

Drinking Water Source Protection Background Document

Commercial Fertilizer

v.3 May 2011

(Amendments in Tracked Changes)

Table of Contents

1. Definition	1
2. What causes these activities to be drinking water threats?	1
3. Understanding the nature of the drinking water threats?	2
4. Applicable legislation, policies and programs	6
5. Policy considerations	11
Appendix A – Local Information on Drinking Water Threats	14
Appendix – B Reference List	16
Appendix C - Additional Resources	17

NOTE TO THE READER

This document is one of eighteen background reports now under development by staff at various Conservation Authorities and Conservation Ontario in support of Source Protection Plan development. The final set of reports will cover all nineteen prescribed water quality threat types. Each report looks at the nature of one or more types of drinking water threat, describes the local occurrence (“is” and “would be”) of those threats, assesses existing policies/programs, and introduces related ‘policy concepts’ for source protection planning. ***While every effort has been made to ensure the accuracy of the information in this document, it should not be construed as legal advice or relied on as a substitute for the legislation.***

This version is considered to be a ***working draft*** because it will be going through additional review by MOE and subject experts. SPA/SPRs can use these documents with the understanding that additional refinement will occur. Any questions on these reports can be directed to Nicole Barbato, Source Water Protection Liaison (via nbarbato@conservationontario.ca). Thank you!

1. Definition

This paper provides background information for **prescribed drinking water threat 8 – the application of commercial fertilizer** and **prescribed drinking water threat 9 – the handling and storage of commercial fertilizer**.

Commercial fertilizer is a synthetic substance containing nitrogen, phosphorus, potassium or other plant food intended for use as a plant nutrient. For the purposes of the drinking water source protection initiative, commercial fertilizer does not include agricultural source material or non-agricultural source material.

The majority of commercial fertilizers contain nitrogen, phosphorus and potassium. Nitrogen is important for leaf development; phosphorus promotes good root development and plant growth especially during establishment; and potassium contributes to the general vigor of a plant including drought tolerance and winter hardiness.

From the literature, the main problems associated with the land application of commercial fertilizer appear to be improper use. Two examples of its potential improper use include: (1) application without consideration for nutrients available in the soil and plant requirements, (2) inappropriate timing of application for plant growth cycles and weather conditions. More research into how to use fertilizer more effectively is needed. Problems associated with the storage of commercial fertilizers are leaks and spills as a result of aging infrastructure or improper storage. For both storage and application of commercial fertilizer, it should be noted that the movement of phosphorus is often, but not exclusively, associated with runoff and soil erosion.

The main consideration for reducing or eliminating drinking water threats related to the land application, handling and storage of commercial fertilizer is to make sure it does not enter surface water and/or groundwater sources.

2. What causes these activities to be drinking water threats?

The Ontario Ministry of the Environment (MOE) Tables of Drinking Water Threats (Ontario Ministry of the Environment, 2009) identify nitrogen and total phosphorus as substances that could make their way into surface and groundwater as a result of the application of commercial fertilizer to land (circumstances 19 to 36), and through spills resulting from the handling and storage of fertilizer (circumstances 1273 to 1288). These nutrients could threaten the safety of drinking water sources in certain situations due to runoff or spills.

According to the MOE Tables of Drinking Water Threats, total phosphorus associated with commercial fertilizer can only be a drinking water threat in intake protection zones (IPZ) and in wellhead protection areas where the groundwater is under the direct influence of surface water (GUDI i.e. WHPA-E). While nitrogen is a concern for both surface and groundwater, total phosphorus is only considered for surface water because excessive inputs of total

phosphorous in surface water results in eutrophication and can cause toxic algae blooms both of which impair water quality.

3. Understanding the nature of the drinking water threats

Application of Fertilizer

The classification of this activity as a significant, moderate or low drinking water threat is dependent on its location as well as the combination of the managed land percentage and livestock density for the vulnerable area. In general, the greater the managed land percentage and livestock density, the greater the risk to drinking water. As a reminder:

- Managed lands include cropland, fallow land, improved pasture, golf courses, sports fields and lawns to which agricultural source material, non-agricultural source material, or commercial fertilizer could be applied. This value was calculated based on MOE Technical Rules and Technical Bulletin, and is included in the Assessment Report.
- In determining the livestock density in an area, committees have to determine nutrient units (NU) generated as a percentage of the total agricultural managed lands in the area. Livestock density is standardized to nutrient units per acres since different types of animals produce different amounts of manure with different nutrient values. A nutrient unit is based on the manure equivalent of nutrients contained in 43 kg of nitrogen or 55 kg of phosphate. The livestock density value was calculated based on MOE Technical Rules and is included in the Assessment Report.

Significant Drinking Water Threats

- Based on the MOE Tables of Drinking Water Threats (2008, as amended in 2009), the land application of commercial fertilizer can be a significant threat in intake protection zones (IPZ) that have a vulnerability score of 9 or higher and in wellhead protection areas (WHPA) that have a vulnerability score of 10, and that have a specific combination of the managed land percentage and livestock density for the vulnerable area.

Moderate Drinking Water Threats

- Based on the MOE Tables of Drinking Water Threats (2008, as amended in 2009), the land application of commercial fertilizer can be a moderate threat in IPZs that have a vulnerability score of 6 or higher and in WHPAs that have a vulnerability score of 8 or higher that have a specific combination of the managed land percentage and livestock density for the vulnerable area.

Low Drinking Water Threats

- The land application of commercial fertilizer is or would be a low threat in IPZs with a vulnerability score of 4.5 to 8.1, in WHPAs with a vulnerability score of 6 to 8, as well as in highly vulnerable aquifers and significant groundwater recharge areas with a vulnerability

score of 6. As for moderate and significant threats, a specific combination of the managed land percentage and livestock density for the vulnerable area must be met for it to be a low threat.

Appendix A provides detailed information on the local scale of this drinking water threat.

Handling and Storage of Fertilizer

The storage of commercial fertilizer is divided into two categories in the MOE Tables of Drinking Water Threats (2008, as amended in 2009): (1) storage at a facility where it is manufactured or processed, or from which it is wholesaled, and (2) storage for retail sale or in relation to its application to land.

Manufacturing, processing and wholesale activities are generally permitted on lands that are zoned for industrial uses to provide separation between industrial establishments and incompatible land uses. Future industrial land uses ('would be' threats) would likely occur in the same location as existing industries because these are the only locations zoned for this use in our municipalities. Municipalities have strict control over where these activities can occur within their municipal boundaries.

Storage of commercial fertilizer can occur inside or outside and is associated with a majority of land uses including agricultural, active recreational, institutional, industrial, commercial and residential. Although storage for these purposes can occur year-round, the greatest volume of fertilizer is stored in the spring before the growing season begins and application occurs. Storage of fertilizers on farm rarely occurs with dry materials. Liquid storage of 28% nitrogen and liquid starters are more the norm.

Significant Drinking Water Threats

- Based on the MOE Tables of Drinking Water Threats (2008, as amended in 2009), for both retail sale and manufacturing, the storage of commercial fertilizer can be a significant threat in IPZs and WHPAs that have a vulnerability score of 10, and the amount of fertilizer being stored is greater than 2500 kg.

Moderate Drinking Water Threats

- Based on the MOE Tables of Drinking Water Threats (2008, as amended in 2009), the storage of commercial fertilizer can be a moderate threat in IPZs that have a vulnerability score of 6 or higher and in WHPAs that have a vulnerability score of 8 or higher. If the storage is associated with the retail sale of fertilizer, the quantity can be less than 25 kg. However, if the storage is associated with manufacturing the quantity must be greater than 25 kg.

Low Drinking Water Threats

- Based on the MOE Tables of Drinking Water Threats (2008, as amended in 2009), the storage of commercial fertilizer can be a low threat in IPZs that have a vulnerability score of 4.8 or higher, in WHPAs that have a vulnerability score of 6 or higher, and in HVAs and SGRAs with a vulnerability score of 6.

Table 3.1 provides examples where the handling and storage of fertilizer is or would be a significant, moderate or low drinking water threat based on the MOE Tables of Drinking Water Threats (2008, as amended in 2009), and whether or not they are generally feasible to occur in a given vulnerable area. Please note that the information in these tables about the feasibility of the activity occurring is subject to change based on on-going verification of assumptions.

Appendix A provides detailed information on the local scale of this drinking water threat.

Table 3.1 – Commercial Fertilizer Storage Threats in the **named** Source Protection Area

Vulnerable area	V.S.	Storage associated with manufacturing, processing, or wholesale of fertilizer				Storage associated with retail sale or application of fertilizer				
		S	M	L	feasible	S	M	L	feasible	
Name of well/groundwater system	WHPA A, B	10		✓	✓		✓	✓		✓
	WHPA C	8		✓	✓			✓	✓	✓
	WHPA D	6			✓				✓	✓
	WHPA E	7			✓				✓	✓
Name of well/groundwater system	WHPA A, B	10		✓	✓		✓	✓		✓
	WHPA C	8		✓	✓			✓	✓	✓
	WHPA D	6			✓				✓	✓
	WHPA E	7			✓				✓	✓
Name of well/groundwater system	WHPA A, B	10		✓	✓		✓	✓		✓
	WHPA C	8		✓	✓			✓	✓	✓
	WHPA D	6			✓				✓	✓
HVA/SGRA		6			✓	✓			✓	✓
Name of surface water system	IPZ 1	9		✓	✓			✓	✓	✓
	IPZ 2	8.1		✓	✓			✓	✓	✓
Name of surface water system	IPZ 1	9		✓	✓			✓	✓	✓
	IPZ 2	8.1		✓	✓			✓	✓	✓
Name of surface water system	IPZ 1	9		✓	✓			✓	✓	✓
	IPZ 2	8.1		✓	✓			✓	✓	✓
	IPZ 3a	6.3			✓				✓	✓
Name of surface water system	IPZ 1	6			✓				✓	✓
	IPZ 2	4.2	n/a	n/a	n/a		n/a	n/a	n/a	✓
Name of surface water system	IPZ 1	6			✓	✓			✓	✓
	IPZ 2	4.2	n/a	n/a	n/a	✓	n/a	n/a	n/a	✓
Name of surface water system	IPZ 1	7			✓				✓	✓
	IPZ 2	6.3			✓				✓	✓
Name of surface water system	IPZ 1	7			✓				✓	✓
	IPZ 2	6.3			✓				✓	✓

Where V.S. means vulnerability score, S means significant, M means moderate, and L means low drinking water threat.

4. Applicable legislation, policies and programs

a. National

Fisheries Act

In general the *Fisheries Act* is enforced by Fisheries and Oceans Canada; however, the section that applies to contamination is under the authority of Environment Canada. The deposition of any deleterious substance (contaminant), including commercial fertilizer, is in contravention of the legislation. Section 36(3) of the *Fisheries Act* states that "... no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water" (Government of Canada, 1986). This could result from the improper application, handling and storage of commercial fertilizer and from spills.

Transportation of Dangerous Goods Act

Anhydrous ammonia and ammonium nitrate are two commonly used fertilizer products that are classified under the *Transportation of Dangerous Goods Act (TDGA)*. The Act is enforced by Transport Canada who develops safety standards and regulations, provides oversight and gives expert advice on dangerous goods accidents to promote public safety. The regulations require that anyone handling, transporting or offering dangerous goods for transport must use containers in accordance with certain safety standards, and must receive TGD training. The Canada Customs and Revenue Agency (CCRA) is responsible for the verification of shipping documents to ensure that required information is provided, as well as determining if the safety marks on containers, transport units, etc., are present. This documentation is required for all fertilizer operations using anhydrous ammonia or ammonium nitrate.

b. Provincial

Environmental Protection Act

The *Environmental Protection Act (EPA)*, which is enforced by the MOE, prohibits the discharge of contaminants into the natural environment. A person who uses or stores commercial fertilizer must ensure that discharges and spills do not occur. If a spill should occur that causes or may cause an adverse effect, the discharger is required under the EPA to report the spill to the Ministry of the Environment through the Spills Action Centre, as well as to the municipality in which the spill occurred. Reporting must be done as soon as possible, and convictions may be laid if reporting is not completed in a timely fashion. Additionally, there is a responsibility to contain and clean up the spill to pre-spill conditions, where this can reasonably be expected, for spills of pollutants that cause or are likely to cause adverse effects as defined by the EPA.

Nutrient Management Act and Ontario Regulation 267/03 – General

Sections 10, 14, 15.2 and 28 of Ontario Regulation 267/03 – General are prescribed instruments under the *Clean Water Act*. These sections relate to the approval of nutrient management strategies and NASM plans, and to compliance with nutrient management strategies, plans and NASM plans that are in force. More information about these documents and their applicability can be found in the Agricultural Source Material background document.

Deleted: , nutrient management plans,

O. Reg. 267/03 addresses land applied materials that contain nutrients (Government of Ontario, 2003).

Nutrient management strategies (NMS) are required for farms that generate more than 300 NU annually, if there is a building permit application to construct or expand barns or ASM storage facilities so that more than 5 NU would be generated, or if there is a regulated mixed anaerobic digester on the farm. NMP involve new construction, large farms with greater than 300 NU or for farms within 100 m of a municipal well require approval by Ministry of Agriculture, Food and Rural Affairs (OMAFRA).

Deleted: The strategy must be approved by the

Nutrient management plans (NMP) are required if a farm generates more than 300 NU annually, or if a farm with greater than 5 NU is located within 100 m of a municipal well. A NMS is required first. The NMP focuses on issues in the farm field including the use and application of nutrients (fields), application setbacks to wells and surface water, application rates of nutrients, etc.

These plans are filed on the farm and are reviewed by the MOE Agricultural Environmental Officer during compliance inspections. Under the Regulation, a farm that is not required to have a nutrient management strategy cannot be required to have a nutrient management plan, even if the farm is within 100 m of a municipal well.

Deleted: The Officer can request OMAFRA to review and approve a nutrient management plan.

The regulation contains land application standards that are applicable to all farms (i.e. restricting application of sewage biosolids and use of high trajectory irrigation guns) and specifically applicable to agricultural operations requiring NMP or Non-Agricultural Source Material plans. These standards include timing restrictions for application, vegetated buffer zones adjacent to surface water, and setbacks from surface water and wells.

With respect to commercial fertilizer, O. Reg. 267/03 states that nutrients cannot be applied to land for which a Nutrient Management Plan is required within 100 m of a municipal well or within 3 m of any other type of water well. Nutrient management plans must take into account all sources of nutrients that would be applied to land including commercial fertilizer since one of the purposes of the plans is to optimize the relationship between the land-based application of nutrients, farm management techniques and crop requirements.

c. Municipal

Deleted: Land Use Planning

Municipal Authorities

Application of Fertilizer

Municipalities have the ability to pass by-laws about the economic, social and environmental well-being of the municipality, and about the health, safety and well-being of people, under the section 11(2) of the *Municipal Act* (Government of Ontario, 2001).

For example, the Township of Georgian Bay By-law 2007-21 regulates and controls the use of pesticides, herbicides and fertilizer on any lot within the Township of Georgian Bay that abuts a water body or shore. Farmland, flower and vegetable gardens, and golf courses with approved stormwater management plans designed to control, manage and mitigate the use of fertilizers, pesticides, and herbicides are exempt from the by-law. The intent of the by-law is to recognize the potential negative health and environmental effects of fertilizer and pesticide use on water quality, and the impact of nutrient loading on the enjoyment of the water quality, health effects, and property value.

Storage of Fertilizer

Manufacturing, processing and wholesale activities are generally permitted on lands that are zoned for industrial uses. Future industrial land uses (“would be” threats) would likely occur in the same location as existing industries because these are the only locations zoned for this use. Municipalities have strict control over where uses can occur within their municipal boundaries, and the majority of IPZs and WHPAs are in established settlement areas that cannot accommodate an industrial use. In drafting policies though, consideration should be given for potential changes to zoning by-laws to accommodate changes in existing land uses.

The location and type of storage used for retail sale or for the purpose of application could be addressed through site plan control, provided that the municipality has enabled this tool for this use in these areas. Under the Planning Act, municipalities may use site plan approvals to further address the details of the layout of the site, such as the location of internal roadways, storage areas, building and septic envelopes, etc., prior to the issuance of a building permit. Site plan control, where it is required, is considered applicable law under the *Building Code Act*, and the municipality is able to ensure these details are agreed upon prior to issuing a building permit.

Deleted: and/or building permit stage for new construction

Deleted: control development

Deleted:

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Deleted: This is done to ensure that new developments conform to official plans and zoning by-laws. Municipalities would review and approve site plans and elevation drawings before they issue a construction permit

Guideline D-6: Compatibility between Industrial Facilities and Sensitive Land Uses

The MOE document “Guideline D-6: Compatibility between Industrial Facilities and Sensitive Land Uses” (Ontario Ministry of the Environment, 1995) is designed to be used by municipalities as a land use planning tool to prevent incompatible uses from being established near sensitive

uses. It defines *sensitive land uses* [such as residential uses and daycares](#), and describes the classification of industrial facilities to which the potential influence areas and minimum separation distances should be applied. This guidance is important to [determine appropriate setbacks of industrial activities from sensitive land uses](#), guidelines may vary across municipalities [depending of the nature, scale and location of uses and availability of buffers](#),

Deleted: could occur in
 Deleted: vulnerable areas. . These
 Deleted: .

Sensitive land uses include buildings or associated amenity areas where people or the natural environment could be adversely affected by the emissions (e.g. noise, vibrations, odour, dust, etc.) of a nearby industrial facility. These include residences, retirement homes, schools, daycares, hospitals, churches, campgrounds, etc.

There are three classes of industrial facilities. Class I facilities are generally referred to as light industrial facilities. Class II facilities involve medium scale processing and manufacturing with outdoor storage of wastes or materials. Class III facilities are large scale manufacturing or processing plants that have outside storage of raw and finished products, large production volumes and continuous movement of products and employees. There are frequent emissions that could be considered major annoyances. The potential influence area [\(i.e. areas within which adverse effects may be experienced\)](#) for Class III facilities is 1000 m (minimum separation distance of 300 m). While the categorization of a particular industry will vary with the specifics of the case, the manufacturing and processing of fertilizer would in most cases be considered a Class III industrial facility, based on the description given in the guideline.

d. Other Jurisdictions / Programs

Manitoba Water Stewardship

Since January 1, 2009, Manitobans have been prohibited from using fertilizers containing phosphorus on their lawns with few exceptions. In addition, no fertilizer of any kind for any purpose can be applied:

- within 3 metres of rivers, streams, creeks, wetlands and storm water retention ponds;
- within 15 metres from lakes, reservoirs, springs and wells;
- within 15 metres of vulnerable rivers; or
- within 30 metres of vulnerable lakes.

See Appendix C for a link to the Manitoba Water Stewardship website.

Urban Fertilizer Council

The Canadian Fertilizer Institute established the Urban Fertilizer Council to work with fertilizer suppliers to communicate the importance of responsible nutrient use to protect water quality. This is likely in response to the phosphorus-free and fertilizer-free movement.

See Appendix C for a link to the Urban Fertilizer Council website.

Canada-Ontario Environmental Farm Plan

The Environmental Farm Plan (EFP) is delivered locally through the Ontario Soil and Crop Improvement Association with expertise provided by the Ontario Ministry of Agriculture, Food and Rural Affairs. It is a voluntary educational program for farmers delivered through local workshops. Participants are provided instruction on how to progress through the risk assessment and action plan development contained in the EFP workbook.

One of the 23 areas assessed through the EFP is the handling and storage of fertilizer (Ontario Soil and Crop Association, 2005). The information sheet on this activity suggests the following actions to address existing issues:

- Relocate fertilizer mixing/loading and storage areas away from surface water and wells
- Increase the flow path distance between surface water and mixing/loading and storage areas
- Relocate well away from mixing/loading and storage areas
- For existing mixing/loading and storage areas which have an impermeable floor, a curb installed to collect spills and floors that are not cracked or leaking, test the well water at least once a year
- Construct a mixing/loading and storage areas with impermeable floor, curb and permanent roof to exclude rainfall
- Storage in one designated area
- Mixing/loading done at field site using temporary plastic-lined berms for containment
- Use a separate tank to supply water to the fertilizer tank to prevent the potential for backflow into well or surface water source
- Prepare a written emergency plan and have spill clean-up equipment available

Limited funds are available to farmers with a Farm Business Registration Number, to address areas identified in the plan as needing improvement. More information about the EFP program

Golf Course Best Management Practices

Voluntary best management practices (BMPs) identified by the Ontario Allied Golf Associations for the use and storage of fertilizer at golf courses include:

- The use of slow release fertilizers in environmentally sensitive areas;

- Basing fertilizer application rates on soil tests;
- Naturalizing out-of-play areas;
- Increased buffer areas along watercourses and ponds;
- Keeping records of all fertilizer applications; and
- Storage of fertilizers in enclosed structures to keep the product dry, away from the elements and manageable in the event of a spill.

Canadian Fertilizer Industry Storage and Handling Guidelines

The Canadian Fertilizer Institute has “Canadian Fertilizer Industry Storage and Handling Guidelines” (2001) to help those in the industry to determine what changes they can make to their existing or planned facilities to maintain or improve the level of safety associated with the handling and storage of fertilizers. The guidelines are based on industry best practices and regulatory requirements under the *Transportation of Dangerous Goods Act*, *WHIMIS Act*, *Occupational Health & Safety Act*, and Boiler & Pressure Regulations. The recommendations include aspects such as:

- Locating all new facilities a minimum of 50 m from surface water and environmentally sensitive areas;
- Locating liquid fertilizer facilities a minimum of 50 m from private wells and 300 m from sources of public water supply (e.g. municipal well) unless there is a hydro-geological assessment prepared that permits a closer setback;
- Requiring an emergency response plan that addresses how to contain emergency response water (e.g. from a fire);
- Design specifications for fertilizer containment areas and the collection of runoff water;
- Employee training; and
- Emergency response planning and practice, including local emergency response officials.

4R Nutrient Stewardship Program

The 4R Nutrient Stewardship Program has been developed by the Canadian Fertilizer Institute and other industry stakeholders as a stewardship tool for a number of environmental programs at the federal and provincial level. It is the basis for a number of initiatives and is targeted for both urban and agricultural uses of fertilizer. The four “R’s” are ensuring that fertilizer is applied at the right place, the right rate, the right time and that the right product is used.

Local Stewardship/Outreach Programs

Appendix A includes detailed information on local stewardship, education/outreach, and incentive programs being implemented locally.

5. Policy considerations

- REMINDER: The main consideration for reducing or eliminating drinking water threats related to the application and storage of commercial fertilizer is amount of managed land in the vulnerable areas and the quantity of fertilizer being applied or stored.
- The source protection plan will need to include a high-level policy approach (“a catch-all policy”) to address those “would be” drinking water threats that are unlikely to occur in a given vulnerable area.

Deleted: to make sure that it does not enter surface water and/or groundwater.

Examples of risk management measures and policy ideas

For discussion purposes, this section of the report provides examples of risk management measures and policy ideas that could be applicable to the application of commercial fertilizer to land, and to the handling and storage of commercial fertilizer. It is not an exhaustive list.

The examples are categorized by the types of policy tools that can be used to meet the source protection plan objectives. The MOE Risk Management Measures Catalogue was reviewed as part of this exercise and measures were incorporated where appropriate.

Table 5.1 – Examples of risk management measures and policy ideas for commercial fertilizer

Policy Tool	Examples
Education and Outreach	<ul style="list-style-type: none"> • Area-wide education and outreach programs targeted at fertilizer application technicians and homeowners on the importance of fertilizer-free buffers around wells and surface water. • Promote a reduction in the use of phosphorus. • Promote voluntary nutrient management strategies and plans for farms that do not qualify under O. Reg. 267/03.
Incentive Programs	<ul style="list-style-type: none"> • Support existing incentive programs (including ODWSP) and <u>setbacks</u> established for lands adjacent to surface water.
Municipal Tools and Land Use Planning	<ul style="list-style-type: none"> • Prohibit the land application and storage of commercial fertilizer within the IPZs and WHPAs where it can be a significant drinking water threat, in official plans and zoning by-laws and through municipal by-laws. • Prohibit the land application, handling and storage of commercial fertilizer within 15 m of surface water (and/or require a minimum 15 m vegetated buffer). • Ensure extra consideration is given for new development in vulnerable areas that includes the storage of commercial fertilizer.

Policy Tool	Examples
Prescribed Provincial Instruments	<ul style="list-style-type: none"> Request MOE to include location in a source protection vulnerable area as a risk factor in selecting inspections. Conditions for approved Nutrient Management Strategy to be consistent with source protection policies
Municipal Operations / Infrastructure	<ul style="list-style-type: none"> Evaluate municipal fertilizer storage locations for potential impact on drinking water sources, and address identified problems. Require buffers of a suitable width based on site specific considerations that are fertilizer-free zones along surface water on municipal properties. Emergency response plans – consideration for municipal response to spills.
Land Securement	<ul style="list-style-type: none"> Purchase or place easements on land in IPZs and WHPAs.
Risk Management Plans	<ul style="list-style-type: none"> Require risk management plans for the storage of commercial fertilizer in IPZs and WHPAs where this activity is or would be a significant drinking water threat.
Prohibition	<ul style="list-style-type: none"> Prohibit the application and storage of commercial fertilizer in IPZs and WHPAs where this activity is or would be a significant drinking water threat.
Restricted Land Uses	<ul style="list-style-type: none"> Flag land uses that are associated with the application and storage of commercial fertilizer (such as agricultural, active recreational, municipal public works) as restricted land uses in IPZs and WHPAs where these activities are or would be significant drinking water threats so that municipal planners and building official ensure the proposed use is reviewed by RMO and risk is mitigated so that it will not become a significant threat.
Incentive Programs	<ul style="list-style-type: none"> Support existing incentive programs (including ODWSP) and widths established for lands adjacent to surface water.
<u>Technological Options</u>	<ul style="list-style-type: none"> <u>Physical membranes Containment pads, storage facility requirements.</u>

Deleted: <#>Require/encourage (depending on level of threat) OMAFRA and MOE to take extra care in its review of proposed nutrient management strategies and plans for farms within and adjacent to intake protection zones and wellhead protection areas, and to require reporting back to OMAFRA or MOE (i.e. status of sites, sampling and monitoring programs).¶
 <#>Require/encourage OMAFRA to review approved nutrient management strategies and plans to ensure compliance with the Source Protection Plan.¶
 <#>Require/encourage MOE to prioritize inspections for these areas, and to conduct regular inspections.¶

Appendix A – Local Information on Drinking Water Threats

1. Local scale of the drinking water threat?

Application of Fertilizer

In general, the application of commercial fertilizer to land, as well as the handling and storage of such fertilizer, is associated with the **majority** of land uses in the **name of** Source Protection Area including agricultural, active recreational, institutional, industrial, commercial and residential. The use of best management practices for the application and storage of fertilizer appears to be prevalent. The high costs of commercial fertilizers make its care and safe use a high priority.

- This activity is or would be a significant threat in the **named WHPA/IPZ**.
- This activity is or would be a moderate threat in all of the IPZs and WHPAs except for the **named Source Protection Area: names of municipalities**.
- This activity is or would be a low threat

Handling and Storage of Fertilizer

In the **name of** Source Protection Area, the majority of land set aside for industrial uses are located in the **(specify the vulnerable areas)**.

- The storage of commercial fertilizer for retail sale or for application is or would be a significant drinking water threat in **(number of)** locations: in the **named Source Protection Area: names of municipalities**.
- The storage of fertilizer associated with the manufacturing, processing or wholesale of fertilizer would be a moderate or low drinking water threat in the **(specify the vulnerable areas)** and **(specify the locations)** and **(specify the municipalities)** if the activity were to occur in the future.

2. Local approaches to managing these drinking water threats.

a. Land Use Planning

[Insert additional description of local land use approaches that are being used]

Application of Fertilizer

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Handling and Storage of Fertilizer

- Municipalities have strict control over where these activities can occur within their municipal boundaries, and the majority of IPZs and WHPAs are in established settlement areas that cannot accommodate an industrial use. In the **named** Source Protection Area, the majority of lands set aside for industrial uses are located in **(specify the vulnerable areas)**.

b. Other Local Programs

[Insert discussion on local programs including Stewardship, Education/Outreach, Incentive, etc. implemented by Conservation Authority, Municipality, or other watershed/community groups.]

c. Cross Jurisdiction Considerations

[Insert discussion on policy approaches being considered by neighboring Source Protection Areas/Regions.]

3. Further Research for Specific Vulnerable Areas

[insert additional background research needed, where applicable]

Appendix – B Reference List

Canadian Fertilizer Institute. 2001. Canadian Fertilizer Industry Storage and Handling Guidelines. www.cfi.ca/BACKUP/files/publications/.../d400_Storage_Handling.PDF

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Appendix C - Additional Resources

1. Drinking Water Threat Contaminants Summary (DRAFT). Separate document.
2. The MOE Water Quality Risk Management Measures Catalogue (Version 2, 09/07/2010)
<http://maps.thamesriver.on.ca/swpCAMaps/rmc/disclaimer.aspx>
3. Ministry of the Environment. SPP Bulletins available at:
www.conservationontario.ca/members/members_source_protection_committee/spc_index.html
(username: spcmember; password: spc123)

Available as of December 2010:

- Overview of Source Protection Plan requirements
 - Notice of when Source Protection Plan preparation begins
 - Existing municipal authorities and land use planning
 - Section 57 Prohibition
 - Overview of Prescribed Instruments
 - Table 2 – Prescribed Instruments Management of Drinking Water Threats
 - Pesticide permits
 - Renewable energy approval
 - Municipal drinking water licence and drinking water works permits
 - Example of municipal drinking water licence
 - Example of drinking water works permit
 - Nutrient Management Instruments
 - Sample letter of approval – nutrient management strategy
 - Sample nutrient management strategy and plan
 - Sample record of approval – nutrient management strategy
 - Sample multiple year nutrient management strategy and plan
4. Manitoba Water Stewardship www.gov.mb.ca/waterstewardship/index.html
 5. Urban Fertilizer Council www.cfi.ca/whatwedo/urbanfertilizercouncil/