



## Stormwater Self Assessment Profile (SWSAP) Compliance Guide

Revised June 2016

Greenhouse sewage works that discharge stormwater to the environment require an Environmental Compliance Approval (ECA) issued under the *Ontario Water Resources Act*. At the request of the commercial greenhouse sector the Ministry of the Environment (MOE) has agreed to review alternative methods to regulating the discharge of stormwater from greenhouse operations. In the interim, while this review is underway, greenhouse operations seeking an alternative\* to an ECA for stormwater discharges may request that their stormwater discharges be regulated through a Preventive Measures Order (PMO) issued by the MOE. This document provides the guidance for applying for and complying with the interim PMO option. The table below is a comparison of a PMO and an ECA.

PMO	ECA
Interim compliance measure, only in place until the review of alternative regulatory methods is complete and the final options for stormwater regulation are established - EXPIRING 2017-2018	Once approved it is a long-term compliance measure, generally with no expiry dates but may require amendment or re-approval where changes to the works occur.
Consultant/engineer not always required but may be in some circumstances. The PMO is drafted by the MOE District Office in consultation with your operation	Engineering work must be done by a Professional Engineer; it is usually reviewed by three levels of MOE, Environmental Approvals Branch, Regional Technical Support Section and the District.
No fee	Fee determined by MOE
Sampling of stormwater discharges on a quarterly basis; maintenance and monitoring of stormwater works on a regular basis, including development of a manual. Sampling requirements may be decreased if results are consistently within target range	Defined by the MOE on a site by site basis and may look similar to the PMO requirements

\* Please be advised that, with the exception of the regulatory relief provided by full compliance with a PMO, an operator's adherence to this compliance guide does not relieve the operator of the obligation to be in full compliance with the relevant requirements of the *Ontario Water Resources Act*, the *Environmental Protection Act* or any other applicable legislation.

NOTE – Effective May 2016, a streamlined ECA is available for greenhouse operations with clean, separated stormwater facilities. Speak to MOECC or FCO's Water Specialist for more information.

If you choose to apply for the PMO option it is necessary that you undertake pre-consultation with your local District Office of the MOE to help determine if this approach is right for your greenhouse operation. Based on the information provided and site specific concerns, the MOE District Office will determine if a PMO will be issued. Should it be determined that a PMO will be issued the following should be completed:

### Documentation:

- Complete and submit the self-assessment profile (SWSAP) found in Appendix A
- Create a Stormwater Operations & Maintenance Manual (see Appendix B)



- ☑ Prepare a map of your facility, including the siting of the stormwater facility, and all cross connections, inputs, and outputs.
- ☑ Complete and have on file a Spill Prevention and Contingency Plan (see Appendix C)
- ☑ Place a copy of your approval (PMO) in the same file as the other documents above

*Actions:*

- ☑ Inspect the stormwater 'works' quarterly, and maintain records of these inspections
- ☑ Inspections should be performed by personnel who are familiar with the Operations and Maintenance Manual, and the requirements of the PMO
- ☑ Take grab samples of the stormwater discharge every quarter (or as required by PMO) and send the samples to an accredited laboratory for analysis (e.g. SGS Agrifood Labs in Guelph or A&L Labs in London). Keep the samples cold until shipping, and have the lab test for the components listed by MOE (see Appendix A).
- ☑ Record the date in a logbook of each overflow/discharge.

*Reporting Requirements (to MOE):*

- ☑ Provide laboratory analysis report to MOE within 1 week of receiving the results (see Appendix A for template)
- ☑ Provide the daily climate data (temperature and rainfall/precipitation) for the last quarter with your report. You can use the website: <http://climate.weather.gc.ca/> to obtain this data for your region.

**Appendix A – Stormwater Self Assessment Profile (MOE document)**

**Storm Water Self Assessment Profile Questions**

<p>1) Is your storm water management facility located in a Wellhead Protection Area (WHPA) or an intake protection zone (IPZ) as defined in the local Source Protection Assessment Report? (for more information contact your local Conservation Authority)</p>	<p><input type="checkbox"/> No  <input type="checkbox"/> WHPA – A  <input type="checkbox"/> WHPA – B  <input type="checkbox"/> WHPA – C  <input type="checkbox"/> WHPA – D  <input type="checkbox"/> IPZ – 1  <input type="checkbox"/> IPZ – 2  <input type="checkbox"/> IPZ – 3</p>
<p>2) Was your storm water management facility designed and/or built by a professional engineer?</p>	<p><input type="checkbox"/> Designed by a professional engineer  <input type="checkbox"/> Designed and built by a professional engineer  <input type="checkbox"/> Not designed or built by a professional engineer</p>
<p>3) Where does the outflow from your storm water discharge to?</p>	<p><input type="checkbox"/> Dry / intermittent municipal drain  <input type="checkbox"/> Permanently flowing municipal drain  <input type="checkbox"/> Natural stream or watercourse  <input type="checkbox"/> Sensitive area (Area of Natural and Scientific Interest (ANSI), Provincially Significant Wetland (PSW), and/or Environmentally Sensitive Area (ESA))</p>
<p>4) Are there any cross connections between the storm water facility and other sewage systems? (irrigation drainage, floor drainage, boiler blowdown / condensate, filter backwash, over flow, wash water, nutrient feedwater, irrigation supply, and sanitary sewage)</p>	<p><input type="checkbox"/> No cross connections  <input type="checkbox"/> Cross connections exist</p> <p>If cross connections exist, how are they managed to ensure storms water is separate from other sewage?</p> <hr/> <hr/> <hr/>
<p>5) What is the approximate total area of impermeable surface directed to storm water management facility?  (i.e. parking lot, loading area, greenhouse roof, storage building, etc. )</p>	<p><input type="checkbox"/> 0 – 2.5 ha  <input type="checkbox"/> 2.5 – 5 ha  <input type="checkbox"/> 5 – 10 ha  <input type="checkbox"/> &gt;10 ha</p>
<p>6) Is there sufficient storage capacity and are contingency plans in place to handle excess nutrient feed water or other sewage during a process upset or equipment malfunction?</p>	<p><input type="checkbox"/> Yes  <input type="checkbox"/> No</p>
<p>7) How often is the storm water management facility inspected and maintained?</p>	<p><input type="checkbox"/> Not inspected or maintained  <input type="checkbox"/> Annually  <input type="checkbox"/> Monthly</p>
<p>8) Has the local Conservation Authority and municipality provided approval for the storm water management facility?</p>	<p><input type="checkbox"/> Yes  <input type="checkbox"/> No</p>
<p>9) Is there evidence of erosion occurring at the outfall of the facility (the location where the pond overflows to the environment)?</p>	<p><input type="checkbox"/> Yes  <input type="checkbox"/> No</p>
<p>10) Is storm water stored, used and recycled for irrigation purposes within the greenhouse?</p>	<p><input type="checkbox"/> Yes  <input type="checkbox"/> No</p>



11) Are pesticides, fertilizers and wastes stored in a location/manner that will not likely produce runoff that would impact the storm water management pond?	<input type="checkbox"/> Yes <input type="checkbox"/> No
12) Is there a drilled well within 15 meters or a dug well within 30 meters of your storm water management facility?	<input type="checkbox"/> Yes <input type="checkbox"/> No
13) Does your facility have a Storm Water Operation and Maintenance Manual?	<input type="checkbox"/> Yes <input type="checkbox"/> No
14) Do you have a written Spill Contingency and Pollution Prevention Plan?	<input type="checkbox"/> Yes <input type="checkbox"/> No

### Interim Compliance Requirements

Greenhouse operations shall ensure that all the requirements outlined below are met.

#### 1) Maintenance & Record Keeping

- a) The Owner shall inspect the storm water works at least quarterly and if necessary, maintain the Works to prevent the excessive build-up of sediments, oil/grit, and/or vegetation that is impairing the functioning of the storm water works.
- b) The Owner shall maintain a logbook to record the results of these inspections and any cleaning and maintenance operations undertaken, and shall keep the logbook at the site for inspection by the Ministry.
- c) The Owner shall retain all records and information related to, or resulting from the sampling, operation and maintenance activities required, until instructed to do otherwise.

#### 2) Monitoring and Reporting

- a) The Owner shall collect and analyze one grab sample every three months from the storm water management facility outfall to the receiving stream / waterbody during a discharge event. If the sample cannot be taken during a discharge event, document the reason and conditions when the sample is taken.
- b) Parameters that the sample shall be analyzed for are listed in the table below.



- c) All samples collected shall be analyzed by a laboratory accredited by the Canadian Association for Laboratory Accreditation. A list of accredited labs is available at <http://www.cala.ca/link.html>.
- d) Sample results and the associated meteorological data shall be submitted to the local ministry office on the attached form.

**3) Storm Water Operations and Maintenance Manual**

The Owner shall produce a written Storm Water Operations & Maintenance Manual which identifies the features of the storm water management system, any cross connections, procedures for ensuring safe use of storm water for irrigation, etc.

The Owner shall ensure that staff responsible for the operation of the storm water management system are trained in the Storm Water Operations and Maintenance Manual.

**Greenhouse Effluent Preliminary Objectives: Storm Water**

Samples collected by greenhouse operations must be analyzed for the parameters listed in the following table.

Parameter	Concentration (mg/L or ppm)
Ammonium as N	1
Nitrate as N	10
Total Phosphorus	0.50
Zinc	0.10
Copper	0.05
Manganese	0.20
Iron	1.5
Molybdenum	0.05
Boron	0.50
Chloride	200
Sulphate	200
pH ( $\text{Log}_{10} [\text{H}^+]$ )	6.5-8.5
Potassium	10
Hardness	Monitor only
Total Suspended Solids	30.0
*Fats, Oil and Grease	Site Specific

\* Fats, Oil and Grease sampling and analysis may be required for operations with parking lots, loading docks, etc., that drain to the storm water pond and receive heavy traffic.

If storm water sample results do not meet the concentrations listed in the table below, the ministry may require additional monitoring and reporting or any others actions deemed appropriate.



**Greenhouse Storm Water Effluent Sample Result Form**

<b>Greenhouse Name</b>	
<b>Greenhouse Address</b>	
<b>Contact Phone number</b>	

	Sample ID				
	Date				
	Time				
	Grab or Batch				
Parameter	Objective (mg/L or ppm)	Sample Results	Sample Results	Sample Results	Sample Results
Ammonium as N	1.0				
Nitrate as N	10				
Total Phosphorus	0.05				
Zinc	0.10				
Copper	0.05				
Manganese	0.20				
Iron	1.50				
Molybdenum	0.05				
Boron	0.50				
Chloride	200				
Sulphate	200				
Potassium	10				
pH	6.5-8.5				
Hardness	-				
Total Suspended Solids	30.0				
Fats, Oils and Grease	-				



## **Appendix B – Stormwater Operations & Maintenance Manual**

Monitoring and maintenance responsibilities are an important part of a Stormwater PMO. One of the main reasons for SMF (stormwater management facility) failure is often lack of maintenance.

Unique Stormwater Facilities (Oil & Grit Separators, etc.) are beyond the scope of this O&M Manual. Regular inspections provide background for an annual maintenance report outlining recommendations for the coming year, and observations regarding:

- Hydraulic operation of the facility
- Condition of vegetation in and around facility
- Occurrence of obstructions at the inlet and outlet
- Evidence of spills and oil/grease contamination
- Frequency of garbage build-up
- Measured sediment depths (where appropriate)
- Water chemistry/quality (from analysed samples)

### **Storage Tank Stormwater Facilities**

Cisterns or water silos represent simplified stormwater facilities where roof water is collected and stored in enclosed tanks. Check quarterly for:

- Cracks and leaks
- Potential for spills into the lid or opening
- Gutter-connects/downspout system in good condition
- Ensure debris on the bottom of tank is cleaned out on a regular basis.

### **Pond Stormwater Facilities**

Stormwater ponds have more complex requirements for inspection and ongoing maintenance. Check quarterly for:

- Grass and vegetation control (only mow if required for aesthetics)
- Weed presence (e.g. invasive species)
- Vegetation condition (upland, shoreline, aquatic)
- Accumulated sediment removal (may need to check sediment depth)
- Inlet and outlet access (i.e. presence of obstructions)
- Debris/garbage removal (required at least annually, in spring)
- Pipe/culvert condition (including screens)
- Evidence of oil/grease
- Valve function/adjustment
- Access to pipes/inlets/outlets
- Is the pond overflowing? How much precipitation results in overflow?

Your Stormwater Operations & Maintenance Manual will be specific to your site. You may include checklists or other forms to document your inspections, annual reports and maintenance activities. Keep all paperwork together in your Stormwater file/binder.

### **References**

Ontario Ministry of the Environment. 2003. Stormwater Management Planning and Design Manual.



*Appendix C - Spill Prevention and Contingency Plan Template*

## BASIC SPILL RESPONSE PLAN\*

Business Name : \_\_\_\_\_

Site Address: \_\_\_\_\_

Facility Activity Description: \_\_\_\_\_

### Response Actions in Case of a Spill:

- 1) If possible, shut off the source of the spill immediately.
- 2) Notify **spill contact person & other emergency contact(s)**: owner, manager etc.
- 3) Use absorbent materials, such as absorbent pads, floor sweeping compound or kitty litter to contain spills that are relatively small in nature and where the spilled chemical and its hazardous properties have been properly identified and assessed.
- 4) Use appropriate personal protective equipment depending on the spill material.
- 5) Cover/block any drains/catch basins in the spill area to prevent material from entering into the stormwater system, sanitary sewer system or septic system.
- 6) If possible, clean up the spill using absorbent materials. Collect these absorbent materials and treat as hazardous waste.
- 7) If the spill is large or otherwise uncontrollable, or poses a potential immediate hazard to human health and safety, call Emergency Response Agencies listed below:

### **Emergency Contacts:**

Spill Contact Person: \_\_\_\_\_ Phone #'s: \_\_\_\_\_

Owner: \_\_\_\_\_ Phone #'s: \_\_\_\_\_

Owner's Address: \_\_\_\_\_

Manager: \_\_\_\_\_ Phone #'s: \_\_\_\_\_

Other: \_\_\_\_\_ Phone #'s: \_\_\_\_\_

### **List of Personal Protection Equipment ("PPE") for Handling Spill and their Location:**

---

---

---

---

### **List of Hazardous Liquids that May Spill:**

---





---

---

---

**Emergency Response Agencies:**

**Fire/Police** **911**  
**MOE Spill Response** **1-800-268-**  
**6060**  
**Municipal Contact:**

---

It is important that all employees be trained to carry out the spill response actions set forth in this document, and that each employee be familiar with the site drawing that shows where hazardous materials/substances, spill kit(s), and all potentially susceptible and vulnerable storm drains/catch basins are located. Please list all trained personnel below.

**Name of Trained Personnel** **Date of**  
**Training**

---

---

---

---

---

---

---

---

---

---

**Please post the information on page 1 and a site drawing locating all emergency equipment in a highly visible location.**

\*This Basic Spill Response Plan may not be appropriate for all business types. As business operations and processes vary greatly please consult Ecology or a Certified Industrial Hygienist to determine additional response actions and/or PPE that may be required for a specific business or industry.