

**Pollution Prevention Planning for Ammonia,
Inorganic Chloramines and Chlorinated
Wastewater Effluents in Municipal
Wastewater Effluents**

Working Document

Part 4 of the *Canadian Environmental Protection Act, 1999*

For consultation purposes

July 2002

Environment Canada

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List of Acronyms and Abbreviations

CEPA 1999	<i>Canadian Environmental Protection Act, 1999</i>
CEPA NAC	CEPA 1999 National Advisory Committee
CCME	Canadian Council of Ministers of the Environment
CWWE	chlorinated wastewater effluents
TRC	total residual chlorine
EQOs	environmental quality objectives
NPEs	nonylphenol and its ethoxylates
NPRI	National Pollutant Release Inventory
TMEs	textile mill effluents
RMO	Risk Management Objective
P2	Pollution Prevention
mg/L	milligrams per litre
µg/L	micrograms per litre
LC50	lethal concentration at which 50% of the test organisms die
CAS	Chemical Abstracts Service
kg	kilograms

Preface

This document presents the elements proposed by Environment Canada for the preparation of pollution prevention plans for ammonia¹, inorganic chloramines and chlorinated wastewater effluents. The information is presented in the format envisaged for the Notice to be published in the *Canada Gazette, Part 1* before June 23, 2003 setting out the proposed pollution prevention plan requirements under CEPA 1999. This document describes the proposed criteria to be used to determine the wastewater systems for which pollution prevention plans will be required and outlines the proposed considerations to be taken into account in preparing the plans.

This document is supporting, and is to be used with, Environment Canada's Proposed Risk Management Strategy addressing Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents under CEPA 1999.

¹ Note that the nomenclature for Ammonia is subject to change. This applies for the balance of the document.

Pollution Prevention Planning for Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents in Municipal Wastewater Effluents

Working Document

The following is a working document presenting the main elements that Environment Canada proposes to include in a section 56 notice requiring the preparation and implementation of pollution prevention plans for ammonia, inorganic chloramines and chlorinated wastewater effluents under Part 4 of the *Canadian Environmental Protection Act, 1999* (CEPA 1999). Comments received on this document will be considered in developing a proposed notice pursuant to section 56 that will be published under section 91 of CEPA 1999 in the *Canada Gazette*, Part 1 for a 60-day comment period.

More information on pollution prevention planning can be found in the *Guidelines for the Implementation of the Pollution Prevention Planning Provisions of Part 4 of the Canadian Environmental Protection Act, 1999* (CEPA 1999). These guidelines and other information related to pollution prevention and pollution prevention planning can be found at www.ec.gc.ca/nopp

CEPA-toxic substances to be included in the Notice:

- Ammonia
- Inorganic Chloramines
- Chlorinated Wastewater Effluents

1. **Person or class of persons required to prepare and implement a pollution prevention plan:** Any person who owns or operates a municipal wastewater collection system that, on the date of publication of the final notice, discharges treated or untreated wastewater effluent to surface water or to any surface location where it enters, or may enter, surface water where:

(1) (A) chlorine or chlorine compounds are used on a regular or seasonal basis to disinfect the wastewater prior to discharge, **or**;

(B) the average total ammonia concentration in the discharge exceeds 20 mg/L; (The average total ammonia concentration is the arithmetic mean of at least 3 monthly averages over the months of June, July, August and September. The monthly average is the arithmetic mean of at least 3 samples taken at least one day apart.)

and

(2) the annual average effluent discharge volume is 10,000 m³/day or greater;
and

- (3) the effluent does not meet the risk management objectives as specified in paragraph 3.

The criteria used to select wastewater systems are illustrated in Figure 1.

The person may be a province, a municipality, a territory, a company or an individual, and may own or operate more than one physically independent wastewater collection system. A wastewater collection system (also known as a sanitary or combined sewer system or network) includes sewers, any treatment plant or facility, all treatment plant outfalls, pumping stations and overflow outfalls, combined sewer outfalls and raw sewage outfalls within a discrete system.

If a person owns or operates more than one wastewater collection system within a region or area, one plan may be prepared and implemented for all the systems, as long as it addresses each system individually. All Declarations, Interim Progress Reports and Requests for time extensions or waivers must be filed separately for each system.

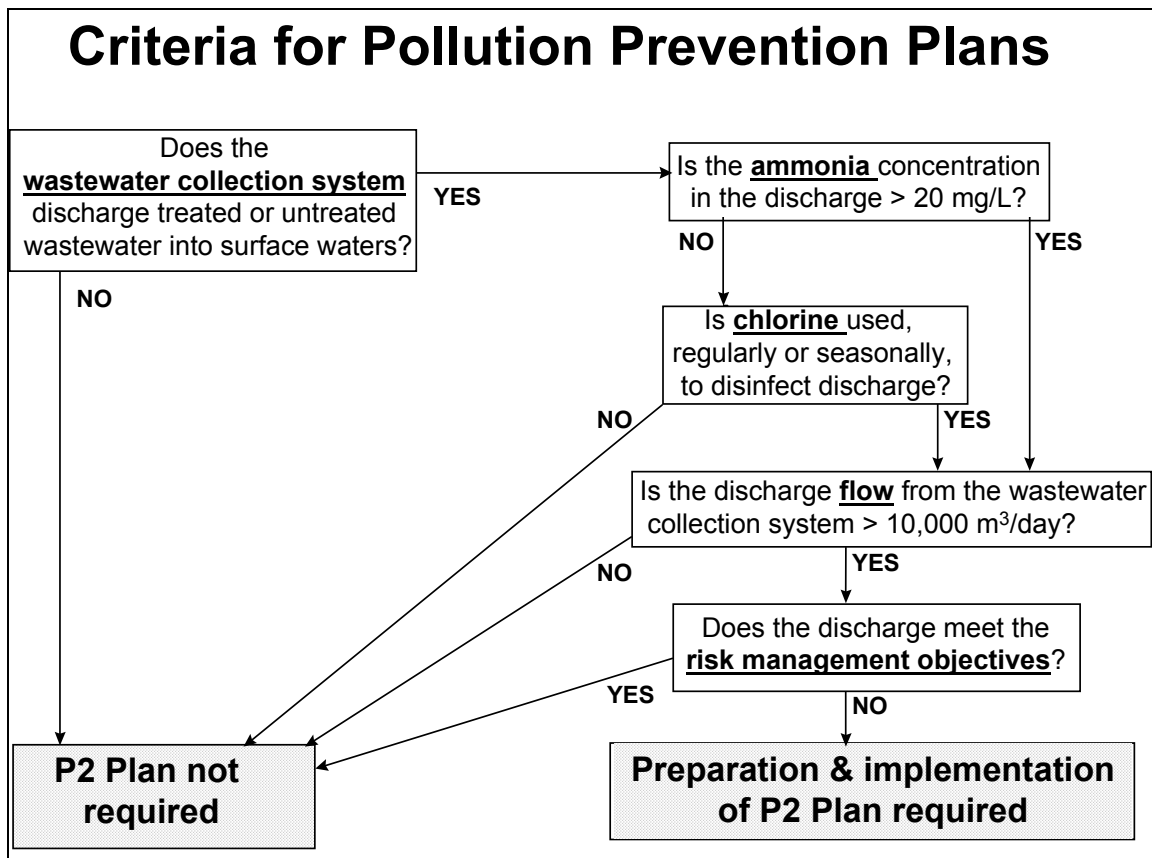


Figure 1: Proposed criteria to determine the wastewater systems for which pollution prevention plans will be required under CEPA 1999.

2. Activities in relation to which the plan is to be prepared: All persons identified in paragraph 1 shall prepare and implement a pollution prevention plan in relation to the following activities:

- (1) collection of wastewater;

- (2) primary, secondary or other treatment of wastewater;
- (3) disinfection of wastewater using chlorine or chlorine compounds;
- (4) dechlorination of wastewater; and
- (5) discharge of municipal wastewater effluent at main outfalls.

The scope of the pollution prevention plan does not have to include overflows (e.g. combined sewer overflows and sanitary sewer overflows), separate storm water sewer systems, or residuals, sludges and biosolids management activities, although inclusion of these activities into the plan would make it more comprehensive.

3. Factors to consider in preparing the plans: When preparing the pollution prevention plan, all persons identified in paragraph 1 shall consider the following factors:

- (1) Environment Canada has the following risk management objectives for the implementation of the pollution prevention plans:
 - a) For inorganic chloramines and chlorinated wastewater effluent, no acute lethality from these substances. Success in achieving this objective will be indicated by achieving a maximum effluent discharge concentration of 20 µg/L total residual chlorine (TRC), calculated as the mean of a minimum of 5 samples taken at least 1 week apart.
 - b) For ammonia, no acute lethality from ammonia. This means achieving a site-specific effluent discharge limit, calculated using the method explained in Appendix 1.
- (2) The existing Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life for chlorine and ammonia are, 0.5 µg/L reactive chlorine species in both fresh and salt water, and 19 µg/L un-ionized ammonia in fresh water, respectively.
- (3) In preparing a pollution prevention plan, priority is to be given to pollution prevention activities, that is, the use of processes, practices, materials, products, substances or energy that avoid or minimize the creation of pollutants and waste and reduce the overall risk to the environment or human health. In this particular instance, pollution prevention activities are useful with respect to discharges into the collection system through source control programs such as sewer use bylaws.
- (4) Persons should also consider the proposed long-term direction in Environment Canada's **Proposed Risk Management Strategy addressing Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents under CEPA 1999**. (www.ec.gc.ca/..... to be determined).

4. Timelines for the preparation and implementation of the pollution prevention plans: The pollution prevention plan must be prepared within 12 months of the publication date of the Notice (hereafter called the Final Notice) requiring the preparation and implementation of pollution prevention plans in respect of inorganic chloramines, chlorinated wastewater effluent and ammonia in wastewater.

The pollution prevention plan must be implemented within 48 months after the end of the period within which the plan is to be prepared.

The proposed timelines for the publication of Notices, preparation and implementation of the pollution prevention plans are illustrated in Figure 2.

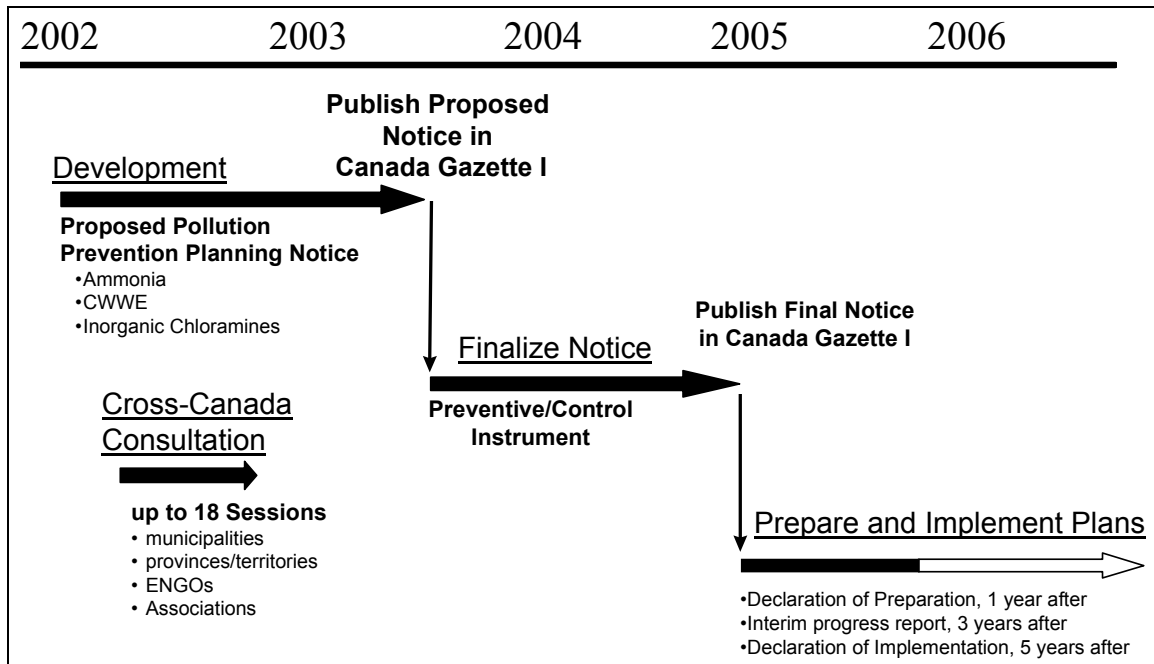


Figure 2: Proposed timelines for the publication of Notices, and the preparation and implementation of pollution prevention plans

5. Content of Plans: Persons preparing the plan are to determine the appropriate content of their own plan; however, it must address all requirements of the Final Notice, and contain and support the information to be filed in the Declarations and the Interim Progress Reports. If a person owns or operates more than one wastewater system, one plan may be prepared and implemented for all systems, as long as it addresses each system individually.

6. Requirement to keep plan: Pursuant to section 59 of CEPA 1999, all persons identified in paragraph 1 must keep a copy of the plan at the place in Canada in relation to which the plan is prepared. If a person owns or operates more than one wastewater collection system and has prepared only one plan as described in paragraph 5, a copy of that plan must be kept at each collection and/or treatment system in relation to which the plan was prepared.

7. Declaration of Preparation: A form entitled “*Declaration that a Pollution Prevention Plan has been Prepared and is being Implemented - Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents (Subsection 58(1) of CEPA 1999)*” is given in Schedule 1 of this document. This declaration must be filed for each wastewater collection system within 30 days after the end of the period within which the plan is to be prepared (paragraph 4).

8. Declaration of Implementation: A form entitled “*Declaration that a Pollution Prevention Plan has been Implemented - Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents (Subsection 58(2) of CEPA 1999)*” is given in

Schedule 5. This declaration must be filed for each wastewater collection system. It must be filed within 30 days after the completion of the implementation of the plan, and no later than 30 days after the time period specified in paragraph 4.

9. Filing of amended declarations: Where a person has filed a Declaration of Preparation or Implementation referred to in paragraphs 7 and 8, and the Declaration contains information that at any time thereafter becomes false or misleading, that person shall file an amended Declaration within 30 days after that time.

10. Interim Progress reports: A form entitled “*Interim Progress Report - Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents*” is given in Schedule 4. This Interim Progress Report #1 must be filed for each wastewater collection system within 24 months after the end of the period within which the plan is to be prepared (paragraph 4). If a Declaration of Implementation is submitted before the Interim Progress Report is due, then the requirement to submit such an Interim Progress Report is nullified.

Where a person has filed an Interim Progress Report that contains information that at any time after the filing becomes false or misleading, that person shall file an amended report within 30 days after that time.

11. Use of a plan prepared or implemented for another purpose: Pollution prevention plans prepared or implemented for another purpose can be used to satisfy the requirements of the Final Notice as specified in subsection 57(1) of CEPA 1999. Under subsection 57(2) of CEPA 1999, where a person uses a plan that does not meet all the requirements of the Final Notice, the person can amend the plan so that it meets all of those requirements or prepare an additional plan that meets the remainder of those requirements. Persons using plans prepared for another purpose must still file the Declaration of Preparation referred to in paragraph 7, the Declaration of Implementation referred to in paragraph 8, any amended declarations referred to in paragraph 9, where applicable, and the Interim Progress Report referred to in paragraph 10.

12. Extension of time:

(1) Where the Minister is of the opinion that further time is necessary to prepare or to implement the plan as specified in paragraph 4, the Minister may extend the period for a person who submits a written *Request for Extension of Time - Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents* using the form given in Schedule 3 before the expiry of the date referred to in paragraph 4 or before the expiry of any extended period.

(2) Where the Minister is of the opinion that further time is necessary to file an Interim Progress Report under paragraph 10, the Minister may extend the date on which the Interim Progress Report must be filed for a person who submits a written *Request for Extension of Time - Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents* using the form given in Schedule 3 before the date referred to in paragraph 10 or before the expiry of any extended period.

13. Application for waiver of factors to consider: Where the Minister is of the opinion that it is not reasonable or practicable to consider a factor specified in the Final Notice, the Minister may waive the requirement to consider that factor for a person who submits a written *Request for Waiver of Factors to Consider - Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents (Subsection 56(5) of CEPA 1999)* using the form

given in Schedule 2, providing reasons for the request before the expiry of the period within which the plan is to be prepared (paragraph 4).

Appendix 1: Derivation of Risk Management Objective for Ammonia

Schedule 1: *Declaration that a Pollution Prevention Plan has been Prepared and is being Implemented - Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents (Subsection 58(1) of CEPA 1999)*

Schedule 2: *Request for Waiver of Factors to Consider - Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents (Subsection 56(5) of CEPA 1999)*

Schedule 3: *Request for Extension of Time - Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents*

Schedule 4: *Interim Progress Report - Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents*

Schedule 5: *Declaration that a Pollution Prevention Plan has been Implemented - Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents (Subsection 58(2) of CEPA 1999)*

Appendix 1: Derivation of Risk Management Objective for Ammonia

The risk management objective (RMO) for ammonia in municipal wastewater effluents is:

- no acute lethality from ammonia in the discharge or in the environment, based on a site-specific discharge limit.

The following tables (Table 1,2,3 and 4) provide the information to derive site-specific discharge limits.

In summary, the derivation compares the ammonia concentration in the effluent with the projected ammonia concentration in the receiving water, accounting for the pH change and no dilution. The lower concentration of the two that will be non-acutely lethal then becomes the site-specific discharge limit for ammonia, and will determine any need for ammonia control. Further guidance documentation on how to derive the discharge limit will be developed and provided.

The current tables are for fresh water. Data are being compiled to develop comparable tables for saltwater discharges.

While temperature has an effect on toxicity, its effect with respect to acute lethality is quite small in comparison to pH and can be ignored. The United States Environmental Protection Agency (USEPA) has taken this approach with its acute criterion for aquatic life.

The application of this approach to lagoons requires further analysis. Often, lagoons discharge on a periodic basis, and the pH of the lagoon varies even on a diurnal basis and is often relatively high, particularly in summer months due to algal growth.

Derivation of Site-Specific Ammonia Discharge Limits

Table 1

Concentration of un-ionized ammonia based on a total ammonia of 2 - 40 mg/L

Temperature = 15 C

Total Ammonia	pH = 6.0	pH = 6.5	pH = 7.0	pH = 7.5	pH = 8.0	pH = 8.5	pH = 9.0	pH = 10.0
2	0.00055	0.00173	0.00546	0.0172	0.0534	0.159	0.43	1.47
4	0.00110	0.00346	0.0109	0.0344	0.107	0.319	0.86	2.93
6	0.00164	0.00519	0.0164	0.0516	0.160	0.478	1.29	4.40
8	0.00219	0.00692	0.0218	0.0687	0.214	0.638	1.72	5.86
10	0.00274	0.00865	0.0273	0.0859	0.267	0.797	2.15	7.33
12	0.00329	0.0104	0.0328	0.103	0.320	0.956	2.58	8.80
14	0.00384	0.0121	0.0382	0.120	0.374	1.12	3.01	10.26
16	0.00438	0.0138	0.0437	0.137	0.427	1.28	3.44	11.73
18	0.00493	0.0156	0.0491	0.155	0.481	1.43	3.87	13.19
20	0.00548	0.0173	0.0546	0.172	0.534	1.59	4.3	14.66
22	0.00603	0.0190	0.0601	0.189	0.587	1.75	4.73	16.13
24	0.00658	0.0208	0.0655	0.206	0.641	1.91	5.16	17.59
26	0.00712	0.0225	0.0710	0.223	0.694	2.07	5.59	19.06
28	0.00767	0.0242	0.0764	0.241	0.748	2.23	6.02	20.52
30	0.00822	0.0260	0.0819	0.258	0.801	2.39	6.45	21.99
32	0.00877	0.0277	0.0874	0.275	0.854	2.55	6.88	23.46
34	0.00932	0.0294	0.0928	0.292	0.908	2.71	7.31	24.92
36	0.00986	0.0311	0.0983	0.309	0.961	2.87	7.74	26.39
38	0.0104	0.0329	0.104	0.326	1.01	3.03	8.17	27.85
40	0.0110	0.0346	0.109	0.344	1.07	3.19	8.6	29.32

Note: This tables shows the concentration of un-ionized ammonia (in mg/L) for a given total ammonia, at the various pH values, for 15 degrees C (the temperature of the lab toxicity test).

It shows that at pH greater than 8.0, most effluents will be acutely lethal when total ammonia is above 10 mg/L (using the most conservative LC50 of 0.279).

Derivation of Site-Specific Ammonia Discharge Limits

Table 2

Mean LC50 Values

(from Risk Assessment report and EC analysis)

Species	mg/L un-ionized ammonia		
White perch	0.279		
Mountain whitefish	0.289	Brook trout	1.005
Chinook salmon	0.444	Smallmouth bass	1.105
Rainbow trout	0.483	Largemouth bass	1.304
Pumpkinseed	0.489	Fathead minnow	1.334
Coho salmon	0.520	White sucker	1.316
Cutthroat trout	0.642	Mottled sculpin	1.390
Brown trout	0.657		
Mountain sucker	0.729	Daphnid	1.160
Walleye	0.706	Cladoceran	1.185
Golden shiner	0.720	Fingernail clam	1.191
Golden trout	0.755	Flatworm	1.400

Derivation of Site-Specific Ammonia Discharge Limits

Table 3

Method for Calculation of Discharge Limits

EXAMPLE

Effluent

Total ammonia mg/L	24	determine average total ammonia concentration in effluent
pH	7.5	determine average pH of effluent
Un-ionized ammonia mg/L	0.206	in Table 1, use pH and ammonia concentration to find corresponding un-ionized ammonia (NH ₃) concentration

Receiving Water - Fresh Water

pH	8.0	determine average pH of receiving water
Un-ionized ammonia mg/L	0.641	using total ammonia concentration in effluent (above) and pH of receiving water, find corresponding un-ionized ammonia concentration
Critical LC50	0.483	in Table 2, select a critical species and LC50
Total ammonia that will achieve critical LC50 mg/L	18	in Table 1, use this critical LC50 and the receiving water pH to find corresponding total ammonia concentration

Lower of first and last lines above (total ammonia in effluent (24), and total ammonia that will achieve critical LC50 (18)) is site-specific discharge limit for total ammonia.

Total ammonia discharge limit mg/L	18	(24 versus 18)
Is ammonia control needed on effluent?	Yes	compare discharge limit (18) to effluent concentration (24)
LC50 species used	rainbow trout	

NOTES The average values noted above are the arithmetic mean of at least 3 monthly averages over the summer period. It would be preferable to have 12 monthly averages on which to base the average. The monthly average is the arithmetic mean of at least 5 samples taken over a period of at least 28 days and taken at roughly equal intervals of time.

The selection of a critical species and LC50 value to use in the derivation is very important. Rainbow trout has been used in this illustration **ONLY** as an example. Environment Canada is currently evaluating whether one species, and which species, or a series of site-specific species should be used as the critical species.

Derivation of Site-Specific Ammonia Discharge Limits

Table 4

Example Calculations of Discharge Limits

Effluent

Total ammonia mg/L	24	24	24	24	24	14
pH	7.5	7.5	7.5	7.5	7.5	7.5
Un-ionized ammonia mg/L	0.206	0.206	0.206	0.206	0.206	0.12
Critical LC50	0.279	0.279	0.279	0.483	0.483	0.483

Receiving Water - Fresh Water

pH	8.0	7.5	7	8.0	8.5	8.0
Un-ionized ammonia mg./L	0.641	0.206	0.066	0.641	1.91	0.374
Total ammonia that will achieve critical LC50 mg/L	10	24	high	18	6	18

Lower of first and last lines is site-specific discharge limit for total ammonia

Total ammonia discharge limit mg/l	10	24	24	18	6	14
Is ammonia control needed on effluent?	Yes	No	No	Yes	Yes	No
LC50 species used	white perch	white perch	white perch	rainbow trout	rainbow trout	rainbow trout

There are several technical details associated with this method that remain to be confirmed. The basic approach is not expected to change.

Schedule 1: Declaration that a Pollution Prevention Plan has been Prepared and is being Implemented - Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents (Subsection 58(1) of CEPA 1999)

Notice Reference Code: _____ **MWWE**

Please refer to the instruction booklet "Instruction for Completing Schedules to the *Canada Gazette* Notices Requiring the Preparation and Implementation of Pollution Prevention Plans" for direction on how to complete this Declaration.

Is this an amendment to a Declaration previously submitted? Yes No

If yes, complete Parts 1.0 and 9.0 and any other Parts of this Declaration where previously reported information has become false or misleading. Previously reported information that is unchanged need not be resubmitted.

1.0 Facility Information

Company Name: _____
Facility Name: _____
Street Address of Facility: _____
City: _____ Province/Territory: _____ Postal Code: _____
Mailing Address of Facility: _____
(if different from Street Address)
City: _____ Province/Territory: _____ Postal Code: _____
Facility Technical Contact: _____
e-mail (if applicable): _____
Telephone Number: _____ Fax Number (if applicable): _____
(with area code) (with area code)
National Pollutant Release Inventory ID (if no ID, leave blank): _____
6-digit North American Industry Classification System (NAICS) Code: _____

2.0 Use of Plans Prepared or Implemented for Another Purpose

Is the pollution prevention plan used to fulfill the obligations of this Notice:

- a pollution prevention plan that was previously prepared on a voluntary basis? Yes No
- a pollution prevention plan that was previously prepared for another government or under another Act of Parliament? Yes No

If yes, identify the other government requirement(s) or Act(s) of Parliament.

The following section (Parts 3.0 through 7.0) must be completed for ammonia (CAS Number 7664-41-7) by all persons subject to the notice. For persons who use chlorine or chlorine compounds for disinfection, the same sections must be completed again to address both inorganic chloramines (CAS Numbers 10599-90-3, 3400-09-0, 10025-85-1) and chlorinated wastewater effluents (no CAS Number). For these two substances, total residual chlorine must be reported.

The Chemical Abstracts Service (CAS) Registry Number is the property of the American Chemical Society and any use or redistribution, except as required in supporting regulatory requirements and/or for reports to the government when the information and the reports are required by law or administrative policy, is not permitted without the prior, written permission of the American Chemical Society.

3.0 Substance in the Notice

Substance in the Notice for which the following information applies (herein referred to as "Substance"):

Chloramines and chlorinated wastewater effluent _____
 Ammonia, CAS Number 7664-41-7 _____

4.0 Baseline Information Prior to Implementation of the Pollution Prevention (P2) Plan

Notes:

- a) The data collected in Parts 4.1, 4.3 and 4.4 of this Declaration mimic the reporting format of the National Pollutant Release Inventory (NPRI) where possible.
- b) Use the following codes where indicated, listed in declining order of expected accuracy, to describe how each quantity reported in this Part of the Declaration was determined:
 - M** Monitoring or direct measurement
 - C** Mass balance
 - E** Emission factors
 - O** Engineering estimates
- c) Unless persons identified in paragraph 1 of the Notice have been granted a time extension to prepare a plan, an extension that allows reporting for a year other than that specified in the notice, such persons must report data for the 2003 calendar year (January 1 to December 31).

If such persons have been granted a time extension to prepare a plan that allows reporting for a year other than the applicable year described above, indicate the new year on which this facility has been granted permission to report.

Indicate the new year on which this Declaration will be reporting: _____

4.1 Part 4.1 is not applicable to this Declaration

4.2 On-Site Uses

Did this facility use the Substance on-site in the year identified in Part 4.0 c) of this Declaration? Yes
 No

If yes, report below all on-site uses of the Substance in kg/year for that year in the appropriate field.
 If no, proceed to Part 4.3 of this Declaration.

Report the total of all on-site uses of the Substance with the basis of estimate code, indicating how the Substance is used in this facility and how it is estimated to be released into the environment.

A. Total Uses (kg/year)	Basis of Estimate Code	Type of Use	Estimate of Release

4.3 On-Site Releases

Did this facility release the Substance on-site in the year identified in Part 4.0 c) of this Declaration? Yes No

If yes, report below all on-site releases of the Substance in kg/year for that year in the appropriate field.
 If no, proceed to Part 4.4 of this Declaration.

4.3.1 Part 4.3.1 is not applicable to this Declaration

4.3.2 Part 4.3.2 is not applicable to this Declaration

4.3.3 Releases to Surface Waters

Report the total of all releases of the Substance to surface waters with the basis of estimate code, indicating the type(s) of release(s).

- direct discharges
- spills
- leaks
- other releases

D. Total Releases to Surface Waters	Basis of Estimate Code

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4.3.4 Part 4.3.4 is not applicable to this Declaration

4.3.5 Part 4.3.5 is not applicable to this Declaration

4.4 ***Part 4.4 is not applicable to this Declaration***

4.5 ***Additional Baseline Information***

4.5.1 On-site Releases to Surface Water

Further describe the releases of the Substance to surface waters in the year identified in Part 4.0 c) of this Declaration using the types of releases listed below with the basis of estimate code.

Type of Release	Releases to Surface Waters (kg/year)	Basis of Estimate Code
a) Direct discharges (main outfall)		
b) Combined Sewer Overflows		
c) By-passes		
d) Other releases		
TOTAL (a+b+c+d)		

4.5.2 Total Flows

Report the flow from each type of release in the year identified in Part 4.0 c) of this Declaration in m³/day for the main outfall and annual m³/year for other flows, with the basis of estimate code

Type of Release	Flow (m ³ /day)	Basis of Estimate Code
a) Direct discharges (main outfall)		
b) Combined Sewer Overflows		
c) By-passes		
d) Other releases		
TOTAL (a+b+c+d)		

4.5.3 Existing Treatment Processes

Briefly describe the following components of the existing wastewater collection system and any associated treatment system(s).

Component of Collection System	Description
Pumping stations, overflows (screening, grit removal)	
No Treatment	
Preliminary Treatment	
Primary Treatment	
Secondary Treatment	
Additional Treatment	
Lagoon	
Disinfection	
Receiving Surface Water(s)	
Number of overflow locations	
Frequency of overflows	

5.0 Anticipated Results, Timelines and Methods

5.1 Anticipated Actions

In the table below, describe the anticipated actions to be taken in implementing the P2 plan (Column I). In Columns II and III, identify whether each action represents a pollution prevention or other environmental approach, selecting from the list of options provided. For each action, report the corresponding change to uses or releases of the Substance anticipated to be achieved from implementation of that action in kg/year, where possible (Column IV). Note that predicting a quantitative change for some actions, such as training, may not be possible. In Column V, relate these changes to a specific element of the baseline information described in Parts 4.2 and 4.3 of this Declaration using the appropriate alphabetical label (e.g., for changes to total releases to surface water, use the label "D"). In Column VI, identify the planned completion date for each action.

I. Anticipated Action	II. P2 Method(s) Used (where applicable) ¹	III. Other Environmental Protection Method(s) Used (where applicable) ²	IV. Anticipated Change*	V. Baseline Element(s) Affected ³	VI. Planned Completion Date

* Indicate a decrease with a negative sign ("-") and an increase with a positive sign ("+") in front of the reported quantity.

¹ Pollution Prevention Methods

- *Materials or feedstock substitution*
- *Product design or reformulation*
- *Equipment or process modifications*
- *Spill and leak prevention*
- *On-site reuse, recycling or recovery*
- *Improved inventory management or purchasing techniques*
- *Good operating practices or training*
- *Other*

² Other Environmental Protection Methods

- *Energy recovery*
- *Off-site recycling*
- *Incineration with energy recovery*
- *Waste treatment*
- *Pollution control*
- *Safe disposal*
- *Other*

³ Baseline Elements Affected

- *A (total on-site uses)*
- *D (total surface water releases)*

5.2 Total Anticipated Results

The table below summarizes the total anticipated change to uses and releases of the Substance relative to the year identified in Part 4.0 c) of this Declaration in kg/year and as a percentage. In Columns VII and VIII, report those changes anticipated to be achieved from implementing only the actions described in Part 5.1 of this Declaration.

Type of Use or Release	VII. Total Anticipated Change* (kg/year)	VIII. Total Anticipated Change* (%)
5.2.1 On-site uses		
5.2.2 On-site releases		

* Indicate a decrease with a negative sign ("-") and an increase with a positive sign ("+") in front of the reported quantity.

6.0 Monitoring and Reporting

Briefly describe the indicators chosen to assess progress, the monitoring plan (including the frequency), and the reporting components of the P2 plan in relation to the Substance.

7.0 Risk Management Objective

Describe how the P2 plan outlined in this Declaration meets the risk management objective(s) identified in paragraph 3(1) of the Notice, and list the site-specific risk management objective for ammonia that was calculated as per Appendix 1 in the Final Notice. If this plan does not meet the risk management objective(s), explain why.

This ends the section (Parts 3.0 through 7.0) to be completed separately for different substances.

8.0 Factors to Consider

Describe how the P2 plan outlined in this Declaration takes into account the factors to be considered identified in paragraph 2 of the Notice.

9.0 Authorization

I have read this Declaration, understand its contents and confirm that the information submitted is correct. I further understand that if any information submitted in this Declaration becomes false or misleading, I must submit an amendment to this Declaration within 30 days after the time that the information has become false or misleading.

_____	_____
Signature	Date
Name: _____	
Please Print	
Title/Position: _____	
Please Print	

**Schedule 2: Request for Waiver of Factors to Consider - Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents
(Subsection 56(5) of CEPA 1999)**

Notice Reference Code: **MWWE**

Please refer to the instruction booklet “Instruction for Completing Schedules to the *Canada Gazette* Notices Requiring the Preparation and Implementation of Pollution Prevention Plans” for direction on how to complete this Request.

1.0 Facility Information

Company Name: _____
Facility Name: _____
Street Address of Facility: _____
City: _____ Province/Territory: _____ Postal Code: _____
Mailing Address of Facility: _____
(if different from Street Address)
City: _____ Province/Territory: _____ Postal Code: _____
Facility Technical Contact: _____
e-mail (if applicable): _____
Telephone Number: _____ Fax Number (if applicable): _____
(with area code) (with area code)
National Pollutant Release Inventory ID (if no ID, leave blank): _____
6-Digit North American Industry Classification System (NAICS) Code: _____

2.0 Factor(s) for Which a Waiver is Requested

Identify exactly which factor(s) listed in paragraph 3 of the notice for which a waiver is requested.

3.0 Rationale for Request

Explain why it would not be reasonable or practicable to consider each factor for which a waiver is requested.

Explain how consideration of the remaining factors will ensure that the resulting pollution prevention plan will satisfactorily address the substance or group of substances in relation to which the plan is to be prepared.

Optional: Explain which, if any, additional factors you propose to consider in preparing the pollution prevention plan.

4.0 Authorization

I have read this Request, I understand its contents and I confirm that the information submitted is correct.

Signature Date

Name: _____
Please Print

Title/Position: _____
Please Print

Schedule 4: Interim Progress Report - Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents

Notice Reference Code: MWWE
 Declaration ID: _____

Please refer to the instruction booklet "Instruction for Completing Schedules to the *Canada Gazette* Notices Requiring the Preparation and Implementation of Pollution Prevention Plans" for direction on how to complete this Report.

Is this an amendment to a Report previously submitted? Yes No

If yes, complete Parts 1.0 and 9.0 and any other Parts of this Report where previously reported information has become false or misleading. Previously reported information that is unchanged need not be resubmitted.

1.0 Facility Information

Company Name: _____
 Facility Name: _____
 Street Address of Facility: _____
 City: _____ Province/Territory: _____ Postal Code: _____
 Mailing Address of Facility: _____
 (if different from Street Address)
 City: _____ Province/Territory: _____ Postal Code: _____
 Facility Technical Contact: _____
 e-mail (if applicable): _____
 Telephone Number: _____ Fax Number (if applicable): _____
 (with area code) (with area code)
 National Pollutant Release Inventory ID (if no ID, leave blank): _____
 6-digit North American Industry Classification System (NAICS) Code: _____

2.0 Part 2.0 is not applicable to this Report

The following section (Parts 3.0 through 7.0) must be completed for ammonia (CAS Number 7664-41-7) by all persons subject to the notice. For persons who use chlorine or chlorine compounds for disinfection, the same sections must be completed again to address both inorganic chloramines (CAS Numbers 10599-90-3, 3400-09-0, 10025-85-1) and chlorinated wastewater effluents (no CAS Number). For these two substances, total residual chlorine must be reported.

3.0 Substance in the Notice

Substance in the Notice for which the following information applies (herein referred to as "Substance"):
 Chloramines and chlorinated wastewater effluent _____
 Ammonia, CAS Number 7664-41-7 _____

4.0 Baseline Information During Implementation of the Pollution Prevention (P2) Plan

Notes:

- a) The data collected in Parts 4.1, 4.3 and 4.4 of this Report mimic the reporting format of the National Pollutant Release Inventory (NPRI) where possible.
- b) Use the following codes where indicated, listed in declining order of expected accuracy, to describe how each quantity reported in this Part of the Report was determined:
 - M** Monitoring or direct measurement
 - C** Mass balance
 - E** Emission factors

Engineering estimates

c) Unless persons identified in paragraph 1 of the Notice have been granted a time extension to submit an Interim Progress Report for a year other than 2006, such persons must report data from the 2006 calendar year (January 1 to December 31).

If such persons have been granted a time extension to submit an Interim Progress Report that allows reporting for a year other than the applicable year described above, indicate the new year on which this facility has been granted permission to report.

Indicate the new year on which this Report will be reporting: _____

4.1 Part 4.1 is not applicable to this Report

4.2 On-Site Uses

Did this facility use the Substance on-site in the year identified in Part 4.0 c) of this Report? Yes No

If yes, report below all on-site uses of the Substance in kg/year for that year in the appropriate field.

If no, proceed to Part 4.3 of this Report.

Report the total of all on-site uses of the Substance with the basis of estimate code, indicating how the Substance is used in this facility and how it is estimated to be released into the environment.

A. Total Uses (kg/year)	Basis of Estimate Code	Type of Use	Estimate of Release

4.3 On-Site Releases

Did this facility release the Substance on-site in the year identified in Part 4.0 c) of this Report?

Yes No

If yes, report below all on-site releases of the Substance in kg/year for that year in the appropriate field.

If no, proceed to Part 4.4 of this Report.

4.3.1 Part 4.3.1 is not applicable to this Report

4.3.2 Part 4.3.2 is not applicable to this Report

4.3.3 Releases to Surface Waters

Report the total of all releases of the Substance to surface waters with the basis of estimate code, indicating the type(s) of release(s).

direct discharges

leaks

spills

other releases

D. Total Releases to Surface Waters	Basis of Estimate Code

4.3.4 Part 4.3.4 is not applicable to this Report

4.3.5 Part 4.3.5 is not applicable to this Report

4.4 Part 4.4 is not applicable to this Report

4.5 Additional Baseline Information

4.5.1 On-site Releases to Surface Water

Further describe the releases of the Substance to surface waters in the year identified in Part 4.0 c) of this Declaration using the types of releases listed below with the basis of estimate code.

Type of Release	Releases to Surface Waters (kg/year)	Basis of Estimate Code
a) Direct discharges (main outfall)		
b) Combined Sewer Overflows		
c) By-passes		
d) Other releases		
TOTAL (a+b+c+d)		

4.5.2 Total Flows

Report the flow from each type of release in the year identified in Part 4.0 c) of this Declaration in m^3/day for the main outfall and annual $m^3/year$ for other flows, with the basis of estimate code

Type of Release	Flow (m^3/day)	Basis of Estimate Code
a) Direct discharges (main outfall)		
b) Combined Sewer Overflows		
c) By-passes		
d) Other releases		
TOTAL (a+b+c+d)		

5.0 Results Achieved To Date and Methods Used

5.1 Actions Taken To Date

In the table below, describe the actions taken to date in implementing the P2 plan (Column I). In Columns II and III, identify whether each action represented a pollution prevention or other environmental approach, selecting from the list of options provided. For each action, report the corresponding change to uses or releases of the Substance achieved to date from implementation of that action in $kg/year$, where possible (Column IV). Note that reporting a quantitative change for some actions, such as training, may not be possible. In Column V, relate these changes to a specific element of the baseline information described in Parts 4.2 and 4.3 of this Report using the appropriate alphabetical label (e.g., for changes to total releases to surface water, use the label "D"). In Column VI, identify the date each action was completed.

I. Action Taken	II. Pollution Prevention Method(s) Used (where applicable) ¹	III. Other Environmental Protection Method(s) Used (where applicable) ²	IV. Change Achieved To Date* (tonnes/year)	V. Baseline Element(s) Affected	VI. Completion Date

* Indicate a decrease with a negative sign ("-") and an increase with a positive sign ("+") in front of the reported quantity.

¹ Pollution Prevention Methods

- Materials or feedstock substitution
- Product design or reformulation
- Equipment or process modifications
- Spill and leak prevention
- On-site reuse, recycling or recovery
- Improved inventory management or purchasing techniques
- Good operating practices or training
- Other

² Other Environmental Protection Methods

- Energy recovery
- Off-site recycling
- Incineration with energy recovery
- Waste treatment
- Pollution control
- Safe disposal
- Other

³ Baseline Elements Affected

- A (total on-site uses)
- D (total surface water releases)

5.2 Total Results Achieved To Date

The table below summarizes the total change achieved to date to uses and releases of the Substance relative to the year identified in Part 4.0 c) in the "Declaration that a Pollution Prevention Plan has been Prepared and is being Implemented - Inorganic Chloramines, Chlorinated Wastewater Effluent and Ammonia (Subsection 58(1) of CEPA 1999)" in kg/year and as a percentage. In Columns VII and VIII, report those changes achieved to date from implementing only the actions described in Part 5.1 of this Report.

Type of Use or Release	VII. Total Change Achieved To Date* (kg/year)	VIII. Total Change Achieved To Date* (%)
5.2.1 On-site uses		
5.2.2 On-site releases		

* Indicate a decrease with a negative sign ("-") and an increase with a positive sign ("+") in front of the reported quantity.

6.0 Monitoring and Reporting

Briefly describe the monitoring and reporting components of the pollution prevention plan that have been implemented, i.e. how progress with the plan is measured, tracked, reported and evaluated, in relation to the Substance. Where these differ from the monitoring and reporting components anticipated in previous declarations and reports and any amendments, describe the difference

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7.0 Part 7.0 is not applicable to this Report

This ends the section (Parts 3.0 through 7.0) to be completed separately for different substances. -----

8.0 Part 8.0 is not applicable to this Report

9.0 Authorization

I have read this Report, understand its contents and confirm that the information submitted is correct. I further understand that if any information submitted in this Report becomes false or misleading, I must submit an amendment to this Report within 30 days after the time that the information has become false or misleading.

Signature Date

Name: _____
Please Print

Title/Position: _____
Please Print

**Schedule 5: Declaration that a Pollution Prevention Plan has been Implemented -
Ammonia, Inorganic Chloramines and Chlorinated Wastewater Effluents
(Subsection 58(2) of CEPA 1999)**

Notice Reference Code: _____ **MWWE**
Declaration ID: _____

Please refer to the instruction booklet “Instruction for Completing Schedules to the *Canada Gazette* Notices Requiring the Preparation and Implementation of Pollution Prevention Plans” for direction on how to complete this Declaration.

Is this an amendment to a Declaration previously submitted? Yes No

If yes, complete Parts 1.0 and 9.0 and any other Parts of this Declaration where previously reported information has become false or misleading. Previously reported information that is unchanged need not be resubmitted.

1.0 Facility Information

Company Name: _____
 Facility Name: _____
 Street Address of Facility: _____
 City: _____ Province/Territory: _____ Postal Code: _____
 Mailing Address of Facility: _____
 (if different from Street Address)
 City: _____ Province/Territory: _____ Postal Code: _____
 Facility Technical Contact: _____
 e-mail (if applicable): _____
 Telephone Number: _____ Fax Number (if applicable): _____
 (with area code) (with area code)
 National Pollutant Release Inventory ID (if no ID, leave blank): _____
 6-digit North American Industry Classification System (NAICS) Code: _____

2.0 Part 2.0 is not applicable to this Declaration

The following section (Parts 3.0 through 7.0) must be completed for ammonia (CAS Number 7664-41-7) by all persons subject to the notice. For persons who use chlorine or chlorine compounds for disinfection, the same sections must be completed again to address both inorganic chloramines (CAS Numbers 10599-90-3, 3400-09-0, 10025-85-1) and chlorinated wastewater effluents (no CAS Number). For these two substances, total residual chlorine must be reported.

3.0 Substance in the Notice

Substance in the Notice for which the following information applies (herein referred to as “Substance”):
 Chloramines and chlorinated wastewater effluent _____
 Ammonia, CAS Number 7664-41-7 _____

4.0 Baseline Information After Implementation of the Pollution Prevention (P2) Plan

Notes:

- a) The data collected in Parts 4.1, 4.3 and 4.4 of this Declaration mimic the reporting format of the National Pollutant Release Inventory (NPRI) where possible.
- b) Use the following codes where indicated, listed in declining order of expected accuracy, to describe how each quantity reported in this Part of the Report was determined:
 - M** Monitoring or direct measurement
 - C** Mass balance
 - E** Emission factors

O Engineering estimates

c) Unless persons identified in paragraph 1 of the Notice have been granted a time extension to implement a plan, an extension that allows reporting for a year other than that specified in the notice, such persons must report data for the 2008 calendar year (January 1 to December 31).

If such persons have been granted a time extension to implement a plan that allows reporting for a year other than the applicable year described above, indicate the new year on which this facility has been granted permission to report.
 Indicate the new year on which this Declaration will be reporting: _____

4.1 Part 4.1 is not applicable to this Declaration

4.2 On-Site Uses

Did this facility use the Substance on-site in the year identified in Part 4.0 c) of this Declaration? Yes
 No
 If yes, report below all on-site uses of the Substance in kg/year for that year in the appropriate field.
 If no, proceed to Part 4.3 of this Declaration.

Report the total of all on-site uses of the Substance with the basis of estimate code, indicating how the Substance is used in this facility and how it is estimated to be released into the environment.

A. Total Uses (kg/year)	Basis of Estimate Code	Type of Use	Estimate of Release

4.3 On-Site Releases

Did this facility release the Substance on-site in the year identified in Part 4.0 c) of this Declaration?
 Yes No
 If yes, report below all on-site releases of the Substance in kg/year for that year in the appropriate field.
 If no, proceed to Part 4.4 of this Declaration.

4.3.1 Part 4.3.1 is not applicable to this Declaration

4.3.2 Part 4.3.2 is not applicable to this Declaration

4.3.3 Releases to Surface Waters

Report the total of all releases of the Substance to surface waters with the basis of estimate code, indicating the type(s) of release(s).

- direct discharges
- spills
- leaks
- other releases

D. Total Releases to Surface Waters	Basis of Estimate Code

4.3.4 Part 4.3.4 is not applicable to this Declaration

4.3.5 Part 4.3.5 is not applicable to this Declaration

4.4 Part 4.4 is not applicable to this Declaration

4.5 Additional Baseline Information

4.5.1 On-site Releases to Surface Water

Further describe the releases of the Substance to surface waters in the year identified in Part 4.0 c) of this Declaration using the types of releases listed below with the basis of estimate code.

Type of Release	Releases to Surface Waters	Basis of Estimate Code

	(kg/year)	
a) Direct discharges (main outfall)		
b) Combined Sewer Overflows		
c) By-passes		
d) Other releases		
TOTAL (a+b+c+d)		

4.5.2 Total Flows

Report the flow from each type of release in the year identified in Part 4.0 c) of this Declaration in m^3/day for the main outfall and annual $m^3/year$ for other flows, with the basis of estimate code

Type of Release	Flow (m^3/day)	Basis of Estimate Code
a) Direct discharges (main outfall)		
b) Combined Sewer Overflows		
c) By-passes		
d) Other releases		
TOTAL (a+b+c+d)		

5.0 Results Achieved and Methods Used

5.1 Actions Taken

In the table below, describe the actions taken in implementing the P2 plan (Column I). In Columns II and III, identify whether each action represented a pollution prevention or other environmental approach, selecting from the list of options provided. For each action, report the corresponding change to uses or releases of the Substance achieved from implementation of that action in $kg/year$, where possible (Column IV). Note that reporting a quantitative change for some actions, such as training, may not be possible. In Column V, relate these changes to a specific element of the baseline information described in Parts 4.2 and 4.3 of this Declaration using the appropriate alphabetical label (e.g., for changes to total releases to surface water, use the label "D"). In Column VI, identify the date each action was completed.

I. Action Taken	II. Pollution Prevention Method(s) Used (where applicable) ¹	III. Other Environmental Protection Method(s) Used (where applicable) ²	IV. Change Achieved* (tonnes/year)	V. Baseline Element(s) Affected	VI. Completion Date

* Indicate a decrease with a negative sign ("-") and an increase with a positive sign ("+") in front of the reported quantity.

¹ Pollution Prevention Methods

- Materials or feedstock substitution
- Product design or reformulation
- Equipment or process modifications
- Spill and leak prevention
- On-site reuse, recycling or recovery
- Improved inventory management or purchasing techniques
- Good operating practices or training
- Other

² Other Environmental Protection Methods

- Energy recovery
- Off-site recycling
- Incineration with energy recovery
- Waste treatment
- Pollution control
- Safe disposal
- Other

³ Baseline Elements Affected

- A (total on-site uses)
- D (total surface water releases)

5.2 Total Results Achieved

The table below summarizes the total change achieved to uses and releases of the Substance relative to the year identified in Part 4.0 c) in the "Declaration that a Pollution Prevention Plan has been Prepared and is being Implemented - Inorganic Chloramines, Chlorinated Wastewater Effluent and Ammonia (Subsection 58(1) of CEPA 1999)" in kg/year and as a percentage. In Columns VII and VIII, report those changes achieved to date from implementing only the actions described in Part 5.1 of this Declaration.

Type of Use or Release	VII. Total Change Achieved* (kg/year)	VIII. Total Change Achieved* (%)
5.2.1 On-site uses		
5.2.2 On-site releases		

* Indicate a decrease with a negative sign ("-") and an increase with a positive sign ("+") in front of the reported quantity.

6.0 Monitoring and Reporting

Briefly describe the monitoring and reporting components of the pollution prevention plan that have been implemented, i.e. how progress with the plan is measured, tracked, reported and evaluated, in relation to the Substance. Where these differ from the monitoring and reporting components anticipated in previous declarations and reports and any amendments, describe the difference.

7.0 Risk Management Objective

Describe how the P2 plan outlined in this Declaration met the risk management objective identified in paragraph 3(1) of the notice. If this plan did not meet the risk management objective, explain why.

This ends the section (Parts 3.0 through 7.0) to be completed separately for different substances.

8.0 Part 8.0 is not applicable to this Declaration

9.0 Authorization

I have read this Declaration, understand its contents and confirm that the information submitted is correct. I further understand that if any information submitted in this Declaration becomes false or misleading, I must submit an amendment to this Declaration within 30 days after the time that the information has become false or misleading.

Signature Date

Name: _____
Please Print

Title/Position: _____
Please Print