

# Industrial Water Survey: Fossil-Fuel and Nuclear Electric Power Generating Plants, 2009

Collected under the authority of the *Statistics Act*, Revised Statutes of Canada, 1985, Chapter S19.

This document is confidential when completed.

*Français au verso*

Correct pre-printed information, if necessary, using the corresponding boxes below:

0001 Legal name

0002 Business name

0021 C/O

0028 Last name of contact

0008 First name of contact

0004 Address

0005 City

0006 Province/Territory or State

0053 Country

0007 Postal code/Zip code

## Please read before completing

### Survey Purpose

This survey collects detailed information on water use in Canada by the manufacturing, mining and electrical power generating industries. The survey asks information on who uses water, how much, where and at what cost. This data will be used to track the state of stocks of water on a regional basis in Canada and will also be used in the development of environmental accounts and indicators.

### Return of Questionnaire(s)

Please return the completed questionnaire(s) to Statistics Canada within 30 days of receipt by mail, using the enclosed envelope. **If you are unable to do so, call 1 866 855-8594** to inform us of the expected completion date. You can also fax it to 877 256-2370. Lost the return envelope, need help to complete your questionnaire(s)? Call us at 1 866 855-8594.

### Fax or Other Electronic Transmission Disclosure

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

### Authority

This survey is conducted under the authority of the *Statistics Act*, Revised Statutes of Canada, 1985, Chapter S19.

**COMPLETION OF THIS QUESTIONNAIRE IS A LEGAL REQUIREMENT UNDER THE STATISTICS ACT.**

### Confidentiality

Statistics Canada is prohibited by law from publishing any statistics which would divulge information obtained from this survey that relates to any identifiable business. The data reported on this questionnaire will be treated in strict confidence.

### Data-sharing Agreements

In an effort to reduce respondent burden, Statistics Canada has entered into an agreement with Environment Canada under **Section 12 of the *Statistics Act*** for sharing of data herein. Environment Canada has undertaken to keep the information confidential and to use it for statistical purposes only. This Section 12 agreement shall not apply if an authorized officer or person of your company objects **in writing to the Chief Statistician and mails that letter to the Operations and Integration Division of Statistics Canada** with the completed questionnaire.

### Planned Data Linkage

In order to enhance the analytic possibilities of this survey, Statistics Canada intends to combine the information from the Industrial Water Survey with the information your company/business provided on the Monthly Electricity Survey, the Annual Electricity Survey and the Electricity Supply Disposition Annual Survey.

Person primarily responsible for completing this questionnaire, if different from above:

0026 1  Mr. 2  Mrs. 3  Miss 4  Ms 5  Dr.

0054 Last name

0013 First name

0014 Title

0017 Telephone number ( ) - extension 0027

0016 Fax number ( ) -

0020 Website address

0018 E-mail address

*For Statistics Canada use only*

Rec.	Ed.	Kyd.	Bat.	Coll.	FSC
Y   M   D	Y   M   D	Y   M   D			

**REPORTING YEAR:** JANUARY 1, 2009 TO DECEMBER 31, 2009

NOTE i) Water volumes are to be reported in the units in use at this facility; please **mark only one selection** and use this unit of measure throughout the questionnaire.

Line  
1

C0101

1  cubic metres

2  other – specify

**IMPORTANT**  
If reporting in multiples of a unit of measure, please take care to enter the correct decimal values or number of zeros. (i.e., if *other*, above, is specified as *thousands* of litres, note that a reported quantity of 3 = 3,000 (*3 thousand*) litres, whereas a reported quantity of 3,000 = 3,000,000 (*3 million*) litres).  
If reporting in gallons, please specify Imperial or U.S. gallons.

ii) Where data are not available, please estimate.

**SECTION 1: MONTHLY AND ANNUAL TOTAL WATER INTAKE AND DISCHARGE**

**INSTRUCTIONS**

- (i) In this section, under intake, please report by month the quantity of “new water” brought into your operation for **all** power plant uses. For the purpose of this questionnaire “new water” is defined as water introduced for the first time into this facility **regardless of source or quality** (including sanitary/domestic water intake). It also includes water diverted from a natural resource into storage ponds or outside holding facilities for later use.
- (ii) Where you supply water to adjacent or tenant industry(ies) or municipality(ies), please report estimated water intake for your establishment only.
- (iii) Under discharge, please report the quantity of water routed to its ultimate point of discharge (including sanitary/domestic discharge).
- (iv) Under discharge **do not report** the volume of water released to ponds, lagoons or basins and intended for recirculation or reuse until such water is actually discharged to a location beyond the control of the facility.
- (v) Under discharge **do not include** any water lost in production through evaporation, permanently held in open or closed storage, or otherwise consumed (e.g. included in a final product).

Month	Volume per month	
	Intake	Discharge
2 January	C1001	C1101
3 February	C1002	C1102
4 March	C1003	C1103
5 April	C1004	C1104
6 May	C1005	C1105
7 June	C1006	C1106
8 July	C1007	C1107
9 August	C1008	C1108
10 September	C1009	C1109
11 October	C1010	C1110
12 November	C1011	C1111
13 December	C1012	C1112
14 <b>ANNUAL TOTAL</b>	C1013	C1113

15 If total discharge volume (C1113) is greater than total intake volume (C1013), please indicate reason:

C1201

## SECTION 2: WATER INTAKE BY SOURCE AND KIND

### INSTRUCTIONS

- (i) Please report your volumes of intake water by source and its usual characteristic.
- (ii) Freshwater is defined as water containing 900 parts per million, or less, of total dissolved solids.
- (iii) Saline / brackish water is defined as water containing more than 900 parts per million of total dissolved solids.

**Where data are not available, please estimate.**

Source	Volume per year	
	Freshwater	Saline / Brackish
16 Public water utility system .....	C2401	XXXX
17 Self-supplied surface water system (lake, river, etc.) .....	C2402	XXXX
18 Self-supplied groundwater system (well, spring, etc.) .....	C2403	C2203
19 Self-supplied tide water (salt water) body (estuary, bay, ocean, etc.) .....	XXXX	C2204
20 Other sources ( <i>specify</i> ) C2000	C2405	C2205
21 <b>TOTAL</b> .....	C2406	C2206

**NOTE:** The sum of C2406 and C2206 (line 21, above) should equal C1013 at line 14 on previous page.

### Estimated annual cost of water acquisition:

22 Payment to public utility (for water volume at line 16, above) .....

C2301

\$  ,  Millions ,  Thousands ,  Hundreds .00

23 Estimated annual operating and maintenance costs of intake water acquisition (excluding water treatment costs which are covered on the next page). Operating and maintenance costs should only include your material, labour and energy costs incurred to operate and maintain your systems that bring water into your facility .....

C2302

\$  ,  Millions ,  Thousands ,  Hundreds .00

24 Cost of your annual intake licence (estimate if permit not purchased annually) .....

C2303

\$  ,  Millions ,  Thousands ,  Hundreds .00

25 Payment for purchase of water from another operator / industrial supplier .....

C2304

\$  ,  Millions ,  Thousands ,  Hundreds .00

## SECTION 3: INTAKE WATER - TREATMENT

26 Did this establishment treat any **intake** water?

C3001 1  Yes

3  No → *If no, go to Section 4*

### INSTRUCTIONS

- (i) Indicate the volume of intake **water treated** within your establishment prior to initial use. Do not include treatment of water for re-use.

**Where data are not available, please estimate.**

	Category of treatment	Volume per year
27	Screening .....	C3201
28	Filtration .....	C3202
29	Chlorination - disinfection (includes for process and for biological control) .....	C3203
30	Corrosion and slime control .....	C3204
31	Alkalinity control .....	C3205
32	Hardness (or water softening) .....	C3206
33	Coagulation / flocculation .....	C3207
34	Other (specify) <small>C3213</small> .....	C3210
	Other (specify) <small>C3214</small> .....	C3211
	Other (specify) <small>C3215</small> .....	C3212

35 Estimated annual operating and maintenance cost of your intake water treatment. Operating and maintenance costs should only include your material, labour and energy costs incurred to operate and maintain systems to treat water brought into your facility.....

C3101

\$  ,  Millions ,  Thousands ,  Hundreds .00

## SECTION 4: WATER INTAKE BY PURPOSE

### INSTRUCTIONS

- (i) Report the amount of water within your facility by **initial** use. This section should not include recirculated water (for a definition of "recirculated water", see section 5).
- (ii) In Line 39 "Other uses" should not include water pumped by the facility, and intended for initial use outside the facility.

**Where data are not available, please estimate.**

	Purpose	Volume per year
36	Cooling, condensing and steam - defined as water <b>which does not come in direct contact</b> with the products, materials or by-products of the processing operation. It includes pass-through water used in the operation of cooling or process equipment (including air conditioning) and water introduced into boilers for the production of steam for either process operations or electric power. ....	C4102
37	Pollution control (e.g. wet flue gas desulphurization, etc.) .....	C4106
38	Sanitary service/Domestic use - This is water used for toilets, janitorial services, lawn watering, washing of vehicles, etc. ....	C4103
		C4104
39	Other uses ( <i>specify</i> ) <span style="border: 1px solid black; padding: 2px;">C4000</span> .....	C4105
40	Total (Lines 36 to 39 should equal sum of figures reported in Line 14, C1013) .....	
41	What were the estimated water losses (including evaporation and seepage):	C4201
	(i) in cooling cycle? .....	C4202
	(ii) pollution control (e.g. wet flue gas desulphurization, etc.)? .....	C4203
	(iii) in ash control system (include evaporation losses from ponds)? .....	
42	What was the amount of boiler make up water required for power generation purpose (excluding production for steam sales or transfer)? .....	C4204
43	Is there a water-cooled condenser in your plant? ..... C4205 1 <input type="radio"/> Yes 3 <input type="radio"/> No	
	↓	
44	If yes, what was the actual temperature rise of the cooling water in your condenser cooling cycle?	Temperature
	Minimum .....	C4206 °C
	Maximum .....	C4207 °C
45	Please indicate the type of cooling system employed in your establishment:	C4208
	(i) Once-through .....	1 <input type="radio"/> Yes 3 <input type="radio"/> No
	(ii) Cooling ponds .....	C4213 1 <input type="radio"/> Yes 3 <input type="radio"/> No
	(iii) Cooling tower .....	C4214 1 <input type="radio"/> Yes 3 <input type="radio"/> No
	(iv) Other methods .....	C4211 1 <input type="radio"/> Yes 3 <input type="radio"/> No
46	Did this plant produce steam for purposes other than electric power generation (i.e. heating, process or for sale)? .....	C4212 1 <input type="radio"/> Yes 3 <input type="radio"/> No

## SECTION 5: WATER RECIRCULATED OR REUSED BY PURPOSE

Recirculated water refers to water used at least twice in an industrial establishment. It is water that **leaves** a particular subsystem and **re-enters** it or is **used in another** subsystem. It does not refer to water that circulates many times within the same sub-system (i.e. it excludes closed-loop systems).

- 47 Did this facility recirculate or reuse water? C5001 1  Yes  
 3  No → *If no, go to Section 6*

### INSTRUCTIONS

(i) Please report the volume of water recirculated or reused.

**Where data are not available, please estimate.**

Purpose	Volume per year
48 Cooling, condensing and steam .....	C5102
49 Pollution control (e.g. wet flue gas desulphurization, etc.) .....	C5105
50 Other uses ( <i>specify</i> ) <span style="margin-left: 20px;">C5000</span> .....	C5103
51 Total (Lines 48 to 50) .....	C5104

- 52 Estimated annual operating and maintenance cost of water recirculation. Operating and maintenance costs should only include your material, labour and energy costs incurred to operate and maintain systems to recirculate water in your facility C5201
- \$  ,  ,  ,  .00
- Millions      Thousands      Hundreds

FOR INFORMATION ONLY

## SECTION 6: WATER DISCHARGE AND ITS TREATMENT

### INSTRUCTIONS

- (i) Please report the volume of all water routed by this facility to its ultimate point of discharge by the most advanced treatment process used.
- (ii) Do not report the volume of water released and intended for re-use or recirculation until it is actually discharged to a location beyond the control of the facility.
- (iii) Do not include the volume of water lost in production through evaporation, permanently held in open or closed storage or otherwise consumed and not brought to the ultimate point of discharge.

53 Is discharge volume metered or otherwise measured? C6001 1  Yes  
 3  No (If no, please provide your best estimate below.)

### INSTRUCTIONS

The sum of all amounts entered below should equal C1113 from Section 1 (page 2).

Type of treatment	Point of discharge				
	Public utilities	Surface Freshwater bodies	Tide water (Ocean)	Ground water	Other
	Annual volume				
	C6101	C6102	C6106	C6103	C6104
54 Water not treated at this facility before discharge .....	C6201	C6202	C6206	C6203	C6204
55 Primary or mechanical (the physical removal of large solids using grates, screens and settling tanks) ...	C6301	C6302	C6306	C6303	C6304
56 Secondary or biological (the promotion of bacterial growth and other microbes that break down the organic wastes) .....	C6401	C6402	C6406	C6403	C6404
57 Tertiary or advanced (the reduction of concentrations of phosphorus or nitrogen through biological or chemical processes) .....					

58 Estimated annual operating and maintenance cost for treatment of water discharge. Operating and maintenance costs should only include your material, labour and energy costs incurred to operate and maintain systems to treat water discharged by your facility .....

C6501  
 \$  ,  ,  ,  .00  
 Millions      Thousands      Hundreds

FOR INFORMATION ONLY





## Comments

Approximately how long did it take to collect the data and complete this survey?

C9910

Hour(s)

C9909

Minutes

We invite your comments or suggestions on the following or any other topic related to the *Industrial Water Survey*. We appreciate your assistance.

- Questionnaire content
- New questions of interest to your industry
- Clarity of questions
- Order and flow of questions
- Timing of receipt of questionnaire and the period given for response
- Alternative sources of information to further reduce response burden

C9920

C9913

C9914

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If you have questions, please contact us.  
Telephone (toll free): 1 866 855-8594  
Fax: 1 800 755-5514 (within Canada)

Please return this questionnaire in the envelope provided.  
**THANK YOU FOR YOUR PARTICIPATION IN THIS SURVEY!**