

### **3. WATER FLOWS**

#### **I. South Peel (Municipal Surface Water Systems)**

##### **Lakeview WTP and Lorne Park WTP**

- a. Total Monthly Volumes**
- b. Average Daily Production**
- c. Maximum Daily Raw Water Volumes and Permit to Take Water Requirements**
- d. Maximum Daily Production and ‘Municipal Drinking Water License’ and ‘Certificate of Approval’ Requirements**

#### **II. North Peel (Municipal Groundwater Waterworks, Town of Caledon)**

- a. Total Monthly Volumes**
- b. Average Daily Production**
- c. Maximum Daily Raw Water Volumes and Permit to Take Water Requirements**
- d. Maximum Daily Production ‘Municipal Drinking Water License’ and ‘Certificate of Approval Requirements’**

## LAKEVIEW WTP

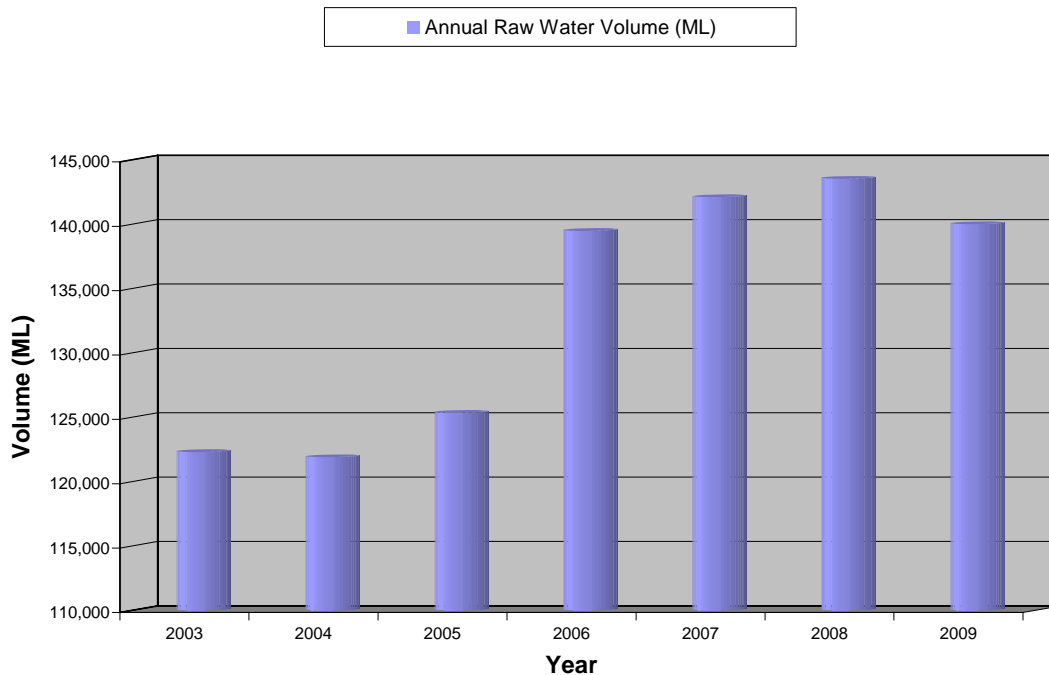
### a. Total Monthly Volumes

#### 2009 Lakeview Monthly Raw Water Volumes

Month	Volumes (ML)
Jan	12,121
Feb	10,756
March	11,163
April	11,618
May	12,310
June	13,666
July	14,059
August	13,840
Sept	12,893
Oct	9,189
Nov	9,175
Dec	9,220
<b>TOTAL</b>	<b>140,015</b>

Note: 1ML/day = 1,000,000 litres per day

#### Historical Summary – Lakeview Total Annual Raw Water Volumes

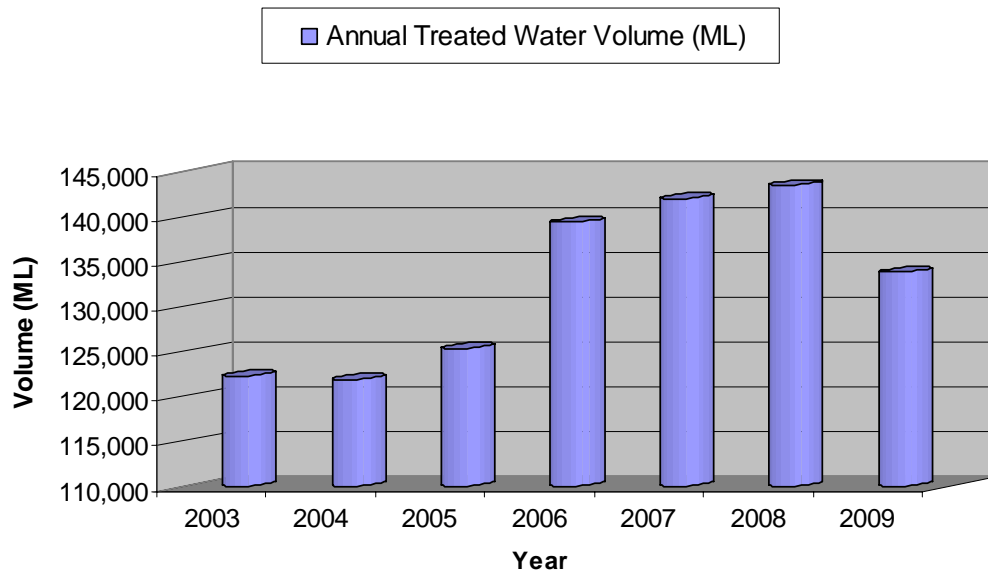


**2009 Lakeview Monthly Treated Water Volumes**

<b>Month</b>	<b>Volumes (ML)</b>
<b>Jan</b>	<b>11,226</b>
<b>Feb</b>	<b>9,821</b>
<b>March</b>	<b>10,409</b>
<b>April</b>	<b>10,891</b>
<b>May</b>	<b>12,532</b>
<b>June</b>	<b>13,476</b>
<b>July</b>	<b>13,796</b>
<b>August</b>	<b>13,352</b>
<b>Sept</b>	<b>12,213</b>
<b>Oct</b>	<b>8,773</b>
<b>Nov</b>	<b>8,777</b>
<b>Dec</b>	<b>8,623</b>
<b>TOTAL</b>	<b>133,894</b>

Note: 1ML/day = 1,000,000 litres per day

**Historical Summary - Lakeview Total Annual Treated Water Volumes**



**LAKEVIEW WATER TREATMENT PLANT RATED CAPACITY**

Flow rates were maintained below the maximum flow rates and the rated capacity identified in the Certificates of Approval and the Municipal Drinking Water License.

- **Certificate of Approval # 9979-7NKJNG (issued on January 27, 2009) was revoked and replaced by Certificate of Approval # 9487-7VWQ3T (issued October 1, 2009)**

Certificate of Approval #9979-7NKJNG (issued January 27, 2009)

Treatment System/Train/Stage	Net Production Volume m <sup>3</sup> /day
Existing Plant (Plant 1)	560,000
Proposed Plant (Plant 2)	363,000
Total Plant Flow	923,000

- **Certificate of Approval # 9487-7VWQ3T (issued October 1, 2009) was revoked and replaced by the Municipal Drinking Water License #009-101 (issued November 20, 2009)**

Certificate of Approval # 9487-7VWQ3T (issued October 1, 2009)

Treatment System/Train/Stage	Net Production Volume m <sup>3</sup> /day
Plant 1- Conventional 1-10	160,000
Plant 1- Conventional 11-26	400,000
Plant 2 - OBMI	360,000
Plant 2 - OBMI Expansion	40,000*
Total Plant Flow	960,000*

**Membrane Filtration System**

- replacement of the 504 blank modules in the existing plant with production modules to increase the rated capacity from 360,000 m<sup>3</sup>/d to 400,000 m<sup>3</sup>/d

- **Municipal Drinking Water License #009-101 (Issued November 20, 2009)**

<b>Table 1: Rated Capacity Lakeview Water Treatment Plant</b>	
Column 1 Treatment Subsystem Name	Column 2 Rated Capacity (m <sup>3</sup> /day)
Plant 1 – Conventional	560,000
Plant 2 – Ozone/BAC/Membrane	363,000
<b>Total</b>	<b>923,000</b>

- **Lakeview Water Treatment Plant – Permit to take Water 6715-678SQX**

3.2 Amounts of Taking Permitted

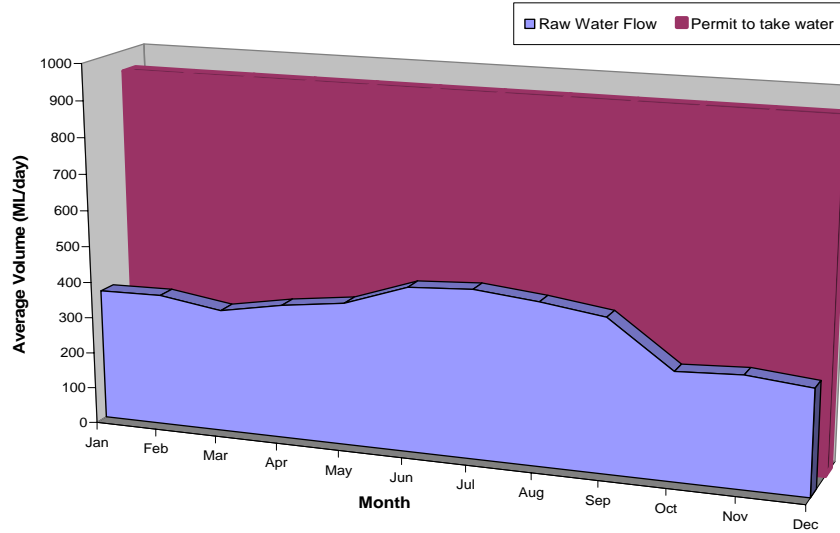
The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

**Table A**

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (liters):	Max. Num. of Hrs Taken per Day	Max. Taken per Day (liters):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing :
1.	Lake Ontario	Lake	Municipal	Water Supply	655000.00	24.00	943000000.00	365.00	17 617200 4825400
						Total Taking:	943000000.00		

**b. Average Daily Production**

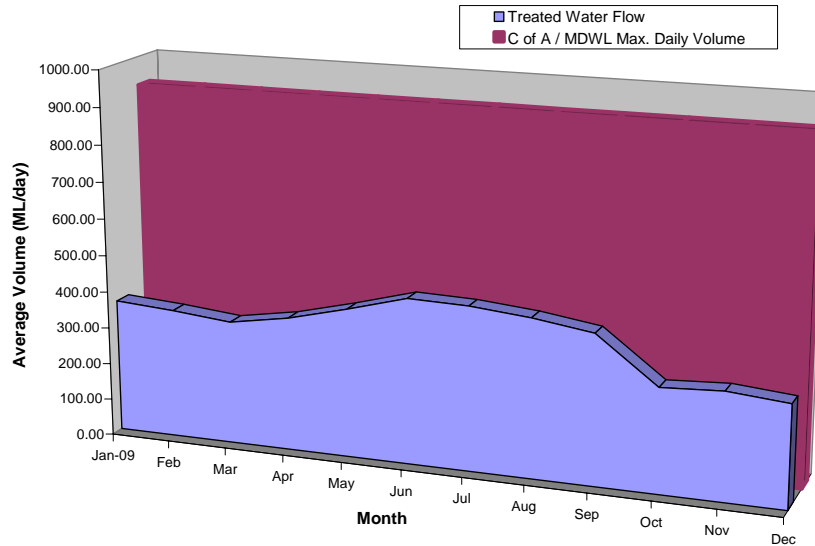
**2009 Lakeview Average Daily Raw Water Volumes**



**Note:** Permit to Take Water 6715-678SQX permits the taking of **943 ML/day** from Lake Ontario.

**2009 Lakeview Average Daily Treated Water Volumes**

2009 Average daily treated water flows were well within the plant design capacity.



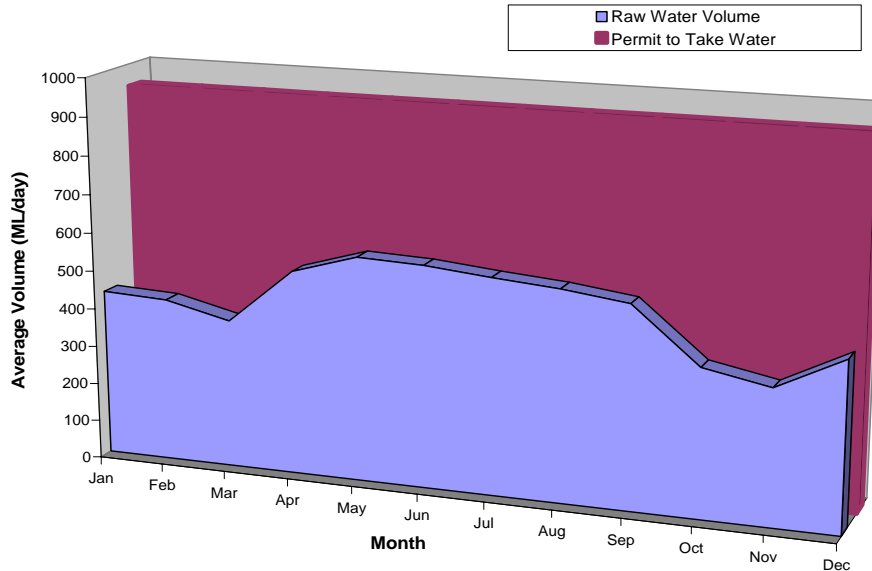
**Note:** Municipal Drinking Water License/Certificate of Approval flow rates are as follows:

Conventional Plant Flow 560 ML/d  
 OBM (Membrane) Plant Flow 363 ML/d  
**Total Plant Flow 923 ML/d**

**c. Maximum Daily Raw Water Volumes and Permit to Take Water Requirements**

**2009 Lakeview Maximum Daily Raw Water Volumes**

Maximum daily water takings complied with the requirements of the Permit to Take Water.



**2009 Lakeview Daily Raw Water Flow Rates Averaged Monthly**

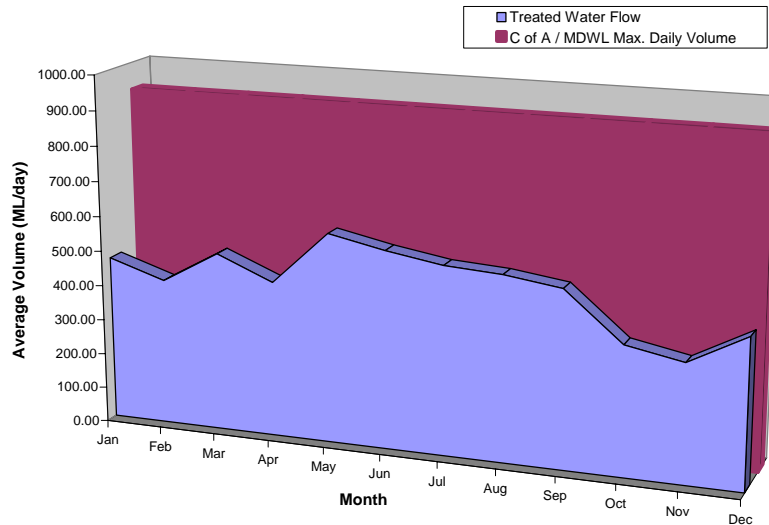
<b>Raw Water Daily Flow Rates (ML/day)</b>			
<b>Month</b>	<b>Average</b>	<b>Max.</b>	<b>Min.</b>
<b>Jan</b>	<b>363.52</b>	<b>434.80</b>	<b>303.00</b>
<b>Feb</b>	<b>366.01</b>	<b>427.40</b>	<b>299.00</b>
<b>March</b>	<b>340.60</b>	<b>386.80</b>	<b>260.50</b>
<b>April</b>	<b>371.63</b>	<b>532.80</b>	<b>296.40</b>
<b>May</b>	<b>393.35</b>	<b>583.20</b>	<b>301.40</b>
<b>June</b>	<b>453.12</b>	<b>576.60</b>	<b>358.40</b>
<b>July</b>	<b>463.94</b>	<b>560.96</b>	<b>346.05</b>
<b>Aug</b>	<b>446.48</b>	<b>548.39</b>	<b>346.82</b>
<b>Sept</b>	<b>422.85</b>	<b>526.97</b>	<b>296.92</b>
<b>Oct</b>	<b>296.33</b>	<b>384.73</b>	<b>185.47</b>
<b>Nov</b>	<b>305.48</b>	<b>351.94</b>	<b>266.52</b>
<b>Dec</b>	<b>289.92</b>	<b>440.90</b>	<b>235.60</b>
<b>ANNUAL</b>	<b>376.05</b>	<b>583.20</b>	<b>185.47</b>

Note: 1 ML/day = 1,000,000 litres per day

**d. Maximum Daily Production and ‘Municipal Drinking Water License’ and ‘Certificates of Approvals’ Requirements**

**2009 Lakeview Maximum Daily Treated Water Volumes**

Maximum daily treated water complied with the Certificate of Approval and Municipal Drinking Water License requirements.



**Note:** Municipal Drinking Water License/Certificate of Approval flow rates are as follows:  
 Conventional Plant Flow 560 ML/d/OBM (Membrane) Plant Flow 363 ML/d  
**Total Plant Flow 923 ML/d**

**2009 Lakeview Treated Water Flow Rates-Averaged Monthly**

<b>Treated Water Daily Flow Rates (ML/day)</b>			
<b>Month</b>	<b>Average</b>	<b>Max.</b>	<b>Min.</b>
<b>Jan</b>	<b>362.14</b>	<b>468.78</b>	<b>246.47</b>
<b>Feb</b>	<b>350.78</b>	<b>418.64</b>	<b>261.03</b>
<b>March</b>	<b>335.80</b>	<b>510.10</b>	<b>227.30</b>
<b>April</b>	<b>363.04</b>	<b>443.76</b>	<b>310.99</b>
<b>May</b>	<b>404.27</b>	<b>597.40</b>	<b>306.60</b>
<b>June</b>	<b>449.23</b>	<b>563.80</b>	<b>356.40</b>
<b>July</b>	<b>445.04</b>	<b>538.98</b>	<b>322.83</b>
<b>Aug</b>	<b>430.73</b>	<b>527.62</b>	<b>334.30</b>
<b>Sept</b>	<b>407.11</b>	<b>506.33</b>	<b>279.60</b>
<b>Oct</b>	<b>283.01</b>	<b>368.94</b>	<b>176.51</b>
<b>Nov</b>	<b>292.59</b>	<b>338.14</b>	<b>257.67</b>
<b>Dec</b>	<b>278.15</b>	<b>425.91</b>	<b>225.70</b>
<b>ANNUAL</b>	<b>366.83</b>	<b>597.40</b>	<b>176.51</b>

## LORNE PARK WTP

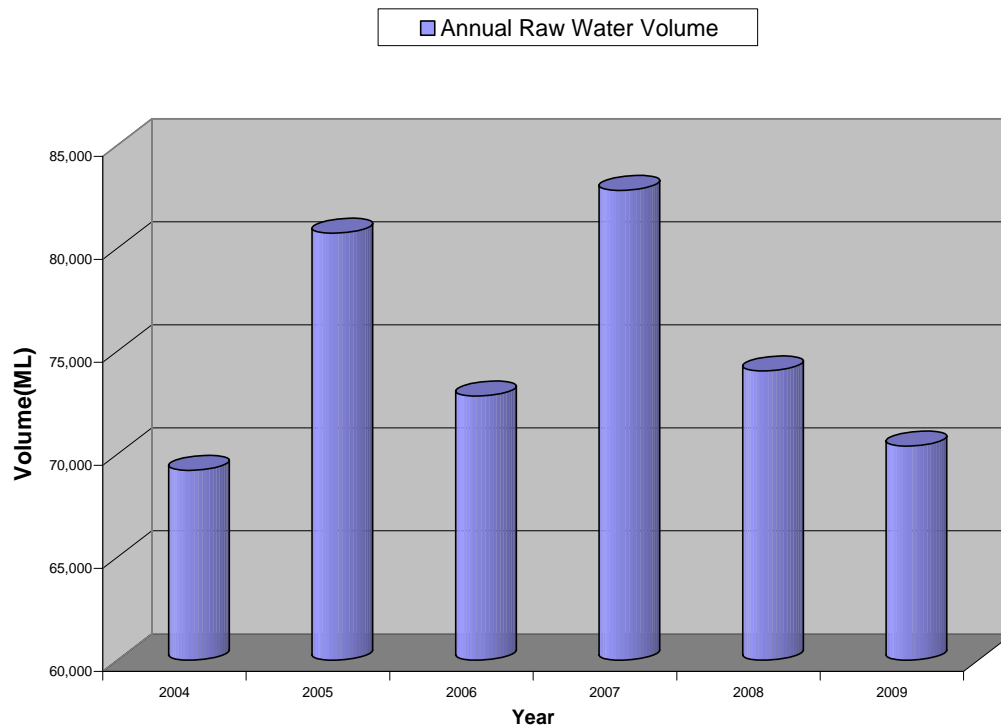
### a. Total Monthly Volumes

#### 2009 Lorne Park Monthly Raw Water Volumes

Month	Volumes (ML)
Jan	5,487
Feb	5,220
March	6,198
April	5,700
May	6,215
June	6,319
July	6,033
August	6,037
Sept	6,030
Oct	5,896
Nov	5,535
Dec	5,717
<b>TOTAL</b>	<b>70,393</b>

Note: 1ML/day = 1,000,000 litres per day

#### Historical Summary - Lorne Park Total Annual Raw Water Volumes

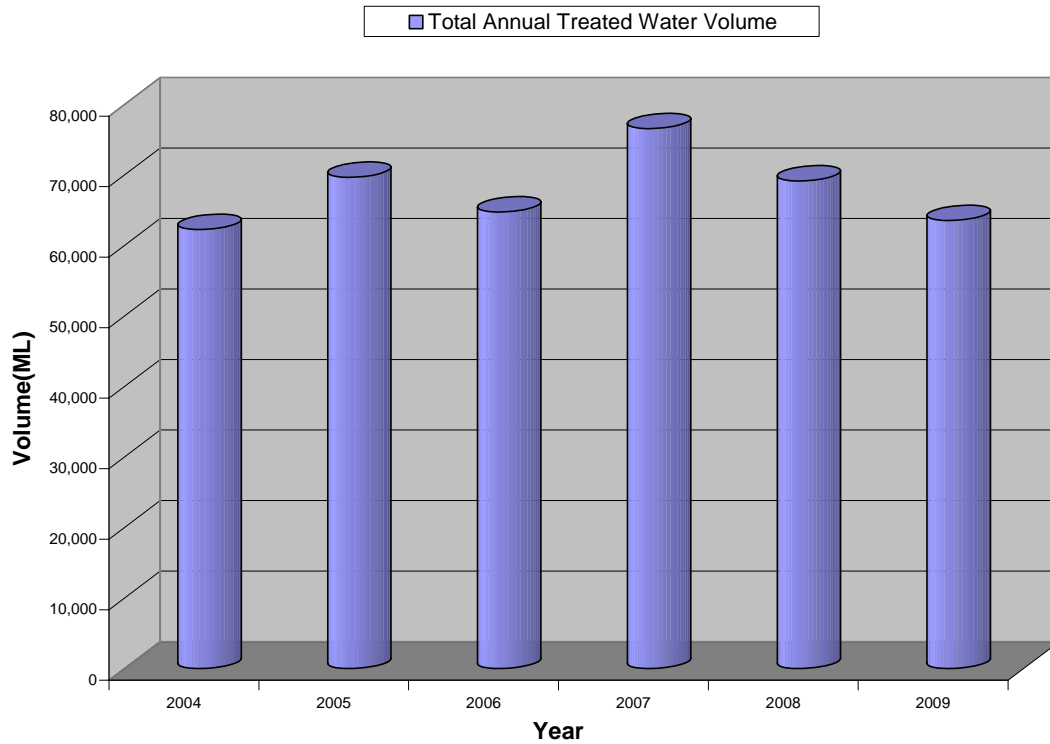


**2009 Lorne Park Monthly Treated Water Volumes**

<b>Month</b>	<b>Volumes (ML)</b>
<b>Jan</b>	<b>5,267</b>
<b>Feb</b>	<b>4,704</b>
<b>March</b>	<b>5,662</b>
<b>April</b>	<b>4,883</b>
<b>May</b>	<b>5,563</b>
<b>June</b>	<b>5,684</b>
<b>July</b>	<b>5,664</b>
<b>August</b>	<b>5,466</b>
<b>Sept</b>	<b>5,395</b>
<b>Oct</b>	<b>5,162</b>
<b>Nov</b>	<b>4,855</b>
<b>Dec</b>	<b>5,231</b>
<b>TOTAL</b>	<b>63,541</b>

Note: 1ML/day = 1,000,000 litres per day

**Historical Summary - Lorne Park Total Annual Treated Water Volumes**



## LORNE PARK WATER TREATMENT PLANT RATED CAPACITY

Flow rates were maintained below the maximum flow rates and the rated capacity identified in the Certificate of Approval/Municipal Drinking Water License

- **Certificate of Approval # 5498-7CGSRB (issued on November 21, 2008) was revoked and replaced with Certificate of Approval # 0668-7TRNZS (issued on July 16, 2009)**
- **Certificate of Approval # 5498-7CGSRB (issued on November 21, 2008)**

### Rated Capacity

4.1 The drinking-water system shall not be operated to exceed the rated capacity on any calendar day for the maximum flow rates into the distribution system (reservoir inlet) as set out below:

Treatment System/Train/Stage	Net Production Volume m <sup>3</sup> /day
Plant 1 (Membrane Plant )	380,000
Plant 2 (Conventional)	120,000
Total Plant Flow	500,000

Membrane plant under Proposed Water Works, previous rated capacity of Plant 1, 227,000m<sup>3</sup>/day.

- **Certificate of Approval # 0668-7TRNZS (issued on July 16, 2009) was revoked and replaced by Municipal Drinking Water License # 009-101 (November 20, 2009)**

### Rated Capacity

4.1 The drinking-water system shall not be operated to exceed the rated capacity on any calendar day for the maximum flow rates into the distribution system (reservoir inlet) as set out below:

Treatment System/Train/Stage	Net Production Volume m <sup>3</sup> /day
Plant 1 (Membrane Plant )	380,000
Plant 2 (Conventional)	120,000
Total Plant Flow	500,000

When commissioned Plant 1-Membrane Plant will be 380,000m<sup>3</sup>/day, previous rated capacity of Plant 1, 227,000m<sup>3</sup>/day.

- **Municipal Drinking Water License # 009-101 (November 20, 2009)**

<b>Table 1A: Rated Capacity Lorne Park Water Treatment Plant</b>	
Column 1 Treatment Subsystem Name	Column 2 Rated Capacity (m <sup>3</sup> /day)
Plant 1 – Membrane Plant*	380,000
Plant 2 - Conventional	120,000
Total	500,000

\* When Commissioned Plant 1 – Membrane Plant will be 380,000 m<sup>3</sup>/d

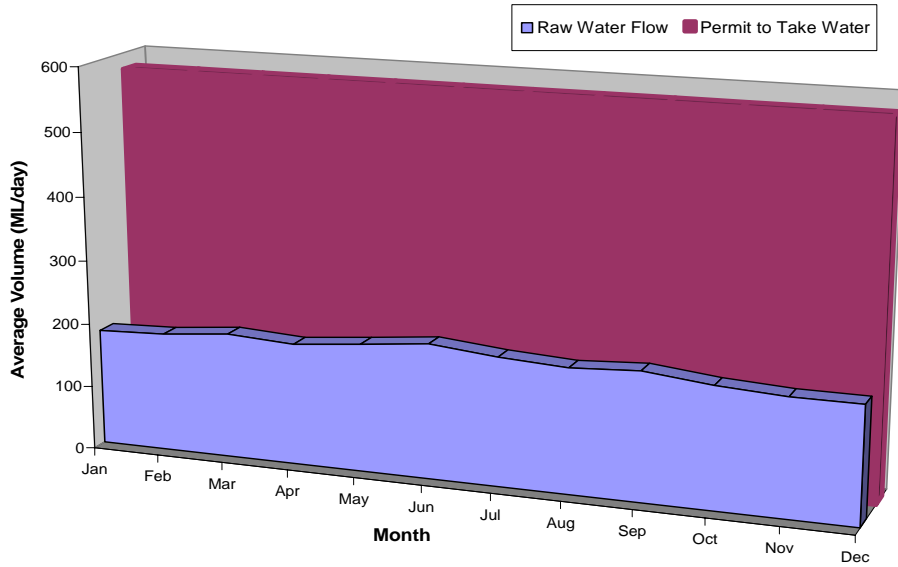
- **Lorne Park Water Treatment Plant – Permit to take Water 2240-79ML2U**

**Table A**

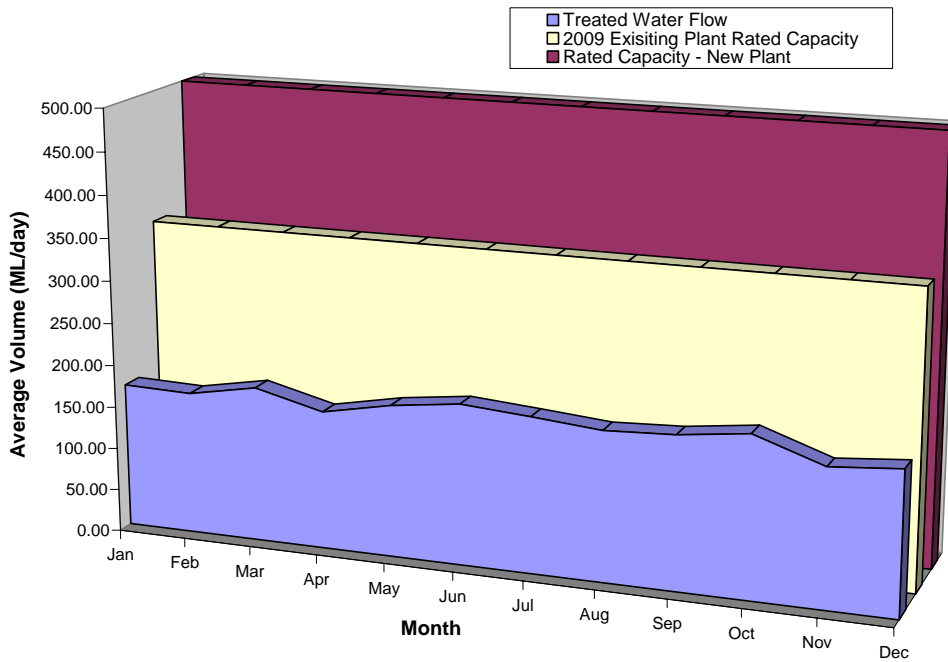
	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (liters):	Max. Num. of Hrs Taken per Day	Max. Taken per Day (liters):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing :
1.	Lake Ontario	Lake	Communal	Water Supply	399,303	24	575,000,000	365	17 614193 4820155
						Total Taking:	575,000,000		

**b. Average Daily Production**

**2009 Lorne Park Average Daily Raw Water Volumes**

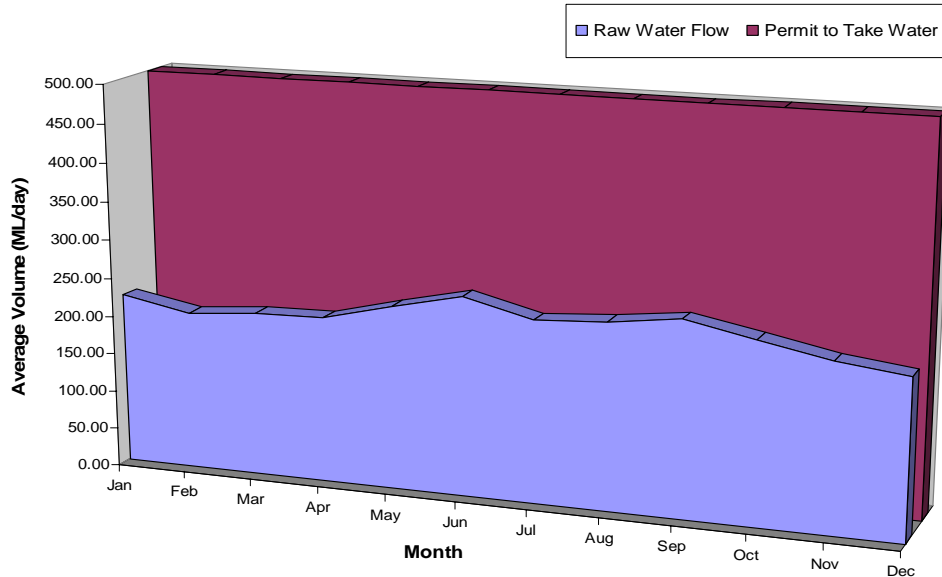


**2009 Lorne Park Average Daily Treated Water Volumes**



c. **Maximum Daily Raw Water Volumes and Permit to Take Water Requirements**

**2009 Lorne Park Maximum Daily Raw Water Volumes**



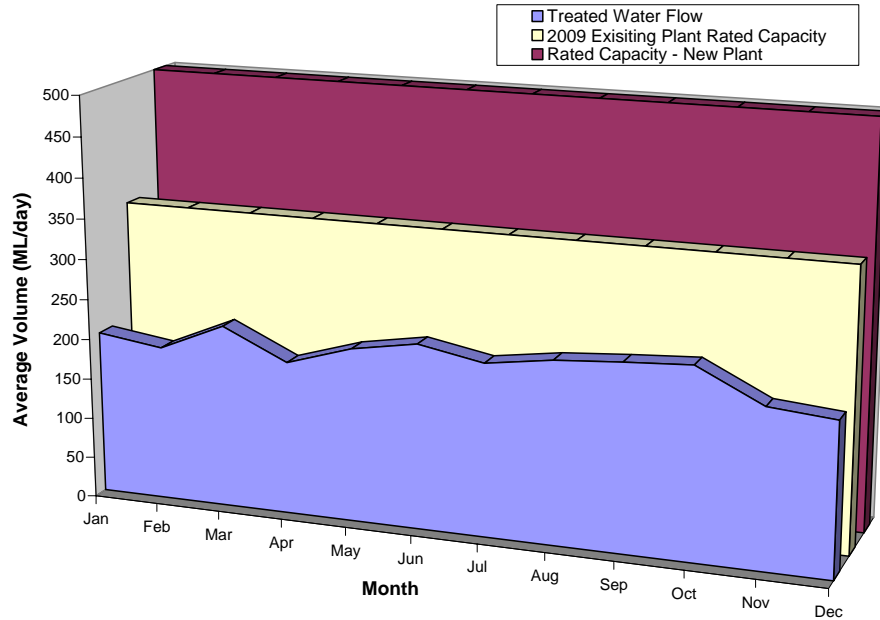
**2009 Lorne Park Monthly Daily Raw Water Flow Rates**

Raw Water Daily Flow Rates (ML/day)			
Month	Average	Max.	Min.
Jan	182.11	221.80	133.60
Feb	186.44	205.90	147.50
March	195.85	212.60	156.50
April	190.01	216.50	172.80
May	200.49	237.70	170.00
June	210.64	257.60	169.30
July	201.09	236.50	151.30
Aug	194.75	242.00	156.90
Sept	201.00	253.00	152.50
Oct	190.22	236.40	166.50
Nov	184.53	218.40	134.10
Dec	184.44	208.80	154.40
<b>ANNUAL</b>	<b>193.49</b>	<b>257.60</b>	<b>133.60</b>

Note: 1ML/day = 1,000,000 litres per day

**d. Maximum Daily Production and ‘Municipal Drinking Water License’ and ‘Certificates of Approvals’ Requirements**

In accordance with the Municipal Drinking Water Licence or Certificate of Approval the maximum volume shall not exceed 500 ML/day (500,000m<sup>3</sup>/day)



**2009 Lorne Park Monthly Daily Treated Water Flow Rates**

<b>Treated Water Daily Flow Rates (ML/day)</b>			
<b>Month</b>	<b>Average</b>	<b>Max.</b>	<b>Min.</b>
<b>Jan</b>	<b>169.90</b>	<b>202.20</b>	<b>142.90</b>
<b>Feb</b>	<b>168.01</b>	<b>191.40</b>	<b>132.10</b>
<b>March</b>	<b>182.66</b>	<b>225.60</b>	<b>153.00</b>
<b>April</b>	<b>162.78</b>	<b>189.40</b>	<b>143.80</b>
<b>May</b>	<b>179.47</b>	<b>214.30</b>	<b>144.40</b>
<b>June</b>	<b>189.50</b>	<b>227.60</b>	<b>154.60</b>
<b>July</b>	<b>182.71</b>	<b>212.80</b>	<b>138.70</b>
<b>Aug</b>	<b>176.35</b>	<b>225.00</b>	<b>143.40</b>
<b>Sept</b>	<b>179.84</b>	<b>231.30</b>	<b>148.30</b>
<b>Oct</b>	<b>190.22</b>	<b>236.40</b>	<b>166.50</b>
<b>Nov</b>	<b>161.85</b>	<b>196.30</b>	<b>118.80</b>
<b>Dec</b>	<b>168.76</b>	<b>189.20</b>	<b>138.20</b>
<b>ANNUAL</b>	<b>176.00</b>	<b>236.40</b>	<b>118.80</b>

Note: 1ML/day = 1,000,000 litres per day