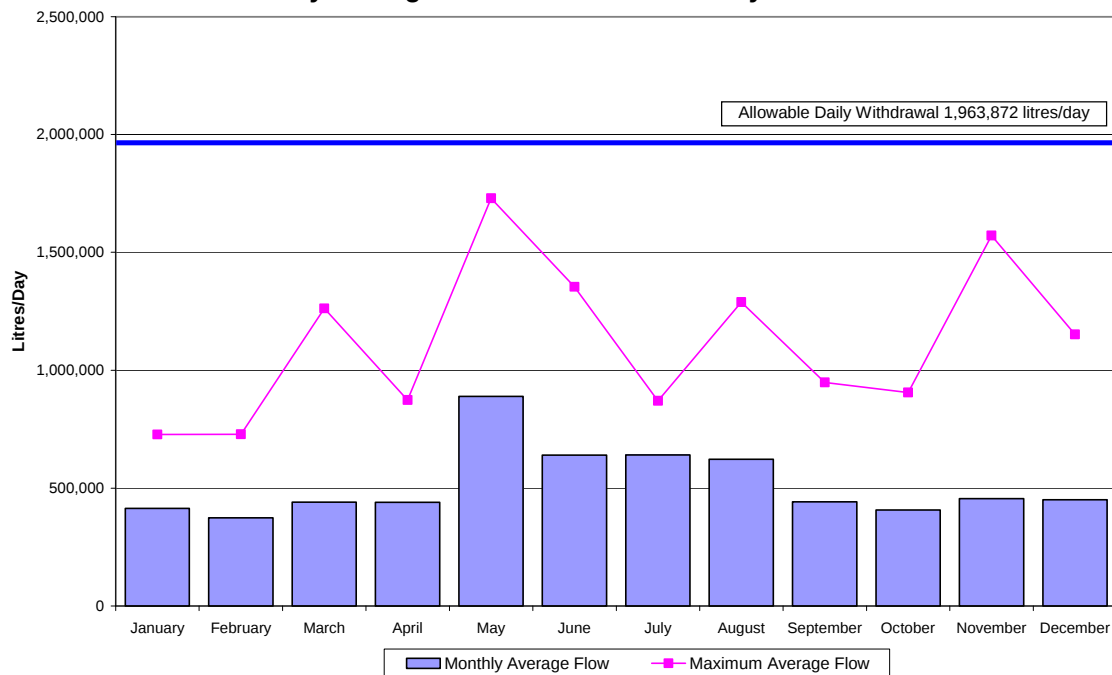
The maximum permitted water withdrawal and the actual annual withdrawal recorded daily water taking are presented in Table 30.

TABLE 30: Permitted and Actual Maximum Annual Withdrawal from the Nobleton Production Wells for January 1 – December 31, 2010

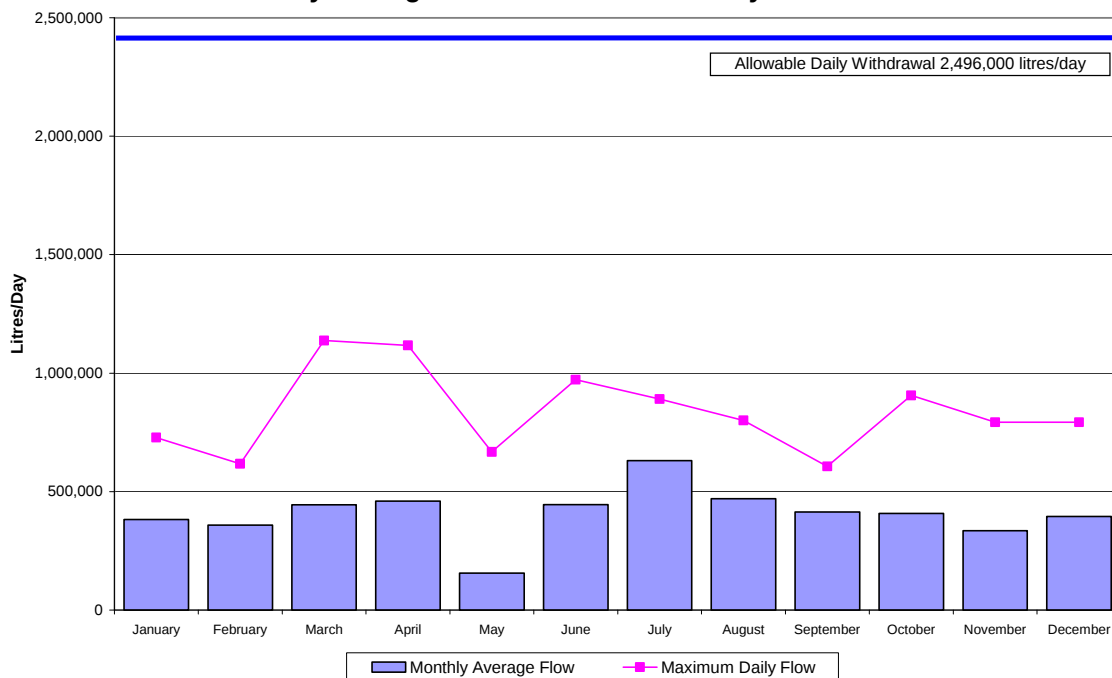
Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Annual Withdrawal
1,627,900,100	338,704,657	20.8%

The monthly average flow rates, maximum daily flow, and the permitted daily withdrawal are presented in Figures 59 and 60.

**Figure 59: Nobleton Well No. 2
Monthly Average Flow and Maximum Daily Flow 2010**



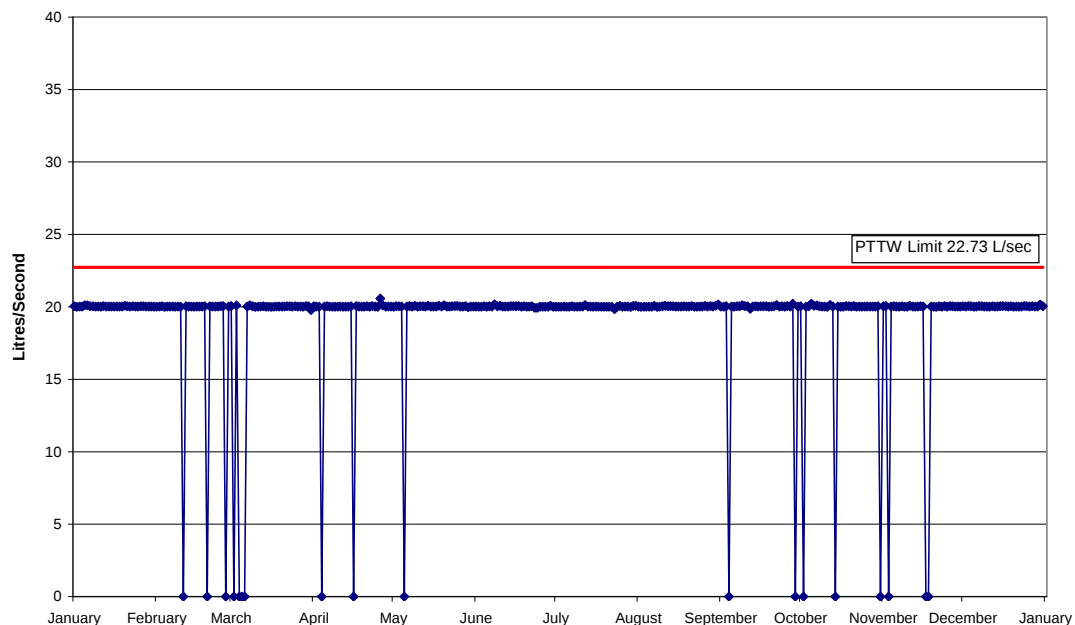
**Figure 60: Nobleton Well No. 3
Monthly Average Flow and Maximum Daily Flow 2010**



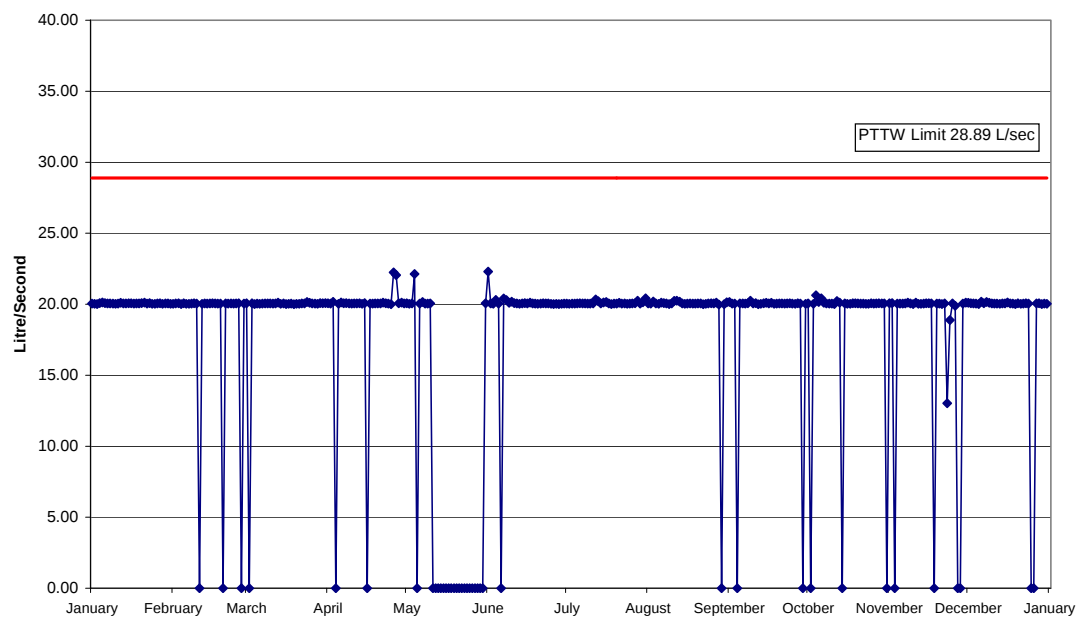
The withdrawal rates from the Nobleton production wells did not exceed the permitted limits during January 1 – December 31, 2010.

The 'Daily Instantaneous Peak Flow (litres)' for January 1- December 31, 2010 are presented in Figures 61 and 62.

**Figure 61: Nobleton Well No. 2
Daily Instantaneous Peak Flow 2010**



**Figure 62: Nobleton Well No. 3
Daily Instantaneous Peak Flow 2010**



2.11 Schomberg

York Region operates a water supply system to service the community of Schomberg, in the Township of King, under authority of a Municipal Drinking Water License (MDWL) and Drinking Water Works Permit (DWWP) issued by the Ontario Ministry of the Environment (MOE). The MDWL includes reference to the valid Permit to Take Water (PTTW) also issued by the MOE. Details of these approvals and other relevant classification information are presented in Table 31.

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

Municipal Drinking Water License Number:	013-110
Issue Number:	Issue 1
Issue Date:	January 29, 2010
Expiry Date:	January 28, 2015
Drinking Water Works Permit Number:	013-210
Issue Date:	January 29, 2010
Permit to Take Water Number:	0706-7E8T5G
Issue Date:	June 3, 2008
Expiry Date:	April 30, 2018
Operational Plan Number:	013-410
Financial Plan Number:	013-301A
MOE Waterworks Number:	220004901
System Classification:	Water Treatment (WT II)

2.11.1 Water Taking

The PTTW for the Schomberg Water Supply System allows York Region to withdraw up to 1,636,560 litres per day from production well 2, in addition to 2,290,000 litres per day from production well 3, and 1,507,507,680 litres per day from production well 4. All three wells are combined and treated through the newly constructed Schomberg Water Treatment Plant with a maximum combined total permitted withdrawal of 5,434,240 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 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 MDWL.

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.
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 maximum daily withdrawal, monthly average flow, maximum daily flow, and instantaneous peak flow rate tables and 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, 2010 was 254,434,527 or 697,080 litres per day on average.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 32. Peak pumping days represent the number of days where the wells pump at or above 80% of the maximum permitted daily withdrawal.

TABLE 32: Permitted and Actual Maximum Daily Withdrawal from the Schomberg Production Wells for January 1 – December 31, 2010

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Peak Pumping Days (% of the year)
Well 2	1,636,560	960,938 – February 9, 2010	0%
Well 3	2,290,000	1,068,563 – December 8, 2010	0%
Well 4	1,507,680	1,051,599 – January 2, 2010	0%

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 Annual Withdrawal from the Schomberg Production Wells for January 1 – December 31, 2010

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Annual Withdrawal
1,983,497,600	254,434,527	12.8%

The monthly average flow rates, maximum daily flow, and the permitted daily withdrawal are presented in Figures 63 through 65.

Figure 63: Schomberg Well No. 2
Monthly Average Flow and Maximum Daily Flow 2010

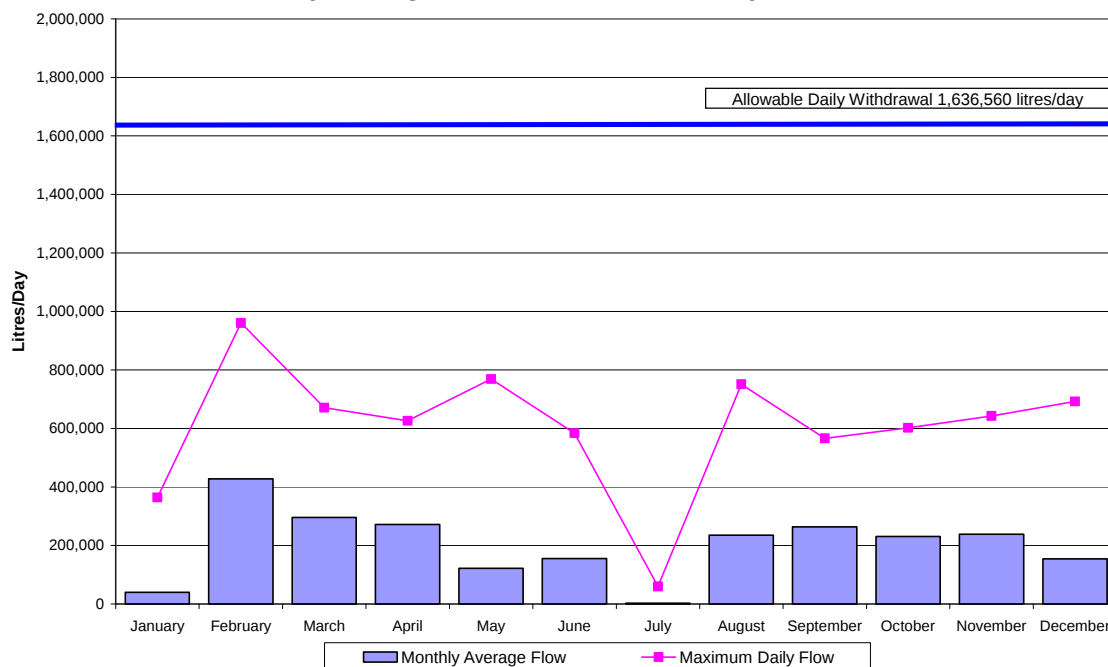


Figure 63 shows a reduced monthly average flow recorded for the month of January and December 2010. This reduction in flow was mainly due to scheduled and or unscheduled maintenance conducted on the well to improve the overall operation of the water system.

Figure 64: Schomberg Well No. 3
Monthly Average Flow and Average Daily Flow 2010

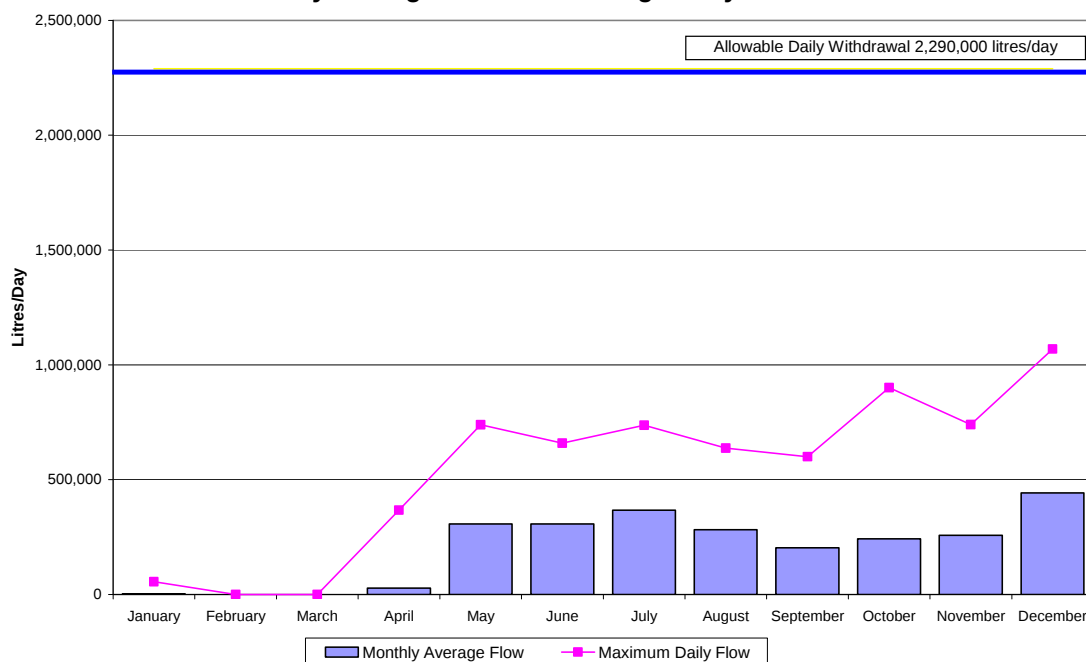
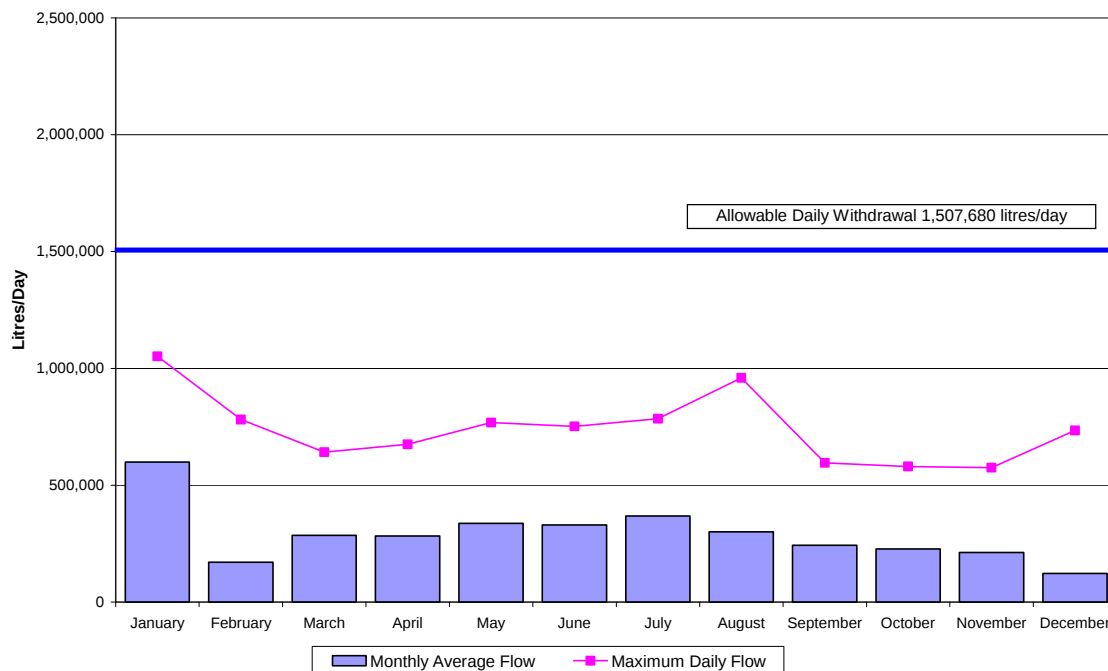


Figure 64 shows a reduced monthly average flow recorded for the month of January, February, March and April 2010. This reduction in flow was mainly due to scheduled and or unscheduled maintenance conducted on the well to improve the overall operation of the water system.

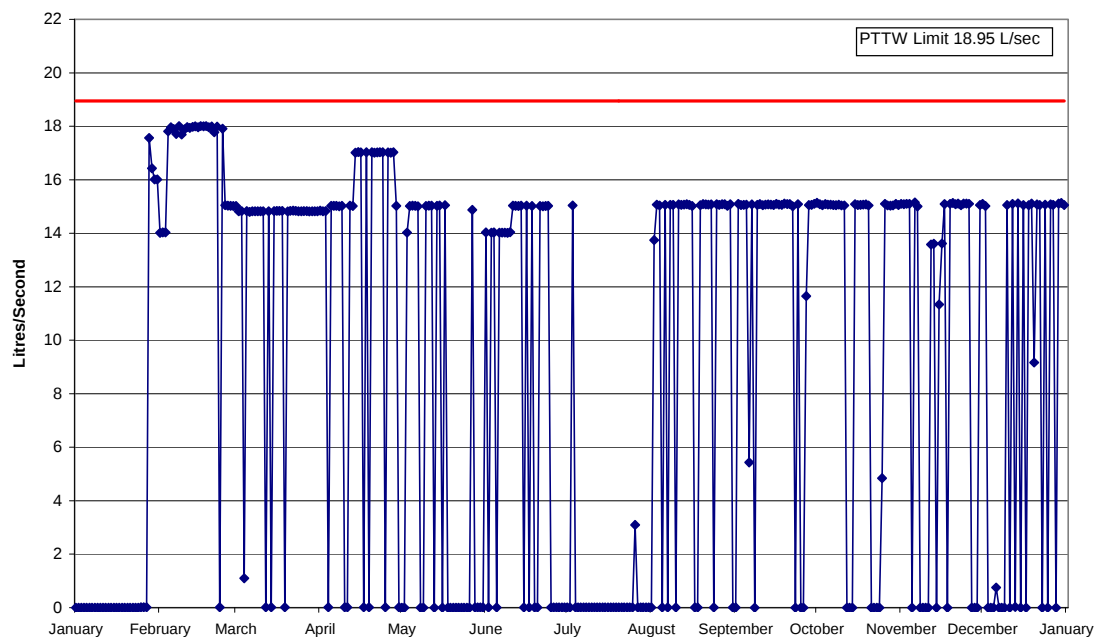
**Figure 65: Schomberg Well No. 4
Monthly Average Flow and Average Daily Flow 2010**



The actual volumes of water taken from the Schomberg production wells in the period of January 1 – December 31, 2010 did not exceed the permitted daily withdrawal volumes.

The ‘*Daily Instantaneous Peak Flow (litres)*’ for January 1- December 31, 2010 are presented in Figures 66 through 68.

**Figure 66: Schomberg Well No. 2
Daily Instantaneous Peak Flow 2010**



**Figure 67: Schomberg Well No. 3
Daily Instantaneous Peak Flow 2010**

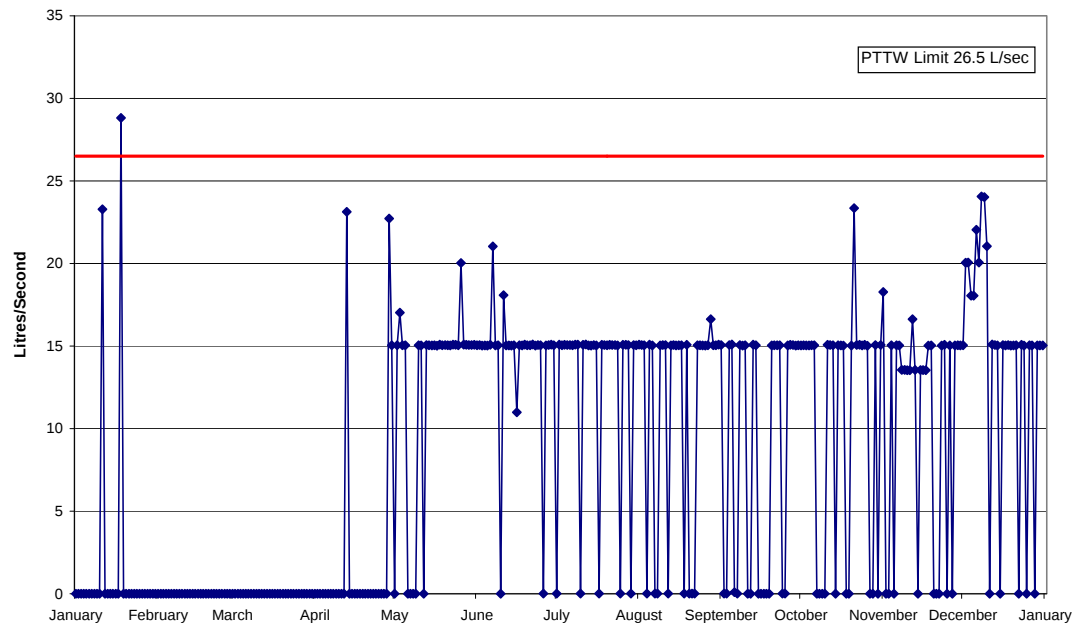
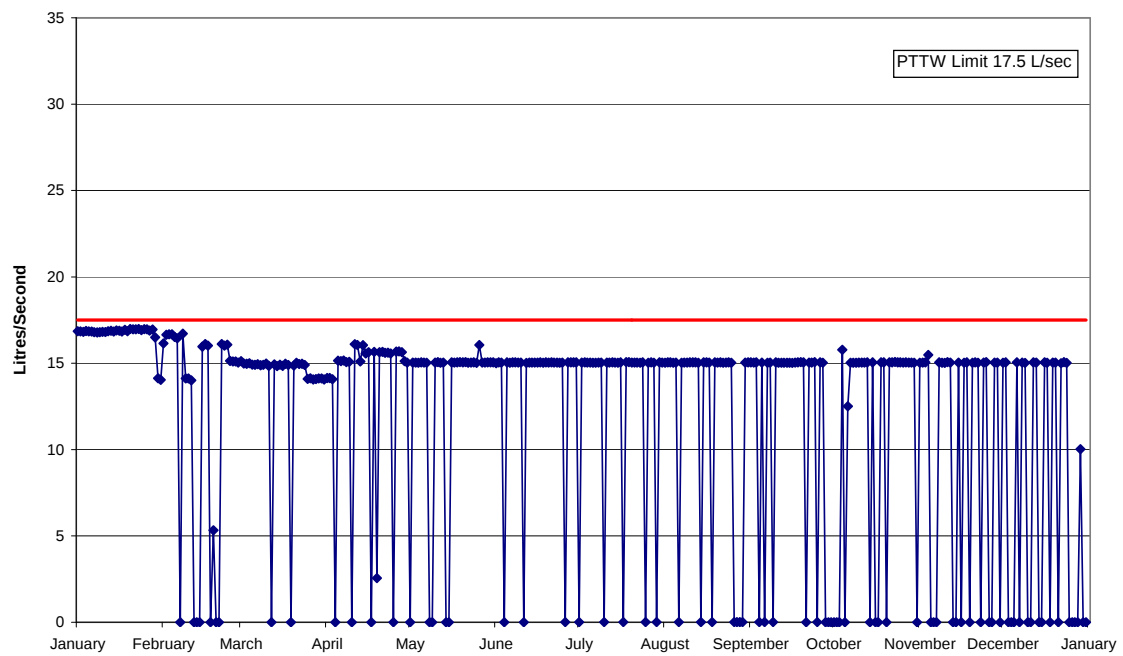


Figure 67 shows instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure or a change in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

**Figure 68: Schomberg Well No. 4
Daily Instantaneous Peak Flow 2010**



2.12 Stouffville

York Region operates a water supply system to service the community of Stouffville, in the Town of Whitchurch-Stouffville, under authority of a Municipal Drinking Water License (MDWL) and Drinking Water Works Permit (DWWP) issued by the Ontario Ministry of the Environment (MOE). The MDWL includes reference to the valid Permit to Take Water (PTTW) also issued by the MOE. Details of these approvals and other relevant classification information are presented in Table 34. As part of York Region's long-term water supply initiative to improve water supply and quality, the Stouffville Water Supply System is also supplemented with the City of Toronto's lake based water supply. The monthly average flow is represented in Figure 86.

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

Municipal Drinking Water License Number:	013-101
Issue Number:	Issue 1
Issue Date:	March 12, 2010
Expiry Date:	March 11, 2015
Drinking Water Works Permit Number:	013-201
Issue Date:	March 11, 2010
Permit to Take Water Number:	5722-74LPXE
Issue Date:	June 29, 2007
Expiry Date:	June 30, 2012
Operational Plan Number:	013-401
Financial Plan Number:	013-301A
MOE Waterworks Number:	220002333
System Classification:	Water Distribution & Supply III (WD III) Water Treatment I (WTI)

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 MDWL.

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.
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 maximum daily withdrawal, monthly average flow, maximum daily flow, and instantaneous peak flow rate tables and 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, 2010 was 1,436,125,626 litres or 3,934,591 litres per day on average.

The maximum permitted daily water taking and the actual maximum recorded daily water taking are presented in Table 35. Peak pumping days represent the number of days where the wells pump at or above 80% of the maximum permitted daily withdrawal.

TABLE 35: Permitted and Actual Maximum Daily Withdrawal from the Stouffville Production Wells for January 1 – December 31, 2010

Location	Permitted Daily Withdrawal (Litres)	Actual Maximum Daily Withdrawal (Litres)	Peak Pumping Days (% of the year)
Well 1	2,946,240	1,738,500 – August 29, 2010	0%
Well 2	2,946,240	1,865,500 – May 5 2010	0%
Well 3	2,946,240	2,398,000 – January 8, 2010	0.8%
Well 5	2,289,600	1,888,000 – February 1, 2010	3.3%
Well 6	3,110,400	1,588,938 – May 21, 2010	0%

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 Annual Withdrawal from the Stouffville Production Wells for January 1 – December 31, 2010

Annual Permitted Withdrawal (Litres)	Actual Annual Withdrawal (Litres)	Percentage of Permitted Annual Withdrawal
5,197,132,800	1,436,125,626	27.6%

The monthly average flow rates, maximum daily flow, and the permitted daily withdrawal are presented in Figures 69 through 73.

Figure 69: Stouffville Well No. 1
Monthly Average Flow and Maximum Daily Flow 2010

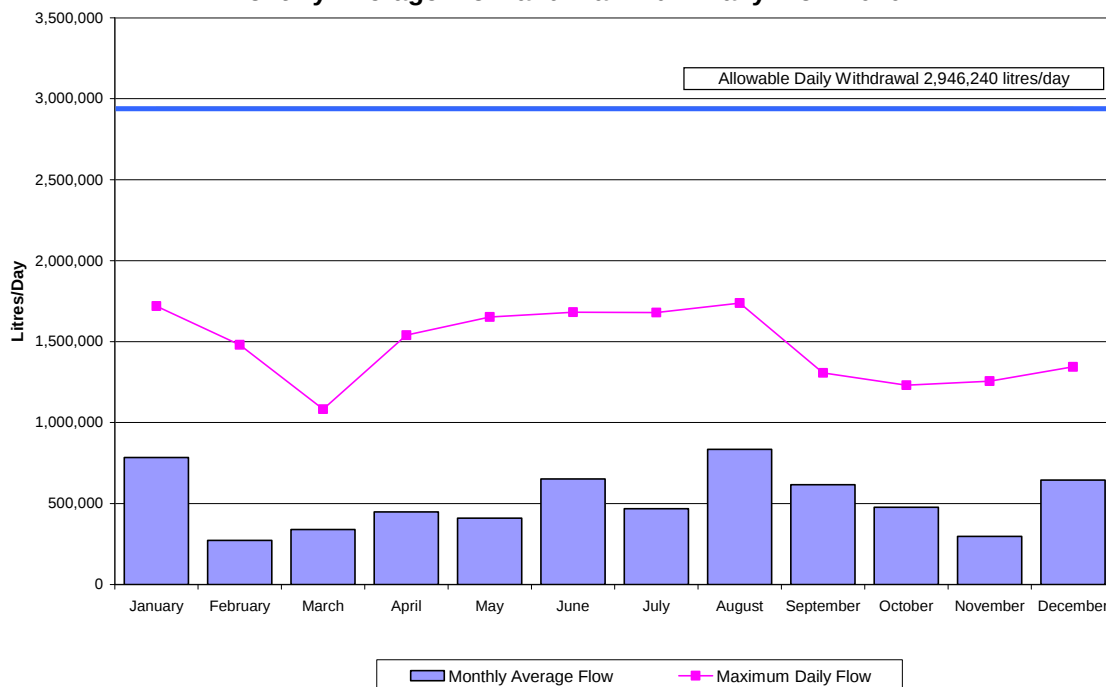
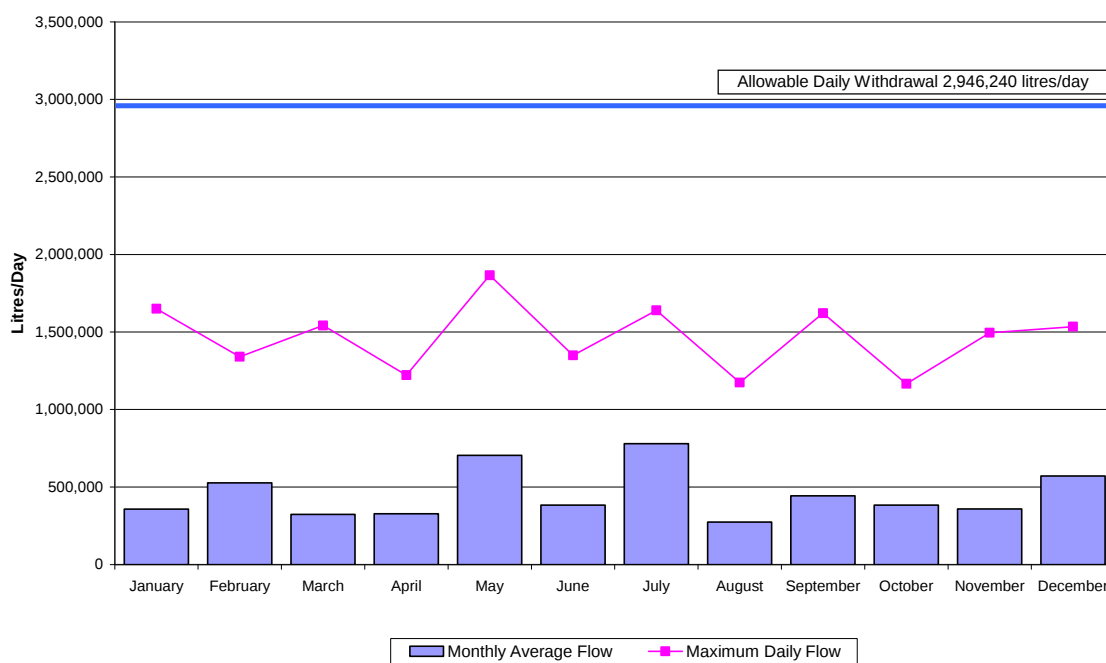


Figure 70: Stouffville Well No. 2
Monthly Average Flow and Maximum Daily Flow 2010



**Figure 71: Stouffville Well No. 3
Monthly Average Flow and Maximum Daily Flow 2010**

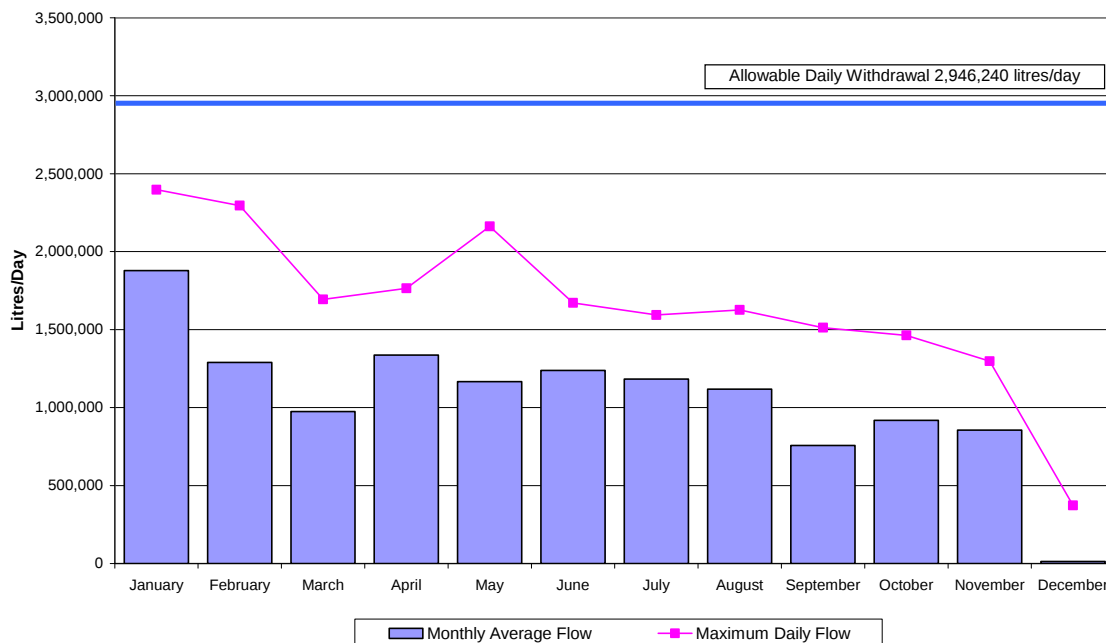
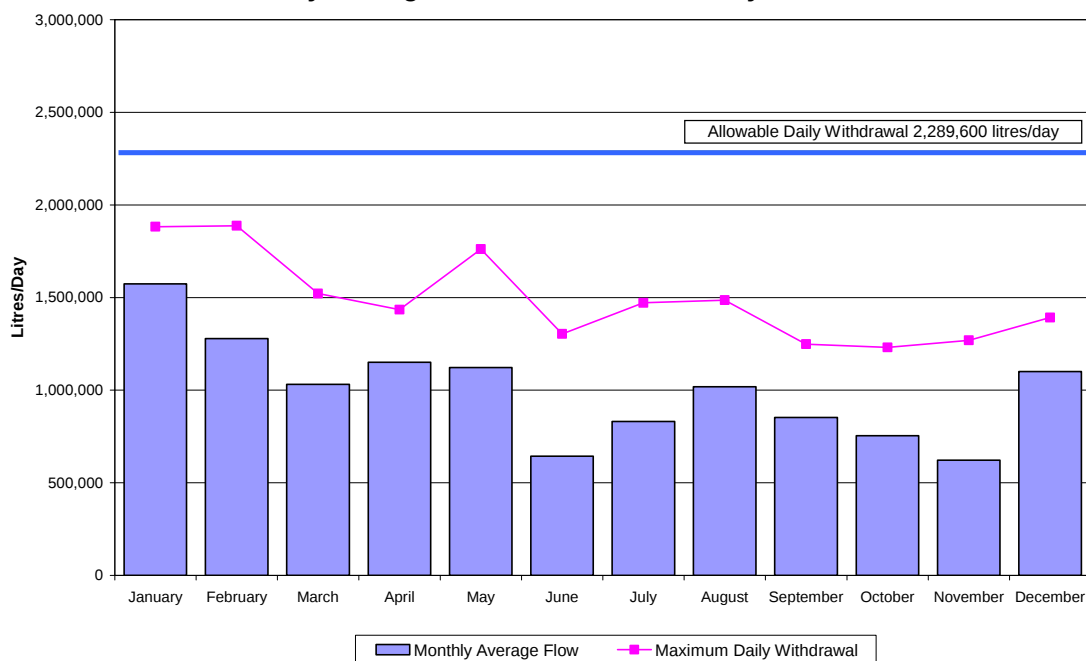
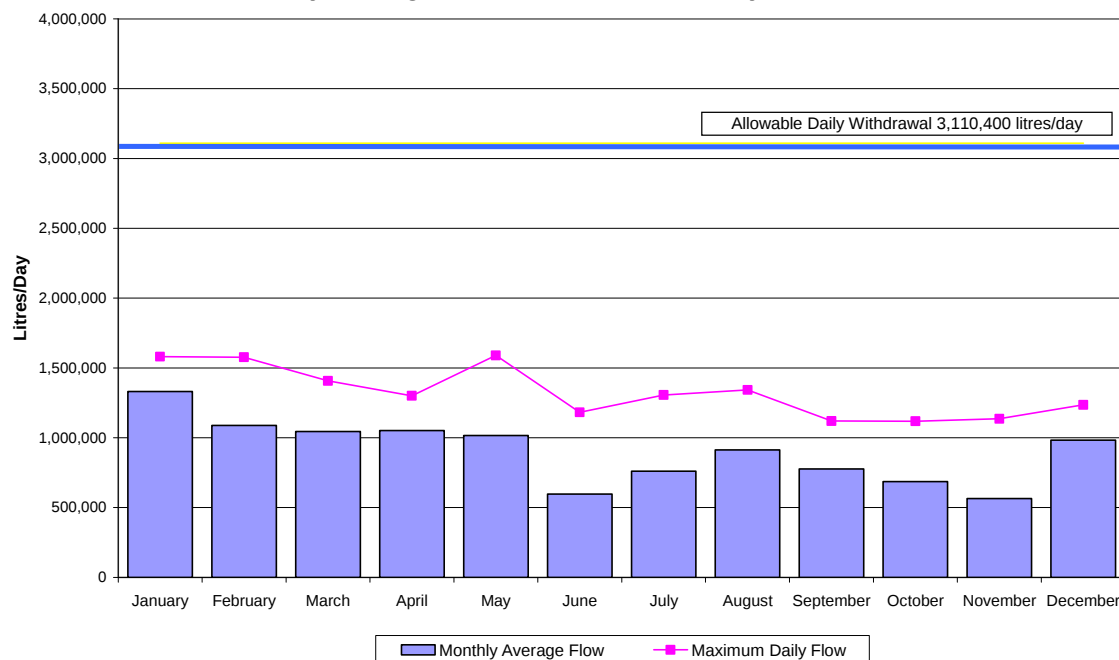


Figure 71 shows a reduced monthly average flow recorded for the month of December 2010. This reduction in flow was mainly due to scheduled and or unscheduled maintenance conducted on the well to improve the overall operation of the water system.

**Figure 72: Stouffville Well No. 5
Monthly Average Flow and Maximum Daily Flow 2010**



**Figure 73: Stouffville Well No. 6
Monthly Average Flow and Maximum Daily Flow 2010**



The actual volumes of water taken from the Stouffville production wells for January 1 – December 31, 2010 did not exceed the permitted daily withdrawal volumes.

The ‘*Daily Instantaneous Peak Flow (litres)*’ for January 1- December 31, 2010 are presented in Figures 74 through 78.

**Figure 74: Stouffville Well No. 1
Daily Instantaneous Peak Flow 2010**

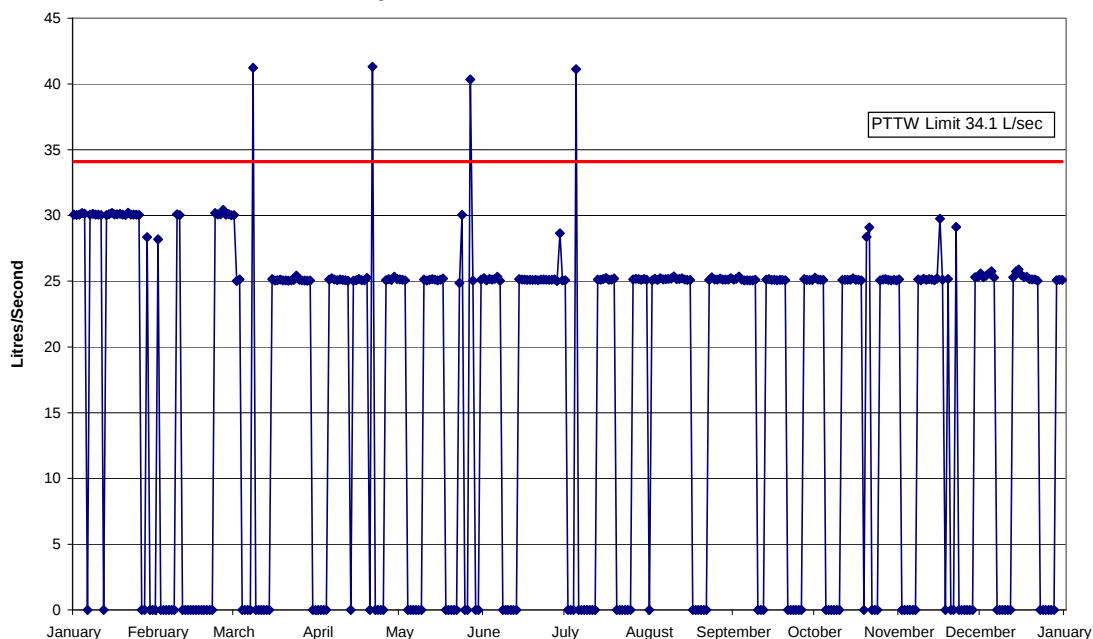


Figure 74 shows instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure or a change in the distribution system pressure.

**Figure 75: Stouffville Well No. 2
Daily Instantaneous Peak Flow 2010**

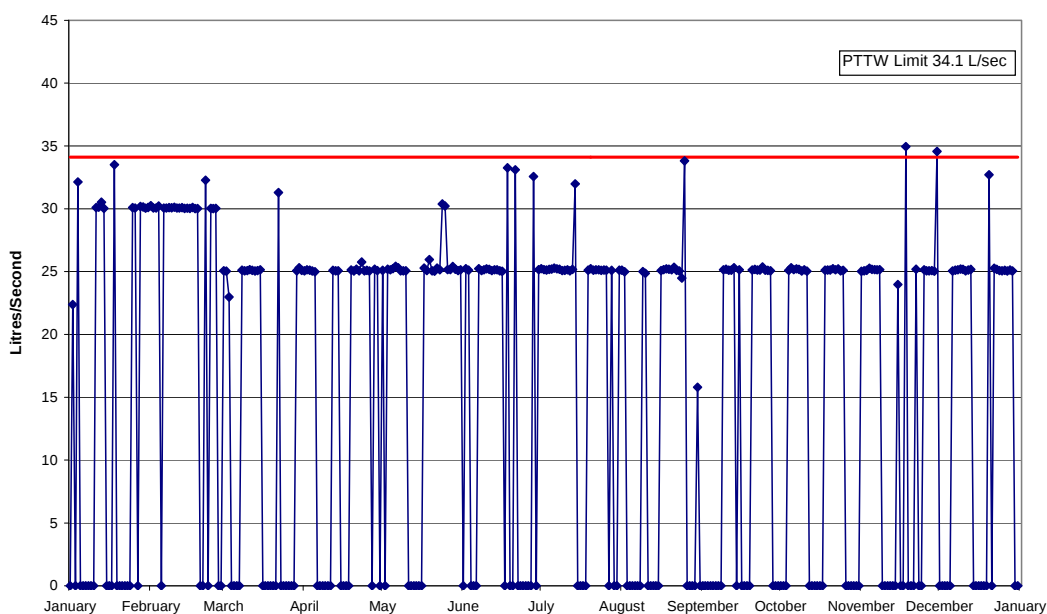
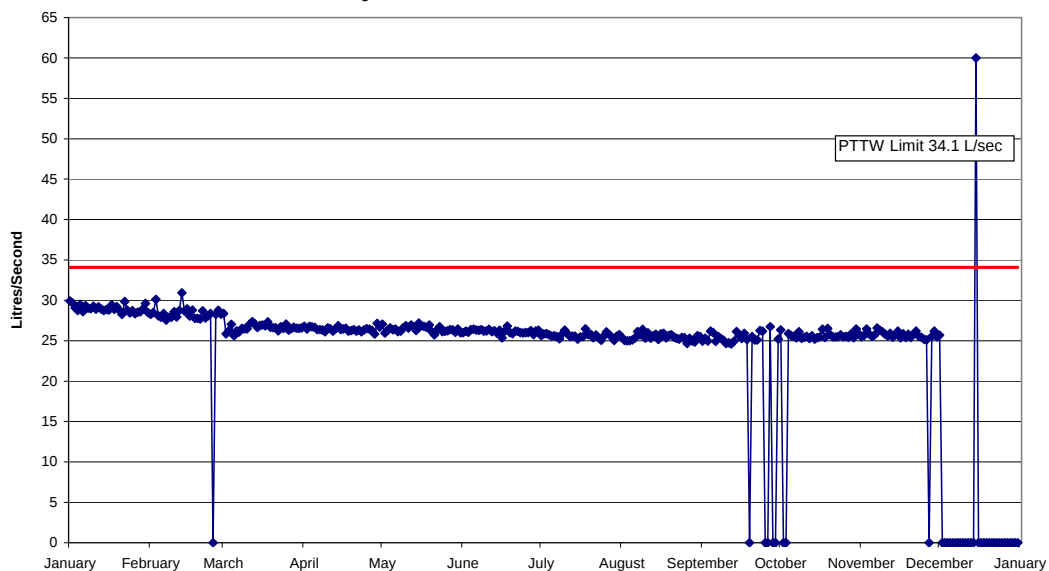
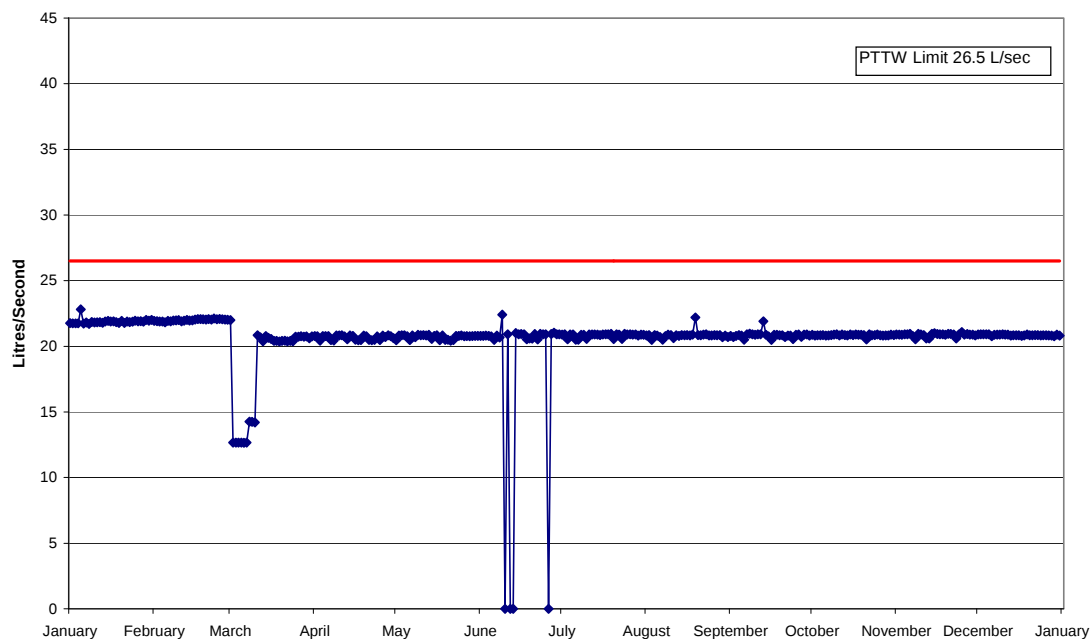


Figure 75 and 76 shows instantaneous peak flow rates recorded over the PTTW limit. All peaks were less than 5 minutes in duration and represent less than 1% of the total volume of water taken for the day. These peaks are associated with the initial start up of a pump by removing back pressure or a change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

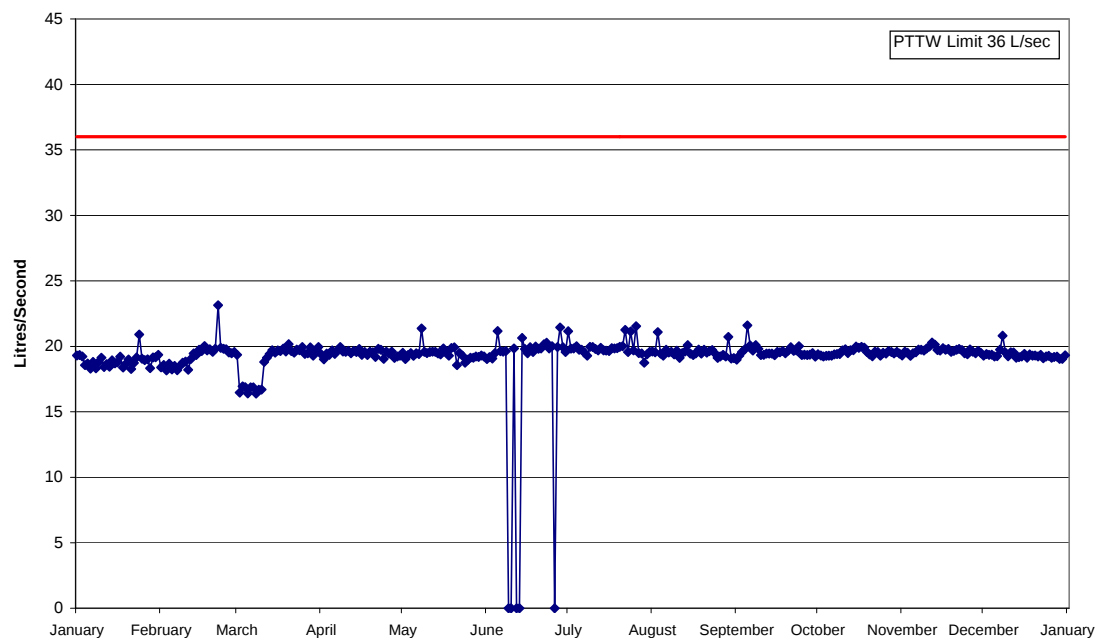
**Figure 76: Stouffville Well No. 3
Daily Instantaneous Peak Flow 2010**



**Figure 77: Stouffville Well No. 5
Daily Instantaneous Peak Flow 2010**



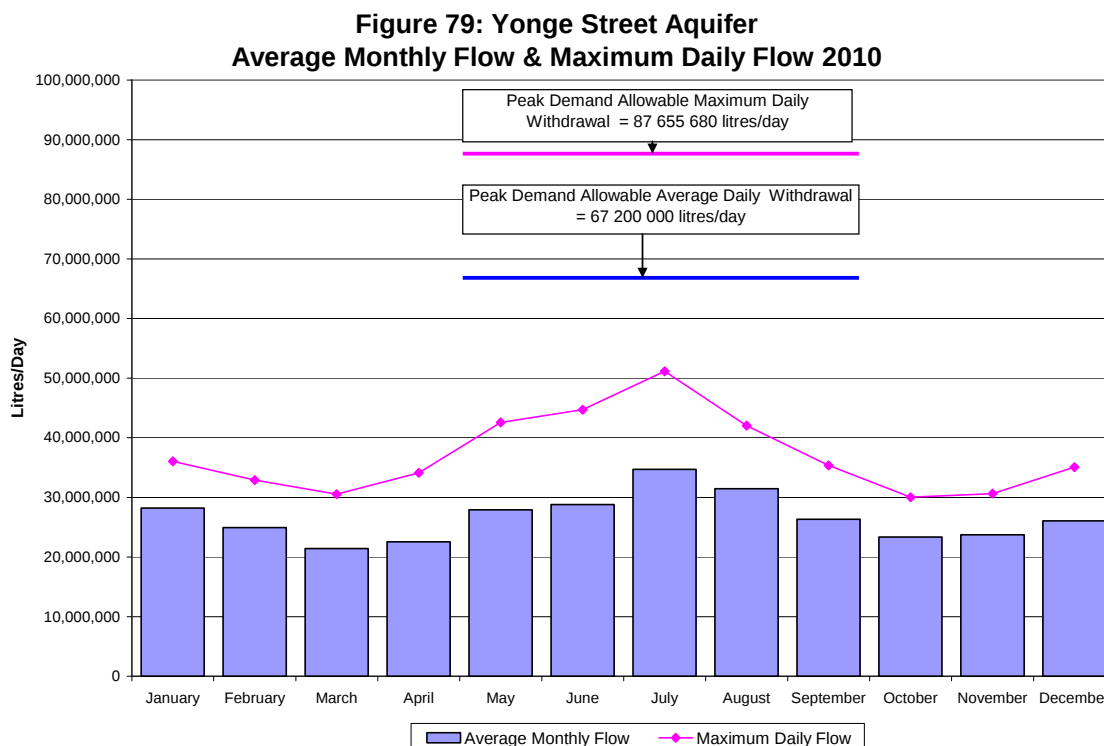
**Figure 78: Stouffville Well No. 6
Daily Instantaneous Peak Flow 2010**



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 18 wells in total that obtain water from the Yonge Street Aquifer, which are captured under PTTW 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 cumulative impact of our water taking on the Yonge Street Aquifer, Figure 79 is provided below.



The total volume of water taken from the Yonge Street Aquifer from January 1 – December 31, 2010 was 9,725,562,094 litres or 26,645,376 litres per day on average.

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 2010, the recorded average daily water taking was 29,866,873 litres per day with a maximum withdrawal of 51,123,266, which is 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 2010, the recorded annual average daily water taking was 26,645,376 litres per day, which is 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, 2010

Location	Permitted Maximum Daily Withdrawal May – September (Litres)	Actual Maximum Daily Withdrawal May – September (Litres)	Percentage of Permitted Maximum Daily Withdrawal During Peak Day
YSA	87,656,000	51,123,266 – July 8, 2010	58.3%

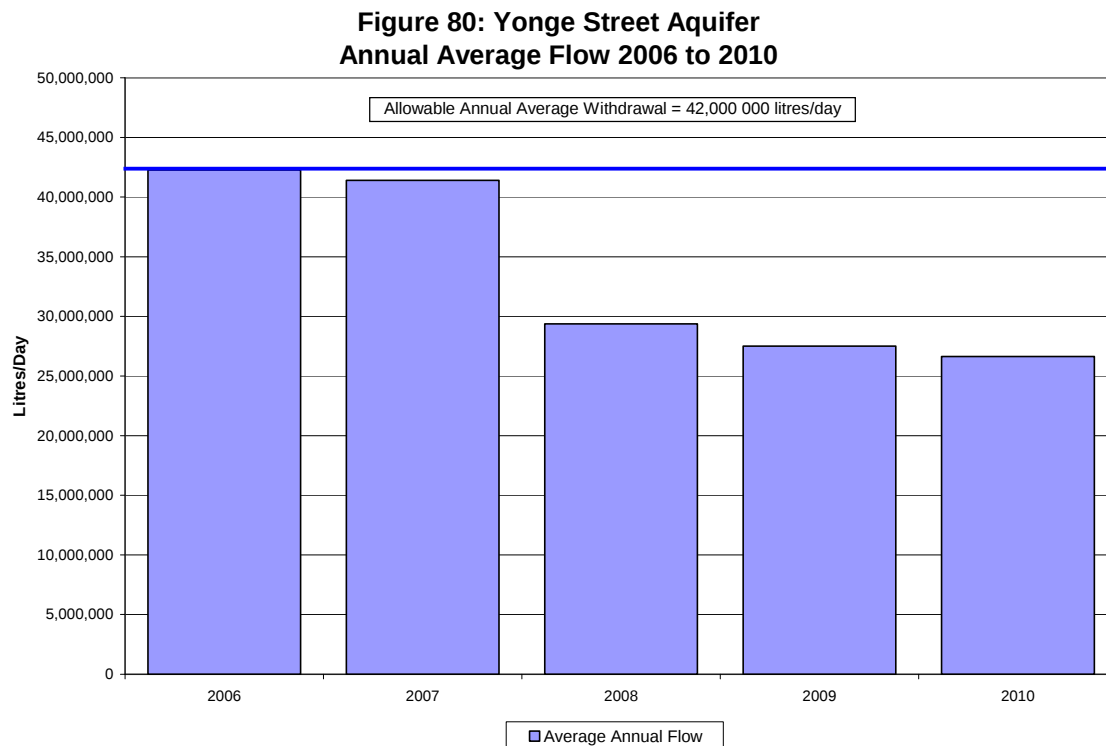
TABLE 38: Permitted and Actual Peak Demand Average Daily Withdrawal from the Yonge Street Aquifer for May 1 – September 30, 2010

Location	Permitted Average Daily Withdrawal May – September (Litres)	Actual Average Daily Withdrawal May – September (Litres)	Percentage of Permitted Average Daily Withdrawal During Peak
YSA	67,200,000	29,866,873	44.4%

TABLE 39: Permitted and Actual Annual Average Daily Withdrawal from the Yonge Street Aquifer for January 1 – December 31, 2010

Location	Permitted Annual Average Daily Withdrawal (Litres)	Actual Annual Average Daily Withdrawal (Litres)	Percentage of Permitted Annual Average Daily Withdrawal
YSA	42,000,000	26,645,376	63.4%

The annual average daily withdrawal from the Yonge Street Aquifer from 2006 to 2010 is presented in Figure 80.



York Region's long-term water supply strategy includes securing additional capacity to meet current and future growth in the Yonge Street Aquifer serviced area. Beginning in 2008, York Region began supplementing the groundwater supply in Aurora with water purchased from the City of Toronto and the Region of Peel. Figure 80 shows the decline in the amount of water withdrawn from the Young Street Aquifer with the introduction of surface water in 2008.

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, Newmarket, East Gwillimbury and Stouffville, under authority of a Municipal Drinking Water License (MDWL) and Drinking Water Works Permit (DWWP) issued by the Ontario Ministry of the Environment (MOE). 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 the Region of Peel to the noted area municipalities. As such, it does not have a requirement for a PTTW. The amount of water withdrawn for the system is limited to the amount set within the agreements between York Region, Region of Peel, and the City of Toronto.

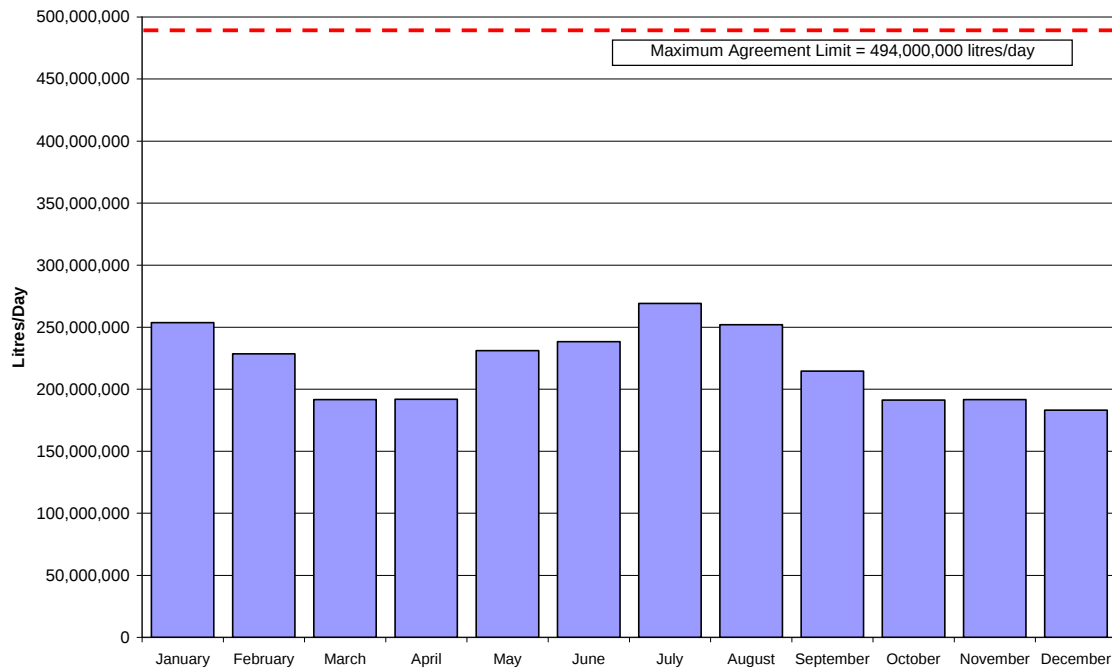
2.14.1 Toronto Water Supplied to York Region

The agreements between the City of Toronto and York Region (Toronto/York Water Supply Agreement) allows for a daily maximum of 494,000,000 litres per day or 494 megalitres per day in 2010.

The total volume of water supplied from Toronto to the York Water System for the reporting period of January 1 – December 31, 2010 was 219,721,667 litres per day. The system operated at 44.5% of the maximum withdrawal limit established in the operating agreement.

The total water supplied by Toronto to the York Water System monthly flow rates are presented in Figure 81.

Figure 81: Toronto Water Supply Daily Average Flow 2010



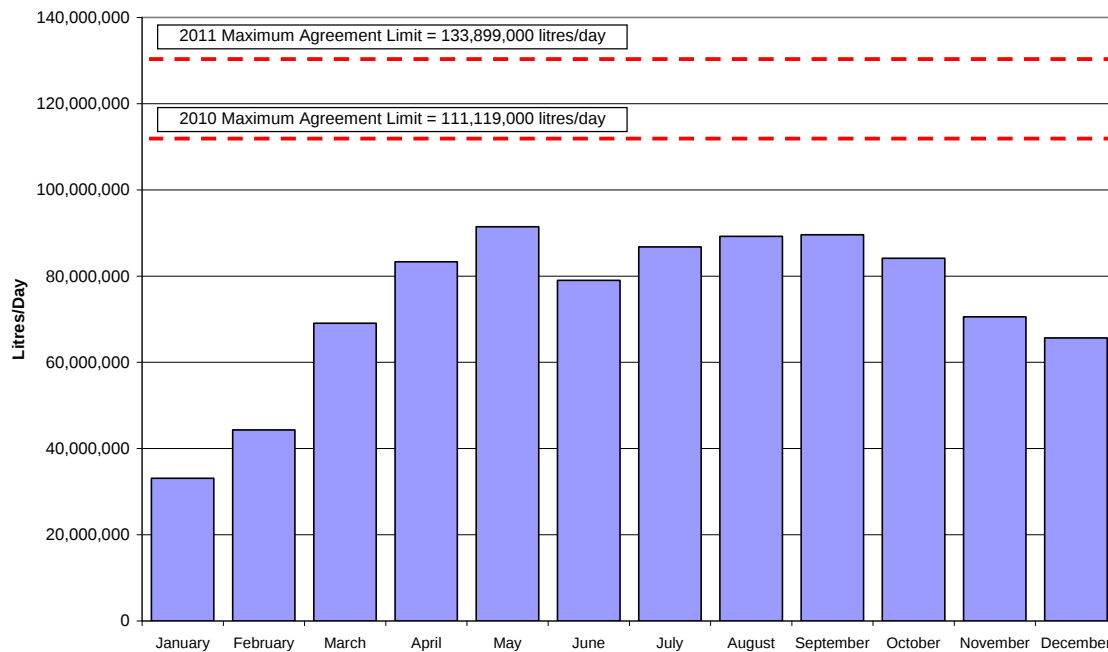
2.14.2 Peel Water Supplied to York Region

The agreement between the Region of Peel and York Region (Peel/York Water Supply Agreement) allows for the daily maximum of 111,119,000 litres per day or 111 megalitres per day in 2010.

The total volume of water supplied from Peel to the York Water System for the reporting period of January 1 – December 31, 2010 was 73,856,000 litres per day. The system operated at 66.5% of the maximum withdrawal limit established in the operating agreement.

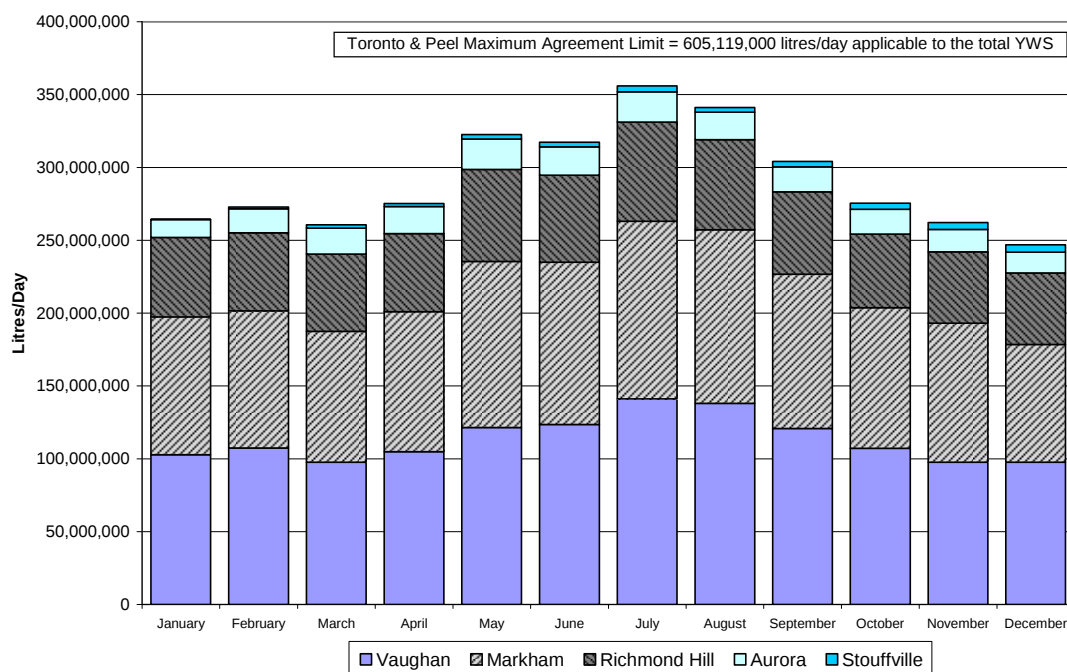
The total water supplied by Peel to the York Water System monthly flow rates are presented in Figure 82.

Figure 82: Peel Water Supply Daily Average Flow 2010



The total monthly flow rates for each municipality served by the York Water System are presented in Figures 83.

Figure 83: York Water System Monthly Average Flow 2010



The '*Daily Instantaneous Peak Flow (litres)*' for January 1- December 31, 2010 is not reported for the York Water System, considering flow is dependant on the demand and restricted only by the maximum withdrawal limit established in the agreements with the City of Toronto and Region of Peel and not a PTTW.