

Supplementary Material

Demonstration of Water Extraction Charge Calculator using a Hypothetical Permit to Take Water Applicant

A. User Defined Inputs for Calculation of Base Provincial Charge

1. Water use sectors liable to pay water extraction charges (chosen from drop-down list): **All permit liable sectors***

* in this example, sectors that do not require a permit are exempt i.e. domestic use, livestock/poultry watering, firefighting/other emergency services, wetland conservation or water diversions for construction purposes

Bulk Water Charges Calculator for Ontario				
USER INPUTS FOR PROVINCIAL BASE CHARGE CALCULATION				
Choose Target Water Use Sectors liable for water charges	All Permit Liable Sectors	Average Volume Extracted by Sectors 23191.05 Million m ³ /year		
Choose Cost Category for Recovery	Industrial and Commercial (excluding Thermal Power Generation) Industrial and Commercial (including Thermal Power Generation) Industrial, Commercial, Thermal Power, and Agricultural	5.19 Million \$		
Base Price for Ontario	✓ All Permit Liable Sectors All Water Use Sectors			
USER INPUTS FOR FULL BULK WATER EXTRACTION CHARGE CALCULATION				
Select Main Watershed	Select from List			
Select SubWatershed	Select from List			
Select Water Use Sector	Select from List			
Enter Volume of Water to be Extracted (Self Supplied)		Million Litres/ day	1 meter ³ = 1,000 Liters	
Enter Days in a Year for Water Extraction		Days/year		
Enter Number of Low Precipitation Months		months		
Select Source of Water	Select from List			

2. Programs to be considered for cost recovery (chosen from drop-down list): **All water resource management costs (including extreme contamination events for contingency)**

Bulk Water Charges Calculator for Ontario				
<div>Click on individual grey cells to view the selection lists. Blue Cells need manual entry of values</div>				
USER INPUTS FOR PROVINCIAL BASE CHARGE CALCULATION				
Choose Target Water Use Sectors liable for water charges	All Permit Liable Sectors	Average Volume Extracted by Sectors Chosen	23191.05	Million m ³ /year
Choose Cost Category for Recovery	All Water Management Programs (Quality, Quantity, Contingency)	Total Cost to be recovered	535.19	Million \$
Base Price for Ontario				
USER INPUTS FOR FULL BULK WATER EXTRACTION CHARGE CALCULATION				
Select Main Watershed	<div>Business as Usual MOECC Water Quantity and PTTW Water Resource Management, Source Water Protection and Clean Water Water Resource Management, Source Water Protection, Clean Water, Great Lakes Initiatives Water Resource Management, Source Water Protection, Clean Water, Extreme Contamination Contin ✓ All Water Management Programs (Quality, Quantity, Contingency) Water Resource Management, Source Water Protection Program Only Water Resource Management, Source Water Protection, Great Lakes Initiatives</div>			
Select SubWatershed				
Select Water Use Sector				
Enter Volume of Water to be Extracted (Self Supplied)		Million Litres/ day	1 meter ³ = 1,000 Liters	
Enter Days in a Year for Water Extraction		Days/year		
Enter Number of Low Precipitation Months		months		
Select Source of Water	Select from List			

B. User defined Inputs for Full Bulk Water Extraction Charge

1. Main Watershed of the proposed location for extraction (chosen from drop-down list): **Lake Erie**

Bulk Water Charges Calculator for Ontario				
<div>Click on individual grey cells to view the selection lists. Blue Cells need manual entry of values</div>				
USER INPUTS FOR PROVINCIAL BASE CHARGE CALCULATION				
Choose Target Water Use Sectors liable for water charges	All Permit Liable Sectors	Average Volume Extracted by Sectors Chosen	23191.05	Million m ³ /year
Choose Cost Category for Recovery	All Water Management Programs (Quality, Quantity, Contingency)	Total Cost to be Recovered	535.19	Million \$
Base Price for Ontario 0.0231 \$/ m ³				
USER INPUTS FOR FULL BULK WATER EXTRACTION CHARGE CALCULATION				
Select Main Watershed	Lake_Erie			
Select SubWatershed	<div>Select from List Lake_Erie Lake_Ontario St_Lawrence_OttawaRiver Lake_Huron Lake_Superior</div>			
Select Water Use Sector				
Enter Volume of Water to be Extracted (Self Supplied)		Million Litres/ day	1 meter ³ = 1,000 Liters	
Enter Days in a Year for Water Extraction		Days/year		
Enter Number of Low Precipitation Months		months		
Select Source of Water	Select from List			

2. Sub-watershed of the proposed location (chosen from drop-down list filtered automatically based on input provided in step 1.): **Grand River**

Bulk Water Charges Calculator for Ontario					
<div>Click on individual grey cells to view the selection lists. Blue Cells need manual entry of values</div>					
USER INPUTS FOR PROVINCIAL BASE CHARGE CALCULATION					
Choose Target Water Use Sectors liable for water charges	All Permit Liable Sectors	Average Volume Extracted by Sectors Chosen	23191.05	Million m ³ /year	
Choose Cost Category for Recovery	All Water Management Programs (Quality, Quantity, Contingency)	Total Cost to be Recovered	535.19	Million \$	
Base Price for Ontario	0.0231	\$/ m ³			
USER INPUTS FOR FULL BULK WATER EXTRACTION CHARGE CALCULATION					
Select Main Watershed	Lake_Erie				
Select SubWatershed	Grand River				
Select Water Use Sector	<div> <div>Select from List</div> <div> <div>Essex</div> <div>St. Clair</div> <div>Lower Thames</div> <div>Upper Thames</div> <div>Kettle Creek</div> <div>Catfish Creek</div> <div>Long point</div> <div>Grand River</div> </div> </div>				
Enter Volume of Water to be Extracted (Self Supplied)		Million Litres/ day	1 meter ³ = 1,000 Liters		
Enter Days in a Year for Water Extraction		Days/year			
Enter Number of Low Precipitation Months		months			
Select Source of Water	✓ Grand River				

3. The water use sector (chosen from drop-down list): **Water bottling**

Bulk Water Charges Calculator for Ontario					
<div>Click on individual grey cells to view the selection lists. Blue Cells need manual entry of values</div>					
USER INPUTS FOR PROVINCIAL BASE CHARGE CALCULATION					
Choose Target Water Use Sectors liable for water charges	All Permit Liable Sectors	Average Volume Extracted by Sectors Chosen	23191.05	Million m ³ /year	
Choose Cost Category for Recovery	All Water Management Programs (Quality, Quantity, Contingency)	Total Cost to be Recovered	535.19	Million \$	
Base Price for Ontario	0.0231	\$/ m ³			
USER INPUTS FOR FULL BULK WATER EXTRACTION CHARGE CALCULATION					
Select Main Watershed	Lake_Erie				
Select SubWatershed	Grand River				
Select Water Use Sector	<div> <div>Select from List</div> <div> <div>Water Bottling</div> <div>Fruit and Vegetable Canning or Pickling</div> <div>Beverage Manufacturing</div> <div>Ready-mix Concrete Manufacturing</div> <div>Non-metallic Mineral Product Manufacturing</div> <div>Pesticide, Fertilizer and other Agricultural Chemical Manufacturing</div> <div>Inorganic Chemical Manufacturing</div> <div>Golf Course Irrigation</div> <div>Dewatering - Pits, Quarries, Aggregate Washing</div> <div>Construction</div> <div>Mining and Oil and Gas</div> <div>Food Processing</div> <div>Primary Metal Manufacturing</div> <div>Textile and Textile Product mills</div> <div>Clothing Manufacturing</div> <div>Leather and Allied Product Manufacturing</div> <div>Wood Products Manufacturing</div> <div>Paper and Pulp Manufacturing</div> <div>Petroleum and Coal Manufacturing</div> <div>Plastics and Rubber Manufacturing</div> <div>Fabricated Metal Product Manufacturing</div> <div>Machinery Manufacturing</div> <div>Computer and Electronic Product Manufacturing</div> <div>Transportation Equipment Manufacturing</div> <div>Furniture and related Product Manufacturing</div> <div>Self Supply Commercial and Institutional</div> <div>Miscellaneous Manufacturing</div> <div>Thermal Power Generation</div> <div>Municipal Water Supply</div> <div>Domestic Self Supply</div> <div>Agriculture Irrigation</div> <div>Livestock</div> </div> </div>				
Enter Volume of Water to be Extracted (Self Supplied)		Million Litres/ day	1 meter ³ = 1,000 Liters		
Enter Days in a Year for Water Extraction		Days/year			
Enter Number of Low Precipitation Months		months			
Select Source of Water	Select from List				
Total Volume of Water Extracted in a Year		0 me			
Sub Watershed Multipliers					

4. Volume of water to be extracted (entered manually in Million Liters/day): **3.6**
(Million L/day)

5. Days in a year for water extraction (entered manually in days/year): **365**
(days/year)

6. Number of months of low precipitation (entered manually): **4 (months)**

7. Source of water extraction (chosen from drop-down list): **Groundwater**

USER INPUTS FOR PROVINCIAL BASE CHARGE CALCULATION		Click on individual grey cells to view the selection lists. Blue Cells need manual entry of values	
Choose Target Water Use Sectors liable for water charges	All Permit Liable Sectors	Average Volume Extracted by Sectors Chosen	23191.05 Million m ³ /year
Choose Cost Category for Recovery	All Water Management Programs (Quality, Quantity, Contingency)	Total Cost to be Recovered	535.19 Million \$
Base Price for Ontario	0.0231	\$/ m ³	
USER INPUTS FOR FULL BULK WATER EXTRACTION CHARGE CALCULATION			
Select Main Watershed	Lake_Erie		
Select SubWatershed	Grand River		
Select Water Use Sector	Water Bottling		
Enter Volume of Water to be Extracted (Self Supplied)	3.6	Million Litres/ day	1 meter ³ = 1,000 Liters
Enter Days in a Year for Water Extraction	365	Days/year	
Enter Number of Low Precipitation Months	4	months	
Select Source of Water	Groundwater		
Total Volume of Water Extracted in a Year	Select from List Surface Water <input checked="" type="checkbox"/> Groundwater 1314000 meter ³ /year Both Groundwater and Surface Water		

C. Outputs of Bulk Water Charge Calculator for inputs defined in Steps A and B

Bulk Water Charges Calculator for Ontario			
USER INPUTS FOR PROVINCIAL BASE CHARGE CALCULATION		Click on individual grey cells to view the selection lists. Blue Cells need manual entry of values	
Choose Target Water Use Sectors liable for water charges	All Permit Liable Sectors	Average Volume Extracted by Sectors Chosen	23191.05 Million m ³ /year
Choose Cost Category for Recovery	All Water Management Programs (Quality, Quantity, Contingency)	Total Cost to be Recovered	535.19 Million \$
Base Price for Ontario	0.0231	\$/ m ³	
USER INPUTS FOR FULL BULK WATER EXTRACTION CHARGE CALCULATION			
Select Main Watershed	Lake_Erie		
Select SubWatershed	Grand River		
Select Water Use Sector	Water Bottling		
Enter Volume of Water to be Extracted (Self Supplied)	3.6	Million Litres/ day	1 meter ³ = 1,000 Liters
Enter Days in a Year for Water Extraction	365	Days/year	
Enter Number of Low Precipitation Months	4	months	
Select Source of Water	Groundwater		
Total Volume of Water Extracted in a Year	1314000	meter ³ /year	

D. User chooses (yes/no) if the location of water extraction is in the risk identified quaternary watersheds:

Sub Watershed Multipliers				
	Watershed Sensitivity Category	Risk-Selected Quaternary Watersheds	Category	Location Listed in Risk-Selected Quaternary Watershed?
1	High Risk for Surface Water Quantity	0	HIGH	NO
2	Moderate Risk for Surface Water Quantity	Eramosa Above Guelph, Whitemans Creek, McKenzie Creek	MODERATE	NO
3	High Risk for Groundwater Quantity	Central Grand	HIGH	NO
4	Moderate Risk for Groundwater Quantity	Canagagigue Creek, Upper Speed, Mill Creek, Big Creek, Irvine River	MODERATE	YES

Select from List
☒ YES
☐ NO

E. User chooses the seasonal severity category for the seasonal surcharge multiplier: (the consumptive use and groundwater use multiplier is calculated automatically based on user inputs in Step B)

Consumptive Use Multipliers		
Sector	Consumptive Use Category	Multiplier
Water Bottling	High	1.5

Groundwater Use Multiplier Calculated:	
Groundwater as Main Source	1.5
Both GW and SW as Main Source	1.25
Surface Water as Main Source	1

Seasonal Surcharge Multiplier	
Seasonal Low Flow Severity	High
Seasonal Multiplier	1.5

Select from List
☒ High
☐ Moderate
☐ Low

F. Special Sector Price Concession Factor:

Here a “Special” sector price concession factor can be entered for a discounted charge, value chosen between 0 (full discount or no charge) and 1 (no discount or full charge).

All Year Final Water Charges		Seasonal Surcharge (Based on add-on seasonal multiplier)	
Total Volume Extracted	1314000 meter ³ /year	Total Volume Extracted	1314000 meter ³ /year
Provincial Base Unit Charge	0.0231 \$/ m ³	Provincial Base Unit Charge	0.0231 \$/ m ³
Price Risk Multiplier (Subwatershed x Sector x Groundwater Use)	3.375	Seasonal Surcharge (Based on add-on seasonal multiplier)	5.0625
"Special" Sector Price Concession Factor	NO	"Special" Sector Price Concession Factor	NO
Enter Price Concession Factor	Select from List YES NO	Enter Price Concession Factor	Select from List YES NO
Price Multiplier (not adjusted for Seasonal Surcharge)	3.375	Price Multiplier (for Low Flow Months)	5.0625

G. Final Bulk Water Charges inclusive of All Price Multipliers:

FINAL WATER CHARGES IN		Grand River	SUBWATERSHED
All Year Final Water Charges			
Total Volume Extracted	1314000 meter ³ /year	Total Volume Extracted	1314000 meter ³ /year
Provincial Base Unit Charge	0.0231 \$/ m ³	Provincial Base Unit Charge	0.0231 \$/ m ³
Price Risk Multiplier (Subwatershed x Sector x Groundwater Use)	3.375	Seasonal Surcharge (Based on add-on seasonal multiplier)	5.0625
"Special" Sector Price Concession Factor	NO	"Special" Sector Price Concession Factor	NO
Enter Price Concession Factor	1	Enter Price Concession Factor	1
Price Multiplier (not adjusted for Seasonal Surcharge)	3.375	Price Multiplier (for Low Flow Months)	5.0625
		Number of Low Precipitation Months	4
		Total Bulk Water Charge	
		Charges for Low Precipitation Months	51172 \$/ year
		Charges for Normal Precipitation Months	68229 \$/ year
		TOTAL	119400 \$/ year
		Average Price per m ³ for Permit Holder	0.0909 \$/m ³
			90.87 \$/ Million Liters

Summary

- (1) Total Volume Extracted: 1314000 m³/year
- (2) Base Provincial Unit Charge (without any multipliers): CAD 23.08/Million Liters
- (3) Price Multiplier (Location, Sector and Source Risks): 3.375
- (4) Seasonal Surcharge (seasonal multiplier for 4 months): 5.0625
- (5) Unit Water Extraction Charge for permit applicant (inclusive of all multipliers):
CAD 90.87/Million Liters
- (6) Annual Total Provincial Bulk Water Extraction Charges: \$119400/year