



Industrial Water Survey: Fossil-Fuel and Nuclear Electric Power Generating Plants, 2005

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:

Legal name
0001 _____

Business name
0002 _____

C/O
0003 _____

Last name of contact
0028 _____

First name of contact
0008 _____

Address
0004 _____

City _____ Province/Territory or State _____

0005 _____ 0006 _____

Country _____ Postal code/Zip code _____

0052 _____ 0007 _____

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 at 1 800 755-5514. 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. **Your responses are not shared with Canada Revenue Agency.**

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 <input type="radio"/> Mr. 2 <input type="radio"/> Mrs. 3 <input type="radio"/> Miss 4 <input type="radio"/> Ms 5 <input type="radio"/> Dr.	0017	Telephone number _____ extension _____ () - 0027
0054	Last name _____	0016	Fax number _____ () -
0013	First name _____	0020	Website address _____
0014	Title _____	0018	E-mail address _____

For Statistics Canada use only

Rec. Y M D	Ed. Y M D	Kyd. Y M D	Bat.	Coll.	FSC
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REPORTING YEAR: JANUARY 1, 2005 TO DECEMBER 31, 2005

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

Line 1	C0101	1 <input type="checkbox"/> cubic metres	
		2 <input type="checkbox"/> cubic feet	
		3 <input type="checkbox"/> thousands imperial gallons	
		4 <input type="checkbox"/> thousands U.S. gallons	
		5 <input type="checkbox"/> other (please specify)	C0102 <input style="width: 300px;" type="text"/>

- ii) Please report all cost items to the nearest thousand Canadian dollars (\$000).
- iii) **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
		C1001	C1101
2	January	C1002	C1102
3	February	C1003	C1103
4	March	C1004	C1104
5	April	C1005	C1105
6	May	C1006	C1106
7	June	C1007	C1107
8	July	C1008	C1108
9	August	C1009	C1109
10	September	C1010	C1110
11	October	C1011	C1111
12	November	C1012	C1112
13	December	C1013	C1113
14	ANNUAL TOTAL		

SECTION 2: WATER INTAKE BY SOURCE AND KIND

INSTRUCTIONS

- (i) Please report your volumes of intake water by source and its usual characteristic. Unless you know otherwise, report volumes received from public water utility systems as "Fresh".
- (ii) Fresh water is defined as water containing less than 300 parts per million total dissolved solids.
- (iii) Hard water is defined as water containing 300 - 900 parts per million total dissolved solids.
- (iv) Saline water is defined as water containing more than 900 parts per million of total dissolved solids.
- (v) The sum of all volumes should equal the annual total as reported in Line 14, C1013 on previous page.

Where data are not available, please estimate.

Source	Volume per year		
	Fresh	Hard	Saline
15 Public water utility system	C2001	C2101	XXXX
16 Self-supplied surface water system (lake, river, etc.)	C2002	C2102	XXXX
17 Self-supplied groundwater system (well, spring, etc.)	C2003	C2103	C2203
18 Self-supplied tide water (salt water) body (estuary, bay, ocean, etc.)	XXXX	XXXX	C2204
19 Other sources (<i>specify</i>) C2000	C2005	C2105	C2205

Estimated annual cost of water acquisition:

	\$'000's
20 Payment to public utility	C2301 \$
21 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 \$
22 If applicable, cost of your establishment's annual intake licence (estimate if permit not purchased annually)	C2303 \$

SECTION 3: INTAKE WATER - TREATMENT

23 Did this facility 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 facility prior to use.

Where data are not available, please estimate.

Category of treatment		Volume per year
24	Screening	C3201
25	Filtration	C3202
26	Chlorination - disinfection (includes for process and for biological control)	C3203
27	Corrosion and slime control	C3204
28	Alkalinity control	C3205
29	Hardness (or water softening)	C3206
30	Coagulation / flocculation	C3207
31	Other (specify) <input type="text" value="C3213"/>	C3210
	Other (specify) <input type="text" value="C3214"/>	C3211
	Other (specify) <input type="text" value="C3215"/>	C3212
32	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...	<div style="text-align: right;">\$'000's</div> C3101 \$ <input type="text"/>

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 36 "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.

	Volume per year						
33 Cooling, condensing and steam - defined as water which does not come in direct contact 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						
34 Pollution control (e.g. wet flue gas desulphurization, etc.)	C4106						
35 Sanitary service/Domestic use - This is water used for toilets, janitorial services, lawn watering, washing of vehicles, etc.	C4103						
	C4104						
36 Other uses (<i>specify</i>) <input style="width: 400px;" type="text" value="C4000"/>	C4105						
37 Total (Lines 33 to 36 should equal sum of figures reported in Line 14, C1013)							
38 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)?							
39 What was the amount of boiler make-up water required for power generation purpose (excluding production for steam sales or transfer)?	C4204						
40 Is there a water-cooled condenser in your plant? C4205 1 <input type="checkbox"/> Yes 3 <input type="checkbox"/> No							
41 If yes, what was the actual temperature rise of the cooling water in your condenser cooling cycle?	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">Temperature</th> </tr> </thead> <tbody> <tr> <td style="width: 60%;">C4206</td> <td style="text-align: right;">°C</td> </tr> <tr> <td>C4207</td> <td style="text-align: right;">°C</td> </tr> </tbody> </table>	Temperature		C4206	°C	C4207	°C
Temperature							
C4206	°C						
C4207	°C						
Minimum							
Maximum							
42 What kind of cooling system is employed in your establishment?	C4208						
(i) once-through	1 <input type="checkbox"/> Yes 3 <input type="checkbox"/> No						
(ii) on stream cooling pond	C4209 1 <input type="checkbox"/> Yes 3 <input type="checkbox"/> No						
(iii) off stream cooling pond	C4210 1 <input type="checkbox"/> Yes 3 <input type="checkbox"/> No						
(iv) other methods (e.g. tower)	C4211 1 <input type="checkbox"/> Yes 3 <input type="checkbox"/> No						
43 Did this plant produce steam for purposes other than electric power generation (i.e. heating, process or for sale)?	C4212 1 <input type="checkbox"/> Yes 3 <input type="checkbox"/> No						

SECTION 5: WATER RECIRCULATED OR REUSED BY PURPOSE

Recirculated water refers to water used more than once in an industrial establishment and applies mainly to cooling and processing activities. It does not refer to water used a number of times within a particular system (i.e. **it excludes closed-loop systems**). It only refers to water that leaves a particular subsystem and re-enters it or is used in another subsystem.

44 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
	C5102
45 Cooling, condensing and steam	C5105
46 Pollution control (e.g.wet flue gas desulphurization, etc.)	C5103
47 Other uses (<i>specify</i>) <input type="text" value="C5000"/>	C5104
48 Total (Lines 45 to 47)	

49 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

\$'000's
C5201 \$

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 treatment process.
- (ii) 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.
- (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.

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

Where data are not available, please estimate.

Treatment	Point of discharge (volume per year)			
	Public utilities	Surface water bodies	Ground water	Other
51 Water not treated at this facility before discharge	C6101	C6102	C6103	C6104
52 Primary or mechanical (the physical removal of large solids using grates, screens and settling tanks) ...	C6201	C6202	C6203	C6204
53 Secondary or biological (the promotion of bacterial growth and other microbes that break down the organic wastes)	C6301	C6302	C6303	C6304
54 Tertiary or advanced (the reduction of concentrations of phosphorus or nitrogen through biological or chemical processes) ..	C6401	C6402	C6403	C6404

- 55 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

\$'000's
C6501 \$

FOR INFORMATION ONLY

SECTION 7: OTHER DETAILS

\$'000's
C7010
\$

56 Total **capital expenditures** on water intake, discharge or treatment facilities made at this establishment for 2005

Number
C7001
C7002
C7003

57 Indicate the average number of employees (including administrative staff)

58 Indicate the number of days of operation of the facility during the reporting period

59 Indicate the average number of hours this facility operates in an average day

60 Indicate the amount of electrical power produced at this facility:

(i) net generation

C7004	MWh
C7005	MWh

(ii) station service

61 Indicate the average heat rate of the facility

C7006	BTU/KWh
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62 Indicate the electrical generation capacity of this facility

C7007	MW
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63 Indicate the total capacity of water intake pumps: *(specify unit of measure)*

C7008

64 (i) Does your facility provide water for uses other than in the power plant

C7009	1 <input type="checkbox"/> Yes	3 <input type="checkbox"/> No
↓		

(ii) If yes, please explain:

C7011	
C7012	

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

FOR INFORMATION ONLY

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!