Survey of Drinking Water Plants Reporting year 2015

CONFIDENTIAL once completed Si vous préférez ce questionnaire en français,

veuillez nous appeler au 1-866-445-4323

	Please provide your email address.
C0009	Email address
	Please verify the business name, address and contact name, and correct where needed.
C0001	Legal name (facility owner)
C0002	Business name (facility owner)
C0008	First name
C0028	Last name
C0004	Address (number and street)
C0005	City
C0006	Province, territory or state Postal code or zip code

PLEASE READ BEFORE COMPLETING

This survey is conducted under the authority of the *Statistics Act*, Revised Statutes of Canada, 1985, Chapter S-19. COMPLETION OF THIS QUESTIONNAIRE IS A LEGAL REQUIREMENT UNDER THIS ACT.

Survey Purpose

This survey collects detailed information on the quantity and quality of water processed by plants that draw raw water from the environment to produce potable water. The plants in the survey range in size from ones that use complex treatment processes for surface water to ones that use minimal treatment for groundwater. The data collected will be used to monitor water reserves at the regional level in Canada and to develop environmental accounts. The information you provide may also be used by Statistics Canada for other statistical purposes.

Confidentiality

Statistics Canada is prohibited by law from releasing any information it collects which could identify any person, business, or organization, unless consent has been given by the respondent or as permitted by the *Statistics Act*. Statistics Canada will use the information from this survey for statistical purposes.

Data-sharing Agreements

To reduce respondent burden, Statistics Canada has entered into data-sharing agreements with provincial and territorial statistical agencies and other government organizations, which have agreed to keep the data confidential and use them only for statistical purposes.

Information on data-sharing agreements and record linkages can be found on the last page of this questionnaire.

Completing the questionnaire

The people in the best position to complete this questionnaire are managers who are familiar with plant processes, operating costs and water-quality monitoring.

Multiple Water Facilities/sources

If there are multiple water sources or facilities associated with the plant identified on the mailing label, complete Sections 1, 2, 3 and 4 of this questionnaire and provide the total and combined information for all facilities. Complete Section 5 for the facility that supplied the largest volume of water in 2015.

Returning the questionnaire

Please return the completed questionnaire within 60 days of receipt using the enclosed envelope, or fax it to 1-888-883-7999. If you have any questions, or need to make alternate arrangements, please call **1-866-445-4323**.

Fax or E-mail Transmission Disclosure

Statistics Canada advises you that there could be a risk of disclosure during the transmission of information by facsimile or e-mail. However, upon receipt, Statistics Canada will provide the guaranteed level of protection afforded all information collected under the authority of the *Statistics Act*.

🖉 PLEASE COMPLETE THIS QUESTIONNAIRE USING A BLACK BALLPOINT PEN.

Person primarily responsible for completing this questionnaire:

Last name	Telephone number	Extension
C0054	C0017	C0027
First name	Fax number	
C0013	C0016	
Organization	E-mail address	
C0401	C0018	

4-2300-59.1: 2015-08-20



Canadä

SECTION 1 – DRINKING WATER PLANT INFORMATION FOR 2015

FACILITY FOR WHICH THIS QUESTIONNAIRE IS COMPLETED

1. In 2015, did the facility identified on the mailing label withdraw water from the environment, in order to treat and/or convey potable water to a permanent community of 300 or more people?

C1000	1	Yes
01000	1	Ye

3

No If no, please complete the cover page and question 1 only, and return the questionnaire in the enclosed envelope. Thank you.

SOURCE/RAW WATER TYPE

INSTRUCTIONS

- Do not write in coloured areas. Comments on any section of this survey should be provided in the space on page 13.
- Indicate the percentage and type of source water (raw water) obtained for processing by this facility below. If there are multiple water facilities/sources associated with the facility identified on the mailing label, complete this part to represent the total for all associated sources.
- Indicate the number of production facilities for each source water type where raw water withdrawn from the environment was treated and/or conveyed as potable water to a distribution system.

	PERCENTAGE	NUMBER OF PRODUCTION FACILITIES
2. Surface water	C1001	C1004
3. Groundwater	C1002	C1005
4. GUDI - Groundwater Under Direct Influence of surface water	C1003	C1006
FACILITY LOCATION AND COORDINATES		
Questions 5,6,7,8 can be left blank if the information has been p the mailing label and the information has not changed.	rovided in past surveys for the facility	videntified on
5. If there are multiple water facilities/sources being reported the location and coordinates for the facility that produ List the names of other facilities/sources in the comments (If the address is the same as the address on page 1, indicate "same	iced the largest volume of potable section on page 13.	
Address number Street or road name		Street type (Rd, Ave, etc.)
C1007 Name of township or municipality	C10	Postal code
C1010		C1011
C1012 There is no civic address		
• Answer only one of questions 6, 7 or 8. There are mapping Canada's "The Atlas of Canada: Toporama" and "Google Ea degrees, in degrees, minutes, seconds or in Universal Transv	rth" that can assist you in finding coord	
6. Facility Coordinates (decimal degrees)		
Latitude: C1013 degrees decimals	ongitude: C1014 degrees	decimals
7. Facility Coordinates (degrees, minutes, seconds)		
Latitude: C1015 degrees minutes seconds "N L	ongitude: C1016 • o o o o o o o o o o o o o o o o o o	seconds "W
8. Facility Coordinates (Universal Transverse Mercator – UTM	zone, eastings and northings)	
Zone: C1017 Eastings: C1018 eastings	Northings: C1019	things
Pac	je 2	4230059021

PLANT CAPACITY

INSTRUCTIONS

• Capacity for 2015 is to be reported in the units used at the drinking water facility. If there are multiple water facilities/sources being reported for the facility identified on the mailing label, report the combined total for all associated sources.

9.	What was the maximum rated treatment capacity of this	C1020	-					
	What was the maximum rated treatment capacity of this facility in 2015? (Specify the units in question 10.)	· · · · · · · •	_					

10.	Select the	e unit on the left and the time period on the ri	ght for the ca	pacity value in question 9) .	
	UNIT	-		PERIOD		
	C1021 1	Cubic metres	C1023 1	Per second		
	2	Litres	2	Per minute		
	3	Mega Litres (1 million litres)	3	Per day		
	4	Imperial gallons (1 imperial gallon = 4.5 litres)	4	Per year		
	5	U.S. gallons (1 U.S. gallon = 3.8 litres)	5	Other (specify):		
	6	Other (specify units clearly):	C1024			
	C102	22				
					C1	025
11.	How many	y days in 2015 did the facility operate at great	er than 90% ca	apacity?		
S	SECTOR I	JSE AND POPULATION SERVED				
IN	STRUCTIC	DNŚ		\frown		
		the percentage of water used by the sectors in				
		label. If there are multiple water facilities/source nbined total for all associated sources.	s being report	ed for the facility identified	a on the mailing	g label, report
12.	Of the tot	al potable water produced, indicate the perce n, indicate their percentages in the relevant b	entage consur	ned by each category be	elow. If only so	ome portions
	estimate.	Consult with other departments within your of	ganization if r	iecessary.	, ploude plot	
					PERCI	ENTAGE
	Residentia	al			C1027	%
	Industrial	commercial, institutional, agricultural, municipa		other non-residential	C1028	%
						. 70
	Losses fro	om the distribution system (leaks, system mainte	enance and flu	shing)	C1029	. %
	Wholesale	e water provided to other jurisdictions			C1030	%
						•
	TOTAL				10	00%
10		rce(s) of information were used for the sector		2 Mark all that apply		
13.		rce(s) of information were used for the sector	ise percentag	es r wark an that apply.		
	C1031 1	Specific study/analysis for this facility	Other (spe	cify):		
	2	Water billing accounts	832			
14.	What was	the size of the population served by this Drin	king Water Pla	ant in 2015? C1033		
	Indicate t	he number of persons, the number of connect	ions or other ι	inits used.		
	C1034 1	Persons ³ Other (spe	cify):			
	2	Connections C1035				
15.	What sou	rce(s) of information were used for the size of	the populatior	served? Mark all that ap	oply.	
	C1036 1	Specific study/analysis for this facility ³	Census dat	ta		
	2	Water billing accounts	Other (spec			
		Water bining accounts		,y/.		

SECTION 2 - POTABLE WATER VOLUMES FOR 2015

INSTRUCTIONS

- 16. Report by month below the **volumes** of potable water produced by this drinking water facility. If there are multiple water facilities/sources being reported for the facility identified on the mailing label, report the combined total for all associated sources.
- 17. Monthly potable water volumes for 2015 are to be reported in the units used at the drinking water facility. Select the **unit of measure** (right column) for the volumes produced (left column) for all volumes reported in this section.

		VOLU	MES		UNIT	
January	C2000			C2013	¹	Cubic metres Litres
	C2001					
February	62001				³ • •	Mega Litres (1 million litres) Imperial gallons (1 imperial gallon = 4.5 litres)
March	C2002				5	U.S. gallons (1 U.S. gallon = 3.8 litres)
April	C2003				6 O	Other (specify units clearly):
May	C2004					
June	C2005					
July	C2006					
August	C2007					
Septembe	r C2008					
October	C2009					
November	C2010					
December	C2011	XI				
TOTAL	012					
Are potabl	le water vol	umes metered or	estimated?		4	
C2015 1	Metered					
2	Estimated		3		•	

SECTION 3 – WATER TREATMENT PROCES	3L3 FOR 2013	
 NSTRUCTIONS In this section, report the treatment processes app Note: disinfection only (e.g. chlorination) is a 		2015.
 Are there multiple water facilities that withdraw raw identified on the mailing label? 		ment being reported for the facility
^{C3000 1} Yes ► Go to question 20 ³	No Go to question 22	
). Does each facility use the same water treatment pro	ocess?	
^{C3001 1} Yes ► Go to question 22 ³	No Go to question 21	
. For the facility that produced the largest volume of p it represents:	potable water, indicate what pe	rcentage of the total volume
^{C3002}	d for the facility that produced th	ne largest volume of
2. Is the raw water withdrawn by this facility conveyed Note: disinfection only (e.g. chlorination) is a tre		potable water for consumption?
^{C3003 1} Yes ► Go to question 63 ³	No Complete questions	23 to 62
NSTRUCTIONS	X	
In the "Process Used" column, confirm either yes UNIT PROCESSES FOR WATER TREATMENT	PROCESS USED YES NO	Either Yes or No must be
PRE-TREATMENT 3. Microscreening	63004 1 3	checked for each line. Review the entire list prior to making selections.
4. Other pre-treatment <i>(specify)</i> :	C3006 1 3	
DISINFECTION/OXIDATION	C3007 1 3	
5. Chlorination (hypochlorites or chlorine gas)		
6. Chlorine dioxide	C3009_1 3	
7. Chloramination	C3009 3 0	
8. UV irradiation	C3010 1 3	
9. Ozonation	C3011 1 3	
0. Application of potassium permanganate	C3012 1 3	Indicate "no" if only used to recharge a greensand filtration
1. Other disinfection/oxidation reagents	03013 1 3	system.

continued on next page...

		PROCESS	
	UNIT PROCESSES FOR WATER TREATMENT	USED YES NO	
Т	CHEMICAL TREATMENT OR ADDITION		
32.	Fluoridation (if 'yes', mark all those applied)	C3014 1 3	If 'yes', mark all those applied.
33.	Alkalinity adjustment for process control	C3016 1 3	 Sodium fluoride Sodium silicofluoride Hydro-fluosilicic acid Hydro-fluosilicic acid
34.	pH adjustment for process control	C3017 1 3	⁴ Ammonium silicofluoride
35.	Corrosion control – pH adjustment	C3018 1 3	
36.	Corrosion control – alkalinity adjustment	C3019 1 3	
37.	Corrosion control – inhibitors (if 'yes', mark all those applied)	G3020 1 3	If 'yes', mark all those applied.
38.	COAGULATION/FLOCCULATION & FILTER AID Coagulation – aluminum based coagulant	C3022 1 3	 Polyphosphates Silicates
39.	Coagulation – ferric based coagulant	C3023 1 3	4 Other
40.	Other coagulant	C3024 1 3	
41.	Enhanced coagulation	<u>C3025 1 3 </u>	
42.	Flocculation	G3026 1	
	CLARIFICATION/SEDIMENTATION		
43.	Sedimentation - conventional, tube, plate or high rate	C3027 1 3	
44.	Dissolved air flotation (DAF) – conventional or high rate	C3028 1 3	
45.	Other clarification – (sludge blanket, pulsed blanket, ballasted, solids contact or other)	C3029 1 3	continued on next page

	UNIT PROCESSES FOR WATER TREATMENT			PRO US	CES ED	s
	FILTRATION		Ì	/ES		NO
46.	Filtration – granular media (single, dual or triple media)	C3030	1		3	
47.	Granular activated carbon – used as part of filter media	C3031	1	•	3	•
48.	Granular activated carbon – used as separate unit process	C3032	1	•	3	•
49.	Filtration – membrane (microfiltration) – 0.1-10 microns	C3033	1		3	•
50.	Filtration – membrane (ultrafiltration) – 0.01-0.1 microns	C3034			3	
51.	Filtration – cartridge/bag	C3035	1		3	•
52.	Filtration – slow sand OTHER PROCESSES	C3036	1	•	3	•
53.	Aeration – transfer of oxygen or air to water	C3037	1	•	3	•
54.	Air stripping – contacting water with air to transfer contaminants to air	C3038	1	•	3	•
55.	Lime softening	C3039	1	•	3	•
56.	Activated alumina	C3040	1	•	3	•
57.	lon exchange	C3041	1	•	3	•
58.	Sequestering	C3042	1	•	3	•
59.	Greensand filtration	C3043	1	•	3	•
60.	Powdered activated carbon	C3044	1	•	3	
61.	Reverse osmosis or nano filtration	C3045	1	•	3	
62.	Other processes (specify):	C3047	1		3	

SECTION 4 – CAPITAL EXPENDITURES AND OPERATION AND MAINTENANCE COSTS

CAPITAL EXPENDITURES - WATER TREATMENT 2014 AND 2015

INSTRUCTIONS

- Report capitalized costs for 2014 and 2015 in Canadian dollars for the calendar year (January-December). If there are multiple water facilities/sources being reported for the facility identified on the mailing label, report the combined total for all associated sources.
- Provide capital costs related to the acquisition and treatment of source/raw water.
- **Exclude** costs associated with distribution.
- Include money spent to add, expand or upgrade physical assets such as:
 - » property » machinery
 - » buildings » processing equipment/infrastructure
- **Include** capitalized costs related to waste treatment processes (i.e. backwash/sludge processing and residuals disposal related to potable water production)
- Include construction and engineering costs such as:
 - » installation
 - » retrofitting
 - » contingencies
- » legal and related administrative fees
- Include indirect costs related to capital expenditures such as:
 - » housing
 - » permitting
- » piloting

» training

» contractor

» engineering

» education

Two years of capital expenditures are being collected to produce

a better time series data set. 63a. 2014 CAPITAL EXPENDITURES

» land

63b. 2015 CAPITAL EXPENDITURES

OPERATION AND MAINTENANCE COSTS - WATER TREATMENT 2015

INSTRUCTIONS

- Provide operation and maintenance costs for 2015 related to the acquisition and treatment of source/raw water. If there are multiple water facilities/sources being reported for the facility identified on the mailing label, report the combined total for all associated sources.
- Exclude costs associated with distribution.
- **Include** the following:
 - » materials (chemicals and replacement parts)
 - » labour (internal and external staff including laboratory personnel)
 - » energy
 - Include other costs such as:
 - » waste disposal and residuals handling related to potable water production
 - » analytical/sampling costs
 - » any associated administration and service costs directly related to operation and maintenance (consultants, contractors)
 - » operation and maintenance costs related to waste treatment processes (i.e. backwash/sludge processing and residuals disposal related to potable water production)

64. 2015 OPERATION AND MAINTENANCE COSTS

Materials (chemicals and replacement parts)	C4001 \$	Millions	Thousands	Hundreds	Cents
Labour (internal and external staff)	^{C4002} \$	Millions	Thousands	Hundreds	Cents
Energy	^{C4003} \$	Millions	Thousands	Hundreds	Cents
Other (specify): C4004	^{C4005} \$	Millions	Thousands	Hundreds	Cents
TOTAL	C4006	Millions	Thousands	Hundreds	Cents

Hundreds

Cents

ХХ

ХХ

SECTION 5 - RAW SURFACE WATER QUALITY DATA FOR 2015

INSTRUCTIONS

Report for surface water only

• Complete this section for raw surface water sources only. Do not report for groundwater, groundwater under the direct influence of surface water (GUDI), or treated surface water. If the plant does not process raw surface water, skip to question 68.

Purpose

- The purpose of this section is the compilation of source/raw water quality data comparable to the applicable limits in Provincial/Territorial and/or Guidelines for Canadian Drinking Water Quality (GCDWQ). Water quality data submitted should be comparable (based on method of testing) to these guidelines where applicable.
- If there are multiple water facilities/sources associated with the facility identified on the mailing label, complete this section for the facility that provides the largest portion of water by volume with available data that reflects the source/raw water quality processed by the facility.

Number of samples per month

- Provide the number of samples, minimum, maximum, and average values for the parameters identified. If the number of samples is large due to on-line metering, enter 999.
- Enter 0 for the number of samples if the parameter is not monitored.

Reporting water quality units

- Report each parameter only in the units indicated.
- Select the reporting units for *Escherichia coli* on page 10. If reporting presence/absence results, use the maximum column to report the number of positive samples (the average and minimum columns are not applicable for presence/ absence results).

IMPORTANT:	Any additional information or comments regarding the water quality data reported in this section
	should be provided in the comments section on page 13.

SECTION 5 - RAW SURFACE WATER QUALITY DATA FOR 2015

65. Report monthly values for Escherichia coli in raw water for 2015. See instructions on page 9.

Escherichia coli IN RAW WATER, 2015 Select units reported: C5070 1 Colony forming units per 100 millilitres (cfu/100 mL) Most Probable Number per 100 millilitres (MPN/100 mL) Presence/Absence (P/A) Number of samples Minimum Maximum Average per month value per month (not applicable value per month value per month Month (enter 0 if not (Number of positive (not applicable sampled, 999 samples if reporting P/A) if reporting P/A) *if reporting P/A)* for continuous monitoring) C5073 C5071 C5072 C5074 January C5075 C5076 C5077 February C5079 C5080 C5081 March C5084 C5086 April C5090 C5087 C5088 May C5091 C5093 C5094 June C5098 C5097 July C5099 C5100 C5102 August C5103 C5104 C5106 September C5107 C5110 25108 C5109 October C5113 C5114 C5111 C5112 November C5115 C5116 C5117 C5118 December

66. Report monthly values for turbidity of raw water for 2015. See instructions on page 9.

TURBIDITY OF RAW WATER, 2015

Month	Number of samples per month (enter 0 if not sampled, 999 for continuous	Minimum value per month	Maximum value per month	Average value per month	
	monitoring)	Ne	Nephelometric turbidity units (NTU)		
January	C5168	C5169	C5170	C5171	
February	C5172	C5173	C5174	C5175	
March	C5176	C5177	C5178	Ca179	
April	C5180	C5181	C5182	6 5183	
May	95184	C5185	C5186	C5187	
June	C5188	C5189	C5 190	C5191	
July	65192	C5193	C5194	C5195	
August	C5106	C5197	C5198	C5199	
September	C5200	C5201	C5202	C5203	
October	C5204	C5205	C5206	C5207	
November	C5208	C5209	C5210	C5211	
December	C5212	C5213	C5214	C5215	

67. Report monthly values for temperature of raw water for 2015. See instructions on page 9.

TEMPERATURE OF RAW WATER, 2015

Month	Number of samples per month (enter 0 if not sampled, 999 for continuous monitoring)	Minimum value per month	Maximum value per month degrees Celsius (°C)	Average value per month
January	C5216	C5217	C5218	C5219
February	C5220	C5221	C5222	C5223
March	C5224	C5225	C5226	C5227
April	C5228	C5229	C5230	C5231
Мау	C5232	C5233	C5234	C5235
June	C5236	C5237	65238	C5239
July	65240	C5241	C5242	C5243
August	65244	C5245	C524 6	C5247
September	C5248	C5249	C5250	C5251
October	C5252	05253	C5254	C5255
November	C5256	C5257	C5258	C5259
December	C5260	C5261	C5262	C5263

SECTION 6 – COMMENTS
68. Approximately how long did it take to collect the data and complete this survey?
Hour(s) Minutes
69. We invite your comments on any section of this survey below. Please be assured that we review all comments with the intent of improving the survey.
C9920
C9913
C9914
C9915
C9916
C9917
C9918
C9919
C9922
C9923
03923
C9924
C9925
C9926
C9927
C9928
C9929
C9930

GENERAL INFORMATION

Data-sharing agreements

To reduce respondent burden, Statistics Canada has entered into data-sharing agreements with provincial and territorial statistical agencies and other government organizations, which have agreed to keep the data confidential and use them only for statistical purposes. Statistics Canada will only share data from this survey with those organizations that have demonstrated a requirement to use the data.

Section 11 of the *Statistics Act* provides for the sharing of information with provincial and territorial statistical agencies that meet certain conditions. These agencies must have the legislative authority to collect the same information, on a mandatory basis, and the legislation must provide substantially the same provisions for confidentiality and penalties for disclosure of confidential information as the *Statistics Act*. Because these agencies have the legal authority to compel businesses to provide the same information, consent is not requested and businesses may not object to the sharing of the data.

For this survey, there are Section 11 agreements with the provincial and territorial statistical agencies of Newfoundland and Labrador, Nova Scotia, New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia, and the Yukon. The shared data will be limited to information pertaining to business establishments located within the jurisdiction of the respective province or territory.

Section 12 of the *Statistics Act* provides for the sharing of information with federal, provincial or territorial government organizations. Under Section 12, you may refuse to share your information with any of these organizations by writing a letter of objection to the Chief Statistician and returning it with the completed questionnaire. Please specify the organizations with which you do not want to share your data.

For this survey, there are Section 12 agreements with the statistical agencies of Prince Edward Island, the Northwest Territories and Nunavut as well as with Health Canada and Environment Canada.

For agreements with provincial and territorial government organizations, the shared data will be limited to information pertaining to business establishments located within the jurisdiction of the respective province or territory.

Record Linkage

To enhance the data from this survey and to minimize the reporting burden, Statistics Canada may combine it with information from other surveys or from administrative sources.

Lost the return envelope or need help?

Call us at **1-866-445-4323** or mail to:

Ottawa, Ontario, K1A 0T6

Statistics Canada, Operations and Integration Division, Central Reception, 150 Tunney's Pasture Driveway



Please retain a copy for your records.

Visit our website at <u>www.statcan.gc.ca</u>