AGENDA

Mississippi-Rideau Source Protection Committee

January 6, 2011
1 pm
Rideau Valley Conservation Authority (3889 Rideau Valley Drive, Manotick)

1.0	**Welcome and Introductions**	**Pg.**	*Chair Stavinga*
	a. Agenda Review b. Notice of Proxies c. Adoption of the Agenda (D) d. Declarations of Interest e. Approval of Minutes – December 2, 2010 (D) ► draft minutes attached as a separate document f. Status of Action Items – Staff Report Attached (D) …… g. Correspondence (D): …… • Ian Smith, MOE re: *Proposed* AR Status • MVSPA re: *Proposed* AR Submission • RVSPA re: *Proposed* AR Submission • SPC re: *Proposed* AR Accompanying Document		
2.0	***Nutrient Management Act* Presentation** OMAFRA staff will provide a presentation about how the following activities are currently regulated and existing best management practices: • Agricultural Source Material (ASM) • Non-Agricultural Source Material (NASM) • Grazing, Pasturing, Farm Yards and Outdoor Confinement Areas		*Phyllis MacMaster (OMAFRA)*
3.0	**Source Protection Plan – Decision Making Process** Staff Report Attached (D) …… a. Evaluation Framework – members will consider approving a series of questions designed to help evaluate different policy options b. Decision Making Process – members will consider endorsing a decision making process to develop preliminary and draft source protection policies		*Staff*
4.0	**Source Protection Plan – Preliminary Policy Development** Staff Reports Attached (D) …… Members will develop preliminary source protection policies for the following drinking water threats: a. Agricultural Source Material (ASM) b. Grazing, Pasturing, Farm Yards and Outdoor Confinement Areas c. Non-Agricultural Source Material (NASM)		*Staff*
5.0	**Community Outreach** – Staff Report Attached (D) …… a. Members & staff report on activities since the last meeting b. Discuss upcoming events & opportunities		*Chair Stavinga*
6.0	**Other Business**		*Chair Stavinga*
7.0	**Member Inquiries**		*Chair Stavinga*
8.0	**Next Meeting** – February 3, 2011, 1pm Rideau Valley Conservation Authority (Monterey Boardroom) 3889 Rideau Valley Drive, Manotick		*Chair Stavinga*
9.0	**Adjournment**		*Chair Stavinga*

(I) = Information (D) = Decision

Delegations wishing to speak to an item on the Agenda are asked to contact Sommer Casgrain-Robertson at 613-692-3571 ext 1147 or sommer.robertson@mrsourcewater.ca before the meeting.

Box 599, 3889 Rideau Valley Drive
Manotick, ON K4M 1A5
Telephone 613-692-3571
Toll-free 1-800-267-3504
Fax 613-692-0831
www.mrsourcewater.ca

1.0 f) STATUS OF ACTION ITEMS

Date: December 21, 2010
To: Mississippi-Rideau Source Protection Committee
From: Sommer Casgrain-Robertson, Co-Project Manager
Mississippi – Rideau Source Protection Region

Recommendation:

1. That the Mississippi-Rideau Source Protection Committee receive the Status of Action Items staff report for information.

Staff & Chair Action Items:

	Issue	Action	Lead	Status
1	Vacant "Other Interest" seat on the MRSPC	Fill the vacancy on the MRSPC	Sommer Casgrain-Robertson	**In Progress** Applications are being reviewed – interviews will be held in January.
2	Vacant "City of Ottawa" seat on the MRSPC	Fill the vacancy on the MRSPC	City of Ottawa staff	**In Progress** City of Ottawa staff will begin a process to fill the seat
3	Ottawa River Watershed Inter-Jurisdictional Committee	Encourage MOE to take the lead role in establishing an Ottawa River watershed inter-jurisdictional committee	Mary Wooding	**Ongoing** Chair Stavinga and staff met with Ville de Gatineau on September 16, 2010 to discuss possible IPZ work in Quebec.
4	Tritium	Encourage province to lower Ontario Drinking Water Standard for tritium	Chair Stavinga	**Complete** MRSPC passed a motion May 6, 2010 calling on MOE to adopt the Ontario Drinking Water Advisory Council's six recommendations in their *Report and Advice on the Ontario Drinking Water Quality Standard for Tritium*. MRSPC and staff visited the Atomic Energy of Canada Limited Chalk River Laboratory on October 19, 2010 and received a briefing about their operations and environmental monitoring.

Issue		Action	Lead	Status
5	Uranium	MVC and local Health Units work together to raise public awareness about naturally occurring uranium in drinking water	Sommer Casgrain-Robertson	**In Progress** Jean-Guy Albert will encourage Health Canada to release their "Uranium and Drinking Water" fact sheet they developed.
6	Compensation Models	Staff to collect other compensation models (e.g. Ottawa wetland policy, Alternate Land Use Services).	Sommer Casgrain-Robertson	**In Progress** Staff will build this in to the Source Protection Plan work plan.

MRSPC Member Action Items:

Issue		Action	Lead	Status
1	Drainage Act is under review	Follow the process to see if it will impact source protection work	Peter McLaren & Richard Fraser	**In Progress** Peter and Richard are following the review and will inform the Committee of any concerns they have.
2	Members were concerned that attendance might be low at public open houses and groups who should be involved in the process are not	Members were asked to provide Sommer with contact information for groups they feel should be involved in the process – they will be added to our mailing list.	All Members	**Ongoing**
3	OFEC Conference Calls & Training Sessions	Richard Fraser will provide the MRSPC with updates on OFEC conference calls & training sessions	Richard Fraser	**Ongoing**
4	Community Outreach opportunities	Members to notify Sommer of potential events and opportunities to engage the public about source protection	All members	**Ongoing**

1.0 g) CORRESPONDENCE

Date: December 21, 2010
To: Mississippi-Rideau Source Protection Committee
From: Sommer Casgrain-Robertson, Co-Project Manager
Mississippi – Rideau Source Protection Region

Recommendation

That the Mississippi-Rideau Source Protection Committee receive the Correspondence for information.

Attached Correspondence:

	Correspondence From:	Regarding:	Response:
1	Ian Smith, Ministry of the Environment December 3, 2010	Timing of *Proposed* Assessment Report submission	No response required

	Correspondence From:	Regarding:	Response:
2	Mississippi Valley Source Protection Authority	*Proposed* Assessment Report submission - transmittal letter	n/a
3	Rideau Valley Source Protection Authority	*Proposed* Assessment Report submission - transmittal letter	n/a
4	Mississippi-Rideau Source Protection Committee	*Proposed* Assessment Report Accompanying Document - transmittal letter	n/a

Ministry of the Environment

Source Protection Programs Branch

14th Floor
40 St. Clair Ave. West
Toronto ON M4V 1M2

Ministère de l'Environnement

Direction des programmes de protection des sources

14e étage
40, avenue St. Clair Ouest
Toronto (Ontario) M4V 1M2

Ontario

Log: ENV1174IT-2010-225

December 3, 2010

Ms. Janet Stavinga
Chair, Mississippi-Rideau SPC
26 Franklin Cathcart Crescent
Lanark, Ontario, K0G 1K0

Mr. Paul Lehman
General Manager, Mississippi Valley CA
4175 Hwy #511, RR # 2
Stittsville, Ontario, K2S 2A7

Mr. Dell Hallett,
General Manager, Rideau Valley Conservation Authority
PO Box 599, 3889 Rideau Valley Drive
Manotick, Ontario K4M 1A5

Dear Janet/Paul/Dell:

I am writing in response to the recent posting to the internet of the draft Assessment Reports for the Mississippi and Rideau Source Protection Areas.

Extensive dialogue has taken place between the Authority, Ministry staff, ourselves and others. I trust the Ministry comments were helpful in guiding efforts to update the document(s).

I am pleased to see that with this posting, the Committee and Authorities appear on track for a submission of these documents by December 23rd. Submitting the two documents will resolve the non-compliance posed by a single document for your region, and meets the regulatory requirement for assessment report submission(s).

Mary Wooding will be monitoring progress and I encourage your staff to keep Mary advised as progress is made.

Sincerely,

Ian Smith, Director
Source Protection Programs Branch
Ministry of the Environment

Ian Smith, Director
Source Protection Programs Branch
Ministry of the Environment

cc: Mark Burnham, Chair, Mississippi Valley Conservation Authority
Alan Arbuckle, Chair, Rideau Valley Conservation Authority
Keith Willson, Manager, Source Protection Approvals
Mary Wooding, Liaison Officer, Source Protection Implementation
Heather Malcolmson, Manager, Source Protection Planning
Melanie Ward, Group Leader, Source Protection Approvals
Katie Fairman, Superviser, Source Protection Implementation
Paul Heeney, Manager, Source Protection Implementation

DRINKING WATER SOURCE PROTECTION
ACT FOR CLEAN WATER

Mississippi-Rideau Source Protection Region

Mississippi Valley Conservation

RIDEAU VALLEY CONSERVATION AUTHORITY

Mr. Ian R. Smith
Director, Source Protection Programs Branch
Drinking Water Management Division
Ontario Ministry of the Environment
40 St. Clair West, 14th Floor
Toronto, ON M4V 1M2

December 21, 2010

RE: *PROPOSED* ASSESSMENT REPORT SUBMISSION PACKAGE MISSISSIPPI VALLEY

Dear Mr. Smith,

On behalf of the Mississippi Valley Source Protection Authority I am pleased to submit a *Proposed* Assessment Report for the Mississippi Valley Source Protection Area. This report is the culmination of over five years of technical studies and our Authority is very proud of the Source Protection Committee's final product.

Our submission package contains:

- *Proposed* Assessment Report – Mississippi Valley Source Protection Area
  - two hard copies and one electronic copy on DVD
- Supporting Documentation (evidence of conformity with legislative requirements)
- Completed Assessment Report checklist
- Comments Received on *Proposed* Assessment Report
- Workplan for Updated Assessment Report
  - Includes review of IPZ-3 vulnerability scores for the City of Ottawa intakes (unresolved municipal comment on *Draft* Assessment Report)

Please contact Sommer Casgrain-Robertson at 613-692-3571 or 1-800-267-3504 ext. 1147 or by email at sommer.robertson@mrsourcewater.ca should you have any questions or require additional information. We look forward to your comments and acceptance of our *Proposed* Assessment Report.

Sincerely,

Mark Burnham
Chair, Mississippi Valley Source Protection Authority

Attached: Motion SPA 12/01/10-2 (December 1, 2010)

Box 599, 3889 Rideau Valley Drive
Manotick, ON K4M 1A5
Telephone 613-692-3571
1-800-267-3504
Fax 613-692-0831

Mississippi Valley Conservation

RESOLUTION

Number: SPA12/01/10- 2 Source Protection Authority Meeting 2010

Moved by: ______________

Seconded by: ______________

Resolved, That the Mississippi Valley Source Protection Authority receive the *Summary of Comments Received on the Draft Assessment Report and How They Were Addressed* (dated November 16, 2010) and further;

Resolved, That the Mississippi Valley Source Protection Authority direct staff to submit the *Proposed* Assessment Report to the Ontario Ministry of the Environment along with any comments received during the 30 day public consultation posting.

Carried December 01, 2010

____

Chairman

DRINKING WATER SOURCE PROTECTION
ACT FOR CLEAN WATER

Mississippi-Rideau Source Protection Region

Mississippi Valley Conservation

RIDEAU VALLEY CONSERVATION AUTHORITY

Mr. Ian R. Smith
Director, Source Protection Programs Branch
Drinking Water Management Division
Ontario Ministry of the Environment
40 St. Clair West, 14th Floor
Toronto, ON M4V 1M2

December 21, 2010

RE: *PROPOSED* ASSESSMENT REPORT SUBMISSION PACKAGE RIDEAU VALLEY

Dear Mr. Smith,

On behalf of the Rideau Valley Source Protection Authority I am pleased to submit a *Proposed* Assessment Report for the Rideau Valley Source Protection Area. This report is the culmination of over five years of technical studies and our Authority is very proud of the Source Protection Committee's final product.

Our submission package contains:

- *Proposed* Assessment Report – Rideau Valley Source Protection Area
  - two hard copies and one electronic copy on DVD
- Supporting Documentation (evidence of conformity with legislative requirements)
- Completed Assessment Report checklist
- Comments Received on *Proposed* Assessment Report
- Workplan for Updated Assessment Report
  - Includes review of IPZ-3 vulnerability scores for the City of Ottawa intakes (unresolved municipal comment)

Please contact Sommer Casgrain-Robertson at 613-692-3571 or 1-800-267-3504 ext. 1147 or by email at sommer.robertson@mrsourcewater.ca should you have any questions or require additional information. We look forward to your comments and acceptance of our *Proposed* Assessment Report.

Sincerely,

Alan Arbuckle
Chair, Rideau Valley Source Protection Authority

Attached: Motion 2 (November 25, 2010)

Box 599, 3889 Rideau Valley Drive
Manotick, ON K4M 1A5
Telephone 613-692-3571
1-800-267-3504
Fax 613-692-0831

RIDEAU VALLEY
CONSERVATION AUTHORITY

3889 Rideau Valley Drive, P.O. Box 599, Manotick, ON K4M 1A5
tel 613-692-3571 | 1-800-267-3504 | fax 613-692-0831 | www.rvca.ca

RIDEAU VALLEY SOURCE PROTECTION AUTHORITY
Box 599, 3889 Rideau Valley Drive
Manotick, Ontario, K4M 1A5
613-692-3571, 1-800-267-3504

RVSPA Board of Directors **November 25, 2010** **4/10**

Motion 2 **Moved by:** Ken Graham
Seconded by: John Miller

1) That the Rideau Valley Source Protection Authority receive the *Summary of Comments Received on the Draft Assessment Report* and *How They Were Addressed*.
2) That the Rideau Valley Source Protection Authority direct staff to submit the proposed Assessment Report to the Ontario Ministry of the Environment along with any comments received during the 30 day public consultation posting.

Motion Carried

DRINKING WATER SOURCE PROTECTION
ACT FOR CLEAN WATER

Mississippi-Rideau Source Protection Region

Mississippi Valley Conservation

RIDEAU VALLEY CONSERVATION AUTHORITY

Mr. Ian R. Smith
Director, Source Protection Programs Branch
Drinking Water Management Division
Ontario Ministry of the Environment
40 St. Clair West, 14th Floor
Toronto, ON
M4V 1M2

December 21, 2010

RE: *PROPOSED* ASSESSMENT REPORT – ACOMPANYING DOCUMENT

Dear Mr. Smith,

The Mississippi-Rideau Source Protection Committee is very pleased that our *Proposed* Assessment Reports have now been submitted to you by our Source Protection Authorities.

To accompany the Assessment Reports, our Committee created the attached document titled: *A Summary of Concerns Outside of the Scope of the Assessment Reports*. This report documents concerns that have been brought to the Committee's attention since their formation, but that could not be captured in the Assessment Reports. Our outstanding concerns include:

- Drinking water related concerns that fall outside the current mandate of the Clean Water Act
- Certain aspects of the source protection planning process.

We hope you, your staff and others within the provincial government will review this document and take action where possible and appropriate. We would also appreciate being apprised of the follow up activities. Should you have any questions or require additional information please contact Sommer Casgrain-Robertson at 613-692-3571 or 1-800-267-3504 ext. 1147 or by email at sommer.robertson@mrsourcewater.ca.

Sincerely,

Janet Stavinga

Janet Stavinga
Chair
Mississippi-Rideau Source Protection Committee

Attached: Motion 6-11/10

Mississippi-Rideau Source Protection Committee Meeting
December 2, 2010

Motion 6-11/10

That the Mississippi-Rideau Source Protection Committee approve the attached *A Summary of Concerns Outside the Scope of the Assessment Reports* and direct staff to submit it to the Ontario Ministry of the Environment when the Proposed Assessment Reports are submitted in December, 2010.

Carried

3.0 Source Protection Plan – Decision Making Process

Date: December 21, 2010
To: Mississippi-Rideau Source Protection Committee
From: Allison Gibbons, Senior Environmental Planner
Mississippi – Rideau Source Protection Region

Recommendation 1:

That the Mississippi-Rideau Source Protection Committee approve the Evaluation Framework based on the Guiding Principles generated by SPC members at their December 2, 2010 meeting.

Recommendation 2:

That the Mississippi-Rideau Source Protection Committee approve the Policy Decision Making Process.

Background

The objective of each SPC meeting between January and September 2011 will be to reach consensus on preliminary policies for 2 to 4 drinking water threats. In order to accomplish this task, SPC members will need to feel well-informed and well-prepared to address each topic. In addition, a systematic and efficient discussion format will be required.

Meeting Preparation

Prior to each SPC meeting, the following information will be provided in the agenda package:

- Backgrounders – a document for each threat that contains a general explanation and definitions, outlines how the activity is currently regulated and identifies legislative gaps.
- Local information – identifying the local scale of the drinking water threat
- Agency guidance – any pertinent MOE Bulletins/Memorandums or information from other agencies.
- Policy Options for significant threats – prepared by staff using input from experts, the Municipal Working Group and, if appropriate, ideas from other regions. These Policy Options will form the starting place for the meeting discussion.
- Notes on moderate and low threats for consideration.

A thorough review of this information prior to the meeting and a presentation by an expert (if possible) should allow members to feel well-informed and prepared to discuss the Policy Options.

Meeting Discussion Format and Decision Making Process

The discussion will focus on 2 or 3 **Policy Options**. These options will be analyzed with regard to impact, cost, practicality and acceptance using the Evaluation Framework (attached). If there is one or more clearly preferred options, the discussion can proceed to address such factors as implementer (body or agency responsible for implementing such as Conservation Authority), monitoring policies and rationale and will end with one or more **Preliminary Policy Concepts** approved for targeted consultation. If there is no clearly preferred option(s), it may be due to lack of information, inability to unanimously agree or the need for new Policy Options. The Decision Making Process diagram (attached) illustrates how these various situations may be addressed in order to achieve the final goal of a Preliminary Policy approved for targeted consultation.

Targeted consultation will provide an opportunity to “test drive” the Preliminary Policy Concept(s) and will add the benefit of the perspective of affected persons or bodies. If the Preliminary Policy Concept(s) is/are not well accepted during targeted consultation, the process illustrated in the Decision Making Process diagram (attached) allows for policy refinement or the generation of new options.

Moderate and low threats will be briefly discussed to determine if a policy may be appropriate. If so, this will be added to the Preliminary Policy Concept(s) to be presented during targeted consultation. If there is indecision or there is more information required, it will be added to a list to be addressed during the Optional Policies Meeting later in 2011.

Attachments:

Evaluation Framework
Decision Making Process

QUALITATIVE EVALUATION FRAMEWORK

Impact

Will this address the existing threat so that it is not significant?
Will it eliminate future threats?
Does it put water first?
Will it adequately protect the source water?
Is it a proven, science based approach?
Will there be evident or measurable results?
Does it take into consideration the potential impacts of climate change?

Acceptance

Does this have community buy-in?
Will there be no strong opposition by affected persons or bodies?
Was this decision reached through an open, participatory and transparent process?
Does this adequately consider social costs?
Does it have social benefit such as an education component?
Will it be easily understood?

Cost

Is this feasible economically?
Can the approach be implemented with existing resources?
Will no ongoing investment be required?
Can it be implemented without financial assistance?
Does it share costs equitably (i.e., shared economic responsibility)?

Practicality

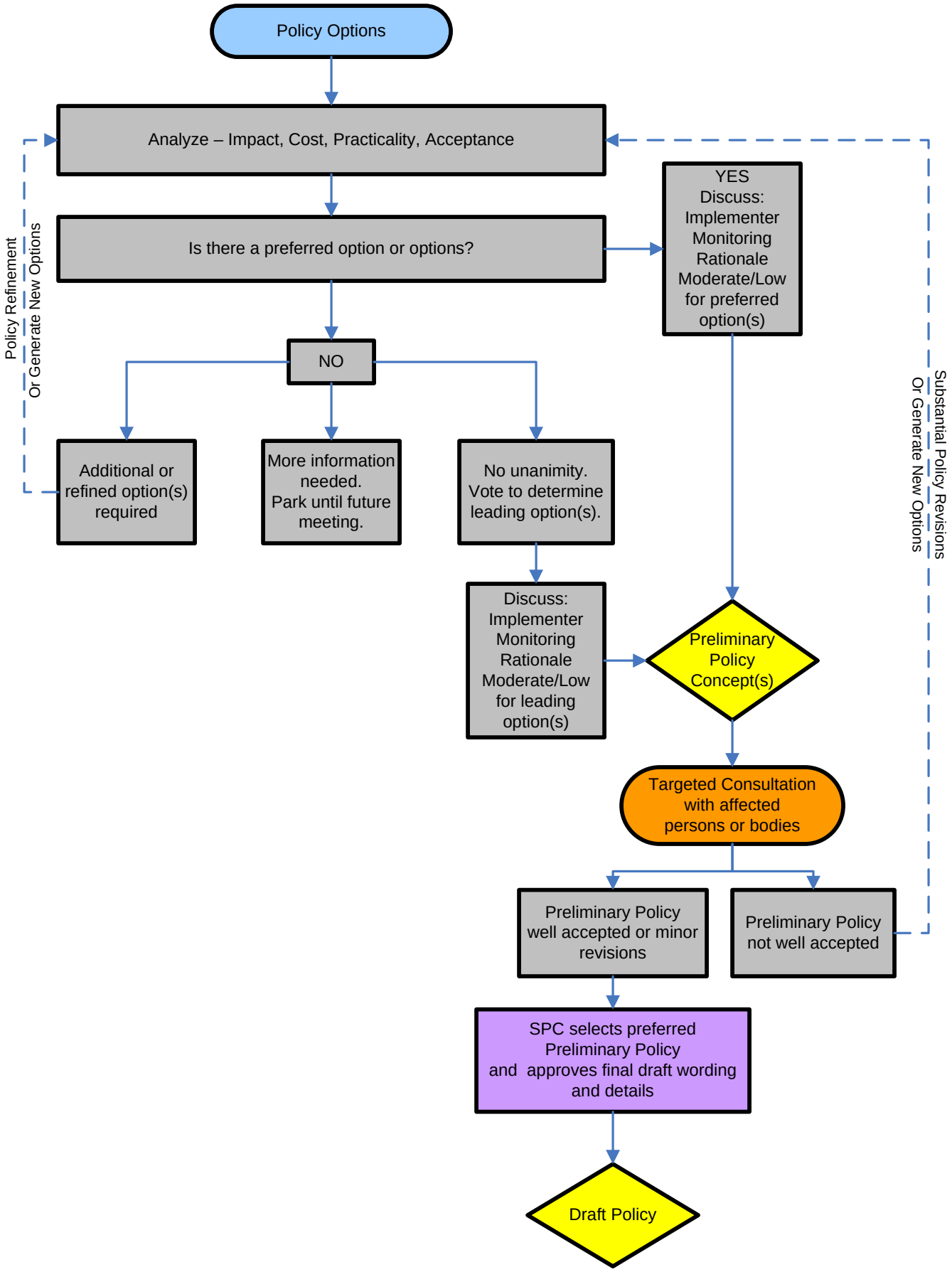
Is the scale of the policy suitable for the scale of the threat?
Does it make use of existing knowledge (e.g., best practices)?
Does it make use of existing resources (e.g., agencies that already regulate the activity)?
Will it be relatively easy to enforce?
Does this avoid duplication and overlap?
Can this be implemented easily (e.g., through amendments to existing policies rather than through new policies)?

Purpose: The Evaluation Framework is intended to foster a discussion that bears in mind the many different implications of any Policy Option. It is unlikely that any policy will generate "yes" answers to all of the questions, just as no policy is likely to be "all things to all people". The goal is to balance the various implications and find the most favourable option.

Guiding Principles: The SPC generated the following list of Guiding Principles at their December 2, 2010 meeting. These Guiding Principles were used to develop the Evaluation Framework.

- **Impact**: protective of the environment, protection (mother earth), water first, informed, science-based, substantiated (head not heart), evident results, effective (outcomes), measurable
- **Acceptance:** participatory, open and transparent, public perception, social costs, social responsibility, education (social benefit)
- **Cost:** cost effectiveness for implementation, affordable, feasible economically, fair, economic impact – fairness, equitable, shared responsibility
- **Practicality:** realistic, practicable, supportable, justifiable, reasonable, achievable, implementable, feasible, enforceable promotion of best practices

Policy Decision Making Process



4.0a Source Protection Plan – Preliminary Policy Development Agricultural Source Material (ASM)

Date: December 21, 2010
To: Mississippi-Rideau Source Protection Committee
From: Allison Gibbons, Senior Environmental Planner
Mississippi – Rideau Source Protection Region

Recommendation 1:

That the Mississippi-Rideau Source Protection Committee approve Policy Option(s) #____ as the Preliminary Policy Concept(s) for Agricultural Source Material, direct staff to undertake targeted consultation regarding this (these) Concept(s) and report back with results.

Background

Source Protection Plans must contain policies for all activities that are or would be considered a significant drinking water threat in the Provincial Threat Tables. The policies are intended to ensure existing activities cease to be a significant threat and other activities do not become significant threats.

The application and storage of agricultural source material (ASM) is considered a significant drinking water threat within certain portions of Wellhead Protection Areas (WHPA) and Intake Protection Zones (IPZ) in the Mississippi-Rideau Source Protection Region. This staff report and the attachments provide background information and policy recommendations intended to prepare SPC members to make a decision on Preliminary Policy Concepts to address the application and storage of ASM.

Information Provided to Assist with Policy Decisions

- **Backgrounder**
  The attached document titled *Drinking Water Source Protection Background Document – The Application and Storage of Agricultural Source Material* contains a general explanation of the threat and definitions. It outlines how the storage and application of ASM is currently regulated and identifies legislative gaps.

- **Local Information**
  Table 1 illustrates the local extent of this drinking water threat – where it would be considered a significant threat and if the activity currently takes place in these areas. In general, any amount of ASM stored or spread in areas with a vulnerability score of 10 in a WHPA, and areas with a vulnerability score of 8 to 10 in an IPZ, is considered a significant drinking water threat.

- **Agency Guidance**
  There is currently no provincial guidance pertaining to this drinking water threat. An Ontario Ministry of Agricultural, Food and Rural Affairs (OMAFRA) representative will provide information at the January SPC meeting about existing regulatory requirements and best practices for the application and storage of ASM (see Agenda Item 2.0).

- **Policy Options for Significant Threats**
  Three potential Policy Options are attached. An initial qualitative evaluation using the Evaluation Framework has been conducted by staff and is included with each option.

- **Moderate and Low Threats**
  Information on moderate and low threats will be provided at the January 2011 meeting. Time permitting, potential policies for moderate and low threats will be discussed.

Attachments:

- Table 1 – Agricultural Source Material Significant Drinking Water Threats in the MRSPR
- Drinking Water Source Protection Background Document – The Application and Storage of Agricultural Source Material
- ASM - Policy Option #1
- ASM - Policy Option #2
- ASM - Policy Option #3

TABLE 1
AGRICULTURAL SOURCE MATERIAL
SIGNIFICANT DRINKING WATER THREATS IN THE MRSPR

Municipal System	Vulnerable Area and Score	Significant Threat Circumstance	Potential Existing Significant Threats (Application)	Potential Existing Significant Threats (Storage)
Almonte	WHPA 10	Any amount	3	0
Carp	WHPA 10	Any amount	0	0
Kemptville	WHPA 10	Any amount	6	0
Merrickville	WHPA 10	Any amount	0	0
Munster	WHPA 10	Any amount	1	0
Richmond	WHPA 10	Any amount	1	0
Westport	WHPA 10	Any amount	0	0
Carleton Place	IPZ 10	Any amount	0	0
	IPZ 9	Any amount; below grade storage excluded	0	0
	IPZ 8	Any amount; below grade storage excluded	3	0
Perth	IPZ 10	Any amount	9	0
	IPZ 9	Any amount; below grade storage excluded	9	0
	IPZ 8	Any amount; below grade storage excluded	19	0
Smiths Falls	IPZ 10	Any amount	0	0
	IPZ 8	Any amount; below grade storage excluded	19	0
Ottawa – Britannia	IPZ 9	Any amount; below grade storage excluded	0	0
	IPZ 8.1	Any amount; below grade storage excluded	3	0
Ottawa - Lemieux	IPZ 9	Any amount; below grade storage excluded	0	0
	IPZ 8.1	Any amount; below grade storage excluded	0	0

Drinking Water Source Protection Background Document

The Application and Storage of Agricultural Source Material

1. Definition

This paper provides background information for **prescribed drinking water threat 3 – application of agricultural source material to land** and **prescribed drinking water threat 4 – storage of agricultural source material**.

Nutrients are materials that can be applied to land for the purpose of improving the growth of agricultural crops and for soil conditioning. There are three sources of nutrients to be considered through the drinking water source protection initiative: agricultural source material, non-agricultural source material, and commercial fertilizer.

According to Ontario Regulation 267/03 – General under the *Nutrient Management Act*, agricultural source materials (ASM) include the following materials that may be produced on a farm:

- manure produced by farm animals, including bedding materials
- runoff from farm-animal yards and manure storages
- wash water that has not been mixed with human body waste (e.g. from the milking centre)
- organic materials produced by intermediate operations that process the above materials (e.g. mushroom compost)
- anaerobic digestion output that does not include sewage biosolids or human body waste (anaerobic digestion is a process used to decompose organic matter by bacteria in an oxygen-limited environment)
- regulated compost (which contains dead farm animals).

ASM can be stored in a permanent nutrient storage facility (usually a steel or concrete tank or earthen lagoon), or on a temporary field nutrient storage site (only for solid ASM).

The primary consideration for reducing or eliminating drinking water threats related to the application and storage of agricultural source material is to make sure nitrogen, phosphorus and pathogens do not enter surface water and/or groundwater.

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

The Ontario Ministry of the Environment (MOE) Tables of Drinking Water Threats (2008, as amended in 2009) identify nitrogen, total phosphorus and pathogens as contaminants that could make their way into surface and groundwater as a result of the application of ASM to land (circumstances 1 to 18 and 1944), and the storage of ASM (circumstances 1201 to 1224 and 1962 to 1964). The primary source of nitrogen, total phosphorus and pathogens in ASM is from animal waste and by-products.

ASM is produced on farms with livestock. Permanent nutrient storage facilities are generally, but not always, located near barns and outdoor confinement areas. Temporary field nutrient storage facilities can be located near barns and outdoor confinement areas, as well as on fields where the ASM will be applied. The storage and application of ASMs occur in the highly vulnerable aquifers and significant groundwater recharge areas, and in parts of some intake protection zones and wellhead protection areas.

3. Understanding the nature of the drinking water threats

The classification of this activity as a significant, moderate or low drinking water threat is dependent on the vulnerability score of the specific area, as well as the combination of the managed land percentage and livestock density for the vulnerable area. As a reminder:

- Managed lands include cropland, fallow land, improved pasture, golf courses, sports fields and lawns to which ASM, non-agricultural source material, or commercial fertilizer could be applied. This value was calculated based on MOE Technical Rules and is included in the Assessment Report.

- Livestock density is the number of farm animals in a given 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.

- Total phosphorus associated with agricultural source material can only be a drinking water threat in intake protection zones (IPZs) and in wellhead protection areas (WHPAs) where the groundwater is under the direct influence of surface water (WHPA-E).

- Nitrogen associated with agricultural source material can be a drinking water threat in IPZs, WHPAs, Highly Vulnerable Areas (HVAs), and significant groundwater recharge areas (SGRAs).

- Pathogens associated with agricultural source material can be a drinking water threat in IPZs, and WHPAs.

4. Applicable legislation, policies and programs

a. National

Fisheries Act

In general, the Canada *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) 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."

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. Although the application of animal wastes to land in accordance with normal farming practices and the regulations made under the *Nutrient Management Act* does not require approval under the EPA, farmers must ensure that ASM spills do not occur.

Ontario Water Resources Act

The *Ontario Water Resources Act* (OWRA) contains general prohibitions against discharging pollutants to surface or groundwater. Permits are required for vegetated filter strip systems and constructed wetlands, if these methods will be used to treat milking centre washwater.

Nutrient Management Act and Ontario Regulation 267/03 – General

The Nutrient Management Act passed on June 27, 2002. It addresses land-applied materials containing nutrients. This includes provisions for the development of strong new standards for all land-applied materials containing nutrients, a proposal to ban the land application of untreated septage over a five-year period, and proposed strong new requirements such as: the review and approval of nutrient management plans, certification of land applicators and a new registry system for all land applications.

The Act provides a comprehensive nutrient management framework for Ontario's agricultural industry, municipalities and other generators of materials containing nutrients, including clear environmental protection guidelines. It builds on the existing system by giving current best management practices the force of law, and creating comprehensive, enforceable, province-wide standards to regulate the management of all land- applied materials containing nutrients. The Act contains amendments to the *Environmental Protection Act*, the *Highway Traffic Act*, the *Ontario Water Resources Act* and the *Pesticides Act*, and consequential amendments to the *Farming and Food Production Protection Act, 1998* to ensure consistency and give higher recognition to the standards.

Sections 10, 14 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 nutrient management plans, and to compliance with nutrient management strategies and plans that are in force.

Farms are regulated under the Nutrient Management Act if the farm generates greater than 300 nutrient units annually or generate between 5 and 300 NU annually and have applied for a building permit to construct a building used to hold farm animals or manure. Nutrient management strategies and plans are used by some farms to optimize the relationship between the land-based application of nutrients, farm management techniques and crop requirements; to maximize the efficient use of on-site nutrients; and to minimize adverse impacts to the environment.

Nutrient Management Strategies and Plans

Nutrient Management Strategy (NMS)

Nutrient management strategies 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. The strategy must be approved by the Ministry of Agriculture, Food and Rural Affairs (OMAFRA).

A NMS sets out an environmentally acceptable method for managing all prescribed materials generated at an agricultural operation. Where prescribed materials are generated in the course of the operation, the operation shall ensure that the nutrients are managed in accordance with a NMS if the operation is phased in by the Regulation, Part II. The nutrient management strategy details the storage and destination of all the manure generated on the property. It does not deal with application of manure to the land.

Nutrient Management Plan (NMP)

A NMP details how nutrients are to be applied to a given land base. A NMP is based on both the components of the nutrients used and the characteristics of the field. The NMP optimizes the utilization of the nutrients by crops in the field and minimizes environmental impacts. A person who owns or controls an agricultural operation, which is phased in by the Regulation, Part II, and generates, greater than or equal to 300 NU or is located within 100 metres of a municipal well must ensure that nutrients are managed in accordance with a NMP if they land apply nutrients on their farm unit.

These plans are filed on the farm and are reviewed by the MOE Agricultural Environmental Officer during compliance inspections. The Officer can request OMAFRA to review and approve a nutrient management plan. 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.

The regulation contains land application standards that include timing restrictions for application, vegetated buffers zones adjacent to surface water, and setbacks from surface water and wells that are applicable to all farms that require a nutrient management plan or NASM Plan. These standards are considered to be best management practices for non-regulated farms.

The “Nutrient Management Protocol” (OMAFRA, September 2009) provides technical standards and procedures related to O. Reg. 267/03 – General. According to the Protocol, a nutrient management strategy must contain numerous components including information about the type and volume of prescribed materials (ASM and NASM) generated by the farm, the intended destination of the materials, and storage facilities. A nutrient management plan must contain numerous components including information about the nutrients that will be applied (type, content, application rate); the fields where the nutrients will be applied; and cropping practices, crop rotation and yields. The required contingency plan covers topics such as more nutrients than addressed in the ASM nutrient management strategy and/or plan, and unanticipated release of nutrients (e.g. spills).

Consultants who prepare approved nutrient management strategies and plans for ASM must be certified through the OMAFRA. Custom manure application businesses must have a Prescribed

Materials Business Owners License. Employees of the custom application business who apply nutrients to an agricultural operation that requires a nutrient management plan or NASM plan must have a Nutrient Application Technician License.

Compliance

Compliance and enforcement of the *Nutrient Management Act* is the responsibility of the MOE. According to "Complying with Environmental Legislation on Farms" (MOE, September 2009), the MOE's on-farm compliance program uses a problem-solving approach to help farmers comply with the law and manage environmental issues through education and outreach. Minor violations can be addressed through voluntary abatement plans, authorizing document amendments (to the nutrient management strategy and/or plan), and provincial officer orders. Enforcement, including Provincial *Offenses Act* summons, investigation and prosecution, are used in situations where serious issues are identified.

Canada-Ontario Environmental Farm Plan

The Environmental Farm Plan (EFP) is a program that is delivered locally through the Ontario Soil and Crop Improvement Association with expertise provided by the Ontario Ministry of Agriculture and Food. It is a voluntary educational program for farmers delivered through local workshops. Participants progress through a risk assessment and action plan development for their farm. The risk assessment gives the farmer the opportunity to assess the current level of environmental concern in up to 23 different areas on the farm and access funding to make improvements for areas of identified risk. The information sheets on nutrient management for the EFP program are consistent with the requirements of O. Reg. 267/03.

c. Municipal

Municipal Act

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 *Municipal Act*.

Minimum Distance Separation Formulae

Agricultural activities can include livestock facilities (e.g. barns and manure storage), and are generally permitted by municipalities on lands that are designated and zoned for agricultural and rural use. In order to reduce incompatibility concerns about odour from livestock facilities, Provincial minimum distance separation (MDS) formulae are used by municipalities to separate land uses.

Different formulae are applied to new or expanding non-agricultural uses (such as houses) that could impact existing livestock facilities (MDS I), and to new or expanding livestock facilities that could impact existing non-agricultural uses (MDS II). The formulae are applied to lands subject to most types of *Planning Act* applications and to activities that require building permits. The MDS I formulae are applied to low-intensity uses (e.g. industry, one house) proposed within a 1 km radius of the livestock facility, and to high-intensity uses (e.g. a subdivision) proposed within a 2 km radius.

MDS may have the effect of providing separation between a livestock facility and a municipal well if the municipal well is located on a non-agricultural lot zoned, for example, Institutional.

However, there are cases where municipal wells are located on a large property zoned for agricultural uses or on a separate lot that has an agricultural zoning. In those instances, MDS would not be applied as the well would not fall under either of the Type A or Type B land uses.

It is possible that private wells can be afforded some separation through the application of MDS, if the private well is located on a rural residential lot. However, if the private well is located on the same lot as a livestock facility MDS would not provide separation it would be O. Reg 267/03 that would provide the minimum well separation.

5. Gaps in existing legislation, policies and programs

- According to MOE staff, there is limited field verification on the accuracy of the information provided in an application for a certificate of approval, and that the conditions of a certificate of approval are being met.

- Under Ontario Regulation 267/03, Strategies are required for large farms (> 300 nutrient units) and any farm that requires a building permit for barn expansion or manure storage. The idea is that at some point all livestock farms will require a building permit and then be phased into the NM regulations. For farms that do not fall under this regulation, NMS and NMP can be completed voluntarily, but cannot receive approval by OMAFRA.

Policy Option: ASM #1
Approach: Manage – Mandatory / Voluntary
Tools:
- Prescribed Instrument
- Risk Management Plan
- Education / Promotion of Best Management Practices

Agricultural Source Material – Policy Option #1

Scenario	WHPA 10	IPZ 8, 8.1, 9, 10
Existing Activity	• Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, greater setbacks from watercourses • RMPs scoped to scale and type of use	IPZ 9, 10 • Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, greater setbacks from watercourses • RMPs scoped to scale and type of use IPZ 8, 8.1 – large scale/intensive • NMP/RMP IPZ 8, 8.1 – small scale farms • Education / promotion of BMPs
Future Activity	• Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, greater setbacks from watercourses • RMPs scoped to scale and type of use	IPZ 9, 10 • Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, greater setbacks from watercourses • RMPs scoped to scale and type of use IPZ 8, 8.1 – large scale/intensive • NMP/RMP IPZ 8, 8.1 – small scale farms • Education and promotion of BMPs
Details		
Implementer	RMP – Municipality or Risk Management Official NMP – OMAFRA and MOE	
Effective Dates	*Awaiting MOE guidance*	
Monitoring Ideas	Monitor numbers of RMPs in place and compliance. Monitor numbers of revised NMPs and compliance. Spot check voluntary implementation of BMPs to check effectiveness of education/promotion program.	
Rationale Ideas	NMPs are a comprehensive, effective existing tool to manage the ASM threat. Added measures specific to protecting source water may be warranted as are added inspections to ensure compliance. RMPs would bridge the gap where this activity is not regulated. Education and promotion of BMPs would be adequate for operations most distant from the intake.	

Policy Option: ASM #2
Approach: Manage – Mandatory
Tools:
- Prescribed Instrument
- Risk Management Plan

Agricultural Source Material – Policy Option #2

Scenario	WHPA 10	IPZ 8, 8.1, 9, 10
Existing Activity	• Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, greater setbacks from watercourses • RMPs scoped to scale and type of use	• Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, greater setbacks from watercourses • RMPs scoped to scale and type of use (less rigorous measures for lower intensity operations and/or farms located in 8, 8.1)
Future Activity	• Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, greater setbacks from watercourses • RMPs scoped to scale and type of use	• Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, greater setbacks from watercourses • RMPs scoped to scale and type of use (less rigorous measures for lower intensity operations and/or farms located in 8, 8.1)
Details		
Implementer	RMP - Municipality or Risk Management Official NMP – OMAFRA and MOE	
Effective Dates	*Awaiting MOE guidance*	
Monitoring Ideas	Monitor numbers of RMPs in place and compliance. Monitor numbers of revised NMPs and compliance	
Rationale Ideas	NMPs are a comprehensive, effective existing tool to manage the ASM threat. Added measures specific to protecting source water may be warranted as are added inspections to ensure compliance. RMPs would bridge the gap where this activity is not regulated. RMP or NMP required everywhere ensures measures are in place at all locations where this is a significant threat and treats all landowners equally.	

Policy Option: ASM #3
Approach: Prohibit / Manage – Mandatory
Tools:
- Prescribed Instrument
- Risk Management Plan
- Land Use Planning

Agricultural Source Material – Policy Option #3

Scenario	WHPA 10	IPZ 8, 8.1, 9, 10
Existing Activity	• Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, greater setbacks from watercourses • RMPs scoped to scale and type of use	• Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, greater setbacks from watercourses • RMPs scoped to scale and type of use (less rigorous measures for lower intensity operations and/or farms located in 8, 8.1)
Future Activity	• Prohibit under CWA **Variation A** • Prohibit / Manage through Land Use Planning (Ag 1 and Ag 2 zoning to distinguish between more intensive and less intensive operations; more intensive use would be prohibited; Site Plan Control to enforce measures such as setbacks and buffers for less intensive use)	• IPZ 10 – Prohibit under CWA • IPZ 8, 8.1, 9 – Manage through RMP where no NMP is required • IPZ 8, 8.1, 9 - Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, greater setbacks from watercourses • RMPs scoped to scale and type of use (less rigorous measures for lower intensity operations and/or farms located in 8, 8.1) **Variation A** • IPZ 10 – Prohibit through Land Use Planning • IPZ 8, 8.1, 9 Manage through Land Use Planning (Ag 1 and Ag 2 zoning; more intensive use would be prohibited; Site Plan Control to enforce measures such as setbacks and buffers for less intensive use)
Details		
Implementer	RMP - Municipality or Risk Management Official NMP – OMAFRA and MOE	
Effective Dates	*Awaiting MOE guidance*	
Monitoring Ideas	Monitor numbers of RMPs in place and compliance. Monitor numbers of revised NMPs and compliance.	
Rationale Ideas	Prohibiting future application and storage of ASM in the zones closest to the intake or wellhead would provide added insurance. Elsewhere, the implementation of measures through NMPs or RMPs would manage the risk. NMPs may require additional (non-standard) measures specific to protecting source water (e.g., greater setbacks from water) as well as added inspections to ensure compliance. RMPs would bridge the gap where this activity is not regulated and the content would mirror that of the enhanced NMPs. Using Planning Act tools to prohibit/manage future activities would reduce the resources needed for RMPs.	

QUALITATIVE EVALUATION

Agricultural Source Material – Policy Options	Option #1	Option #2	Option #3
Impact			
Will this address the existing threat so that it is not significant?	Yes	Yes	Yes
Will it eliminate future threats?	Yes	Yes	Yes
Does it put water first?	Discuss	Discuss	Discuss
Will it adequately protect the source water?	Yes	Yes	Yes
Is it a proven, science based approach?	Yes	Yes	Yes
Will there be evident or measurable results?	No	No	No
Does it take into consideration the potential impacts of climate change?	Discuss	Discuss	Discuss
Acceptance			
Does this have community buy-in?	?	?	?
Will there be no strong opposition by affected persons or bodies?	?	?	?
Was this decision reached through an open, participatory and transparent process?	Yes	Yes	Yes
Does this adequately consider social costs?	Discuss	Discuss	Discuss
Does it have social benefit such as an education component?	No	No	No
Will it be easily understood?	Yes	Yes	Yes
Cost - Landowner			
Is this feasible economically?	?	?	?
Will no ongoing investment be required?	?	?	?
Can it be implemented without financial assistance?	?	?	?
Does it share costs equitably (i.e., shared economic responsibility)?	Discuss	Discuss	Discuss
Cost - Implementer			
Is this feasible economically?	1	3	2
Will no ongoing investment be required?	1	3	2
Can the approach be implemented with existing resources?	?	?	?
Practicality			
Is the scale of the policy suitable for the scale of the threat?	Discuss	Discuss	Discuss
Does it make use of existing knowledge (e.g., best practices)?	Yes	Yes	Yes
Does it make use of existing resources (e.g., agencies that already regulate the activity)?	Yes	Yes	Yes
Will it be relatively easy to enforce?	?	?	?
Does this avoid duplication and overlap?	Yes	Yes	Yes
Can this be implemented easily?	?	?	?

Legend

Yes/No – initial answers provided by staff
Discuss – answers are particularly subjective; should be discussed by SPC members
? - answers to be determined through stakeholder consultation
1, 3, 2 – ranking of options, where appropriate

4.0b Source Protection Plan – Preliminary Policy Development
Grazing / Pasturing / Outdoor Confinement Areas / Farm-Animal Yards

Date: December 21, 2010
To: Mississippi-Rideau Source Protection Committee
From: Allison Gibbons, Senior Environmental Planner
Mississippi – Rideau Source Protection Region

Recommendation 1:

That the Mississippi-Rideau Source Protection Committee approve Policy Option(s) #___ as the Preliminary Policy Concept(s) for the use of land as grazing, pasturing, an outdoor confinement area or a farm-animal yard, direct staff to undertake targeted consultation regarding this (these) Concept(s) and report back with results.

Background

Source Protection Plans must contain policies for all activities that are or would be considered a significant drinking water threat in the Provincial Threat Tables. The policies are intended to ensure existing activities cease to be a significant threat and other activities do not become significant threats.

The use of land as grazing, pasturing, an outdoor confinement area or a farm-animal yard is considered a significant drinking water threat within certain portions of the Wellhead Protection Areas (WHPA) and Intake Protection Zones (IPZ) in the Mississippi-Rideau Source Protection Region. This staff report and the attachments provide background information and policy recommendations intended to prepare SPC members to make a decision on Preliminary Policy Concepts to address the use of land as grazing, pasturing, an outdoor confinement area or a farm-animal yard.

Information Provided to Assist with Policy Decisions

- **Backgrounder**
  The attached document titled *Drinking Water Source Protection Background Document – The Use of Land as Livestock Grazing or Pasturing Land, an Outdoor Confinement Area or a Farm-Animal Yard* contains a general explanation of the threat and definitions. It outlines how this land use is currently regulated and identifies legislative gaps.

- **Local Information**
  Table 2 illustrates the local extent of this drinking water threat – where it would be considered a significant threat and if the activity currently takes place in these areas. In general, one or more animals grazing, pasturing or in an outdoor confinement area or farm-animal yard in areas with a vulnerability score of 10 in a WHPA, and areas with a vulnerability score of 8 to 10 in an IPZ, is considered a significant drinking water threat.

- **Agency Guidance**
  There is currently no provincial guidance pertaining to this drinking water threat. An Ontario Ministry of Agricultural, Food and Rural Affairs (OMAFRA) representative will provide information at the January SPC meeting about existing regulatory requirements and best practices for this threat activity (see Agenda Item 2.0).

- **Policy Options for Significant Threats**
  Three potential Policy Options are attached. An initial qualitative evaluation using the Evaluation Framework has been conducted by staff and is included with each option.

- **Moderate and Low Threats**
  Information on moderate and low threats will be provided at the January 2011 meeting. Time permitting, potential policies for moderate and low threats will be discussed.

Attachments:

- Table 2 – Grazing / Pasturing / Outdoor Confinement Areas / Farm-Animal Yards Significant Drinking Water Threats in the MRSPR
- Drinking Water Source Protection Background Document – The Use of Land as Livestock Grazing or Pasturing Land, an Outdoor Confinement Area or a Farm-Animal Yard
- Grazing - Policy Option #1
- Grazing - Policy Option #2
- Grazing - Policy Option #3

TABLE 2
LIVESTOCK GRAZING OR PASTURING
OUTDOOR CONFINEMENT AREA OR FARM-ANIMAL YARD
SIGNIFICANT DRINKING WATER THREATS IN THE MRSPR

Municipal System	Vulnerable Area and Score	Significant Threat Circumstance	Potential Existing Significant Threats
Almonte	WHPA 10	One or more animals	3
Carp	WHPA 10	One or more animals	2
Kemptville	WHPA 10	One or more animals	0
Merrickville	WHPA 10	One or more animals	3
Munster	WHPA 10	One or more animals	0
Richmond	WHPA 10	One or more animals	0
Westport	WHPA 10	One or more animals	0
Carleton Place	IPZ 10	One or more animals	0
	IPZ 9	One or more animals	0
	IPZ 8	One or more animals	6
Perth	IPZ 10	One or more animals	0
	IPZ 9	One or more animals	4
	IPZ 8	One or more animals	28
Smiths Falls	IPZ 10	One or more animals	0
	IPZ 8	One or more animals	14
Ottawa – Britannia	IPZ 9	One or more animals	0
	IPZ 8.1	One or more animals	2
Ottawa - Lemieux	IPZ 9	One or more animals	0
	IPZ 8.1	One or more animals	0

Drinking Water Source Protection Background Document

The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard

1. Definition

An outdoor confinement area (OCA) is a yard , facility, or enclosure (for livestock, deer, elk or game animals) with a very high animal concentration, typically 15 + animals per acre, often for extended periods of time. *Ontario Regulation 267/03* made pursuant to the *Nutrient Management Act* defines outdoor confinement areas as follows:

1) It has no roof, except as described below (#3);
2) It is composed of fences, pens, corrals or similar structures;
3) It may contain a shelter to protect the animals from the wind or another shelter with a roof of an area of less than 20 square metres;
4) It has permanent or portable feeding or watering equipment;
5) The animals are fed or watered at the enclosure;
6) The animals may or may not have access to other buildings or structures for shelter, feeding or watering; and
7) Grazing and foraging provides less than 50 per cent of dry matter intake.

Farm-animal yards are outdoor livestock areas lined with concrete other than those meeting the definition of an outdoor confinement area. Food and water are not provided in **farm-animal** yards. They are generally used as outdoor exercise areas or holding areas for when barns are being cleaned out, usually in association with a barn/covered structure.

Grazing is crop production (forages) where the animals do the harvesting. Ontario grazing systems involve a concentration of up to 2-3 animals per acre during the grazing season, often on a rotational basis.

Although grazing/pasturing, farm animal yards and outdoor confinement areas are different (i.e. the latter is a more concentrated animal area requiring more active management), many sections of this background report apply to all. In this report when all types of outdoor livestock areas are referred to collectively, the term “outdoor livestock areas” is used for brevity.

2. What causes this activity to be a drinking water threat?

The Ontario Ministry of the Environment (MOE) Tables of Drinking Water Threats (2008, as amended in 2009) identify nitrogen, total phosphorus and pathogens (such as e-coli) as contaminants that could make their way into surface and groundwater from outdoor livestock areas (circumstances 200 to 211, 1945 and 1946). Nitrogen is a concern for both surface and groundwater. Total phosphorous is only considered for surface water because excessive inputs result in eutrophication and can cause toxic algae blooms.

These nutrients and pathogens found in animal manure could threaten the safety of drinking water sources in certain situations. Generally speaking, keeping greater numbers of livestock in a space intensifies the accumulation of nutrients and pathogens, thereby increasing the risk of contamination and the requirement for more active management. As such, the ranking of drinking water threat in the MOE Tables increases proportional to the concentration of manure in a given area.

Livestock Grazing and Pasturing Land

A nutrient unit (NU) compares livestock based on the nutrient content (nitrogen and phosphorus) found in manure. A NU is based on the manure equivalent of nutrients contained in 43 kg of nitrogen or 55 kg of phosphate, varying according to livestock type. (For example - 300 NU = 2,400 dairy goats or 210 large frame Holsteins). As nutrients from one dairy goat does not equal nutrients from one large frame dairy cow, under the Nutrient Management Act animals were all standardized to Nutrient Units so that they could be treated equitably.

The circumstance for pathogens applies to the use of land as livestock grazing or pasturing land for one or more animals. The chemical circumstances (nitrogen and total phosphorus) are divided into three groups based on the number of animals on the farm and field area.

- Less than 0.5 NU/ac/year
- 0.5 to 1 NU/ac/year
- Greater than 1 NU/ac/year

Outdoor Confinement Areas and Farm-Animal Yards

The circumstance for pathogens applies to land where one or more animals are kept in an outdoor confinement area or farm animal yard.

- Less than 120 NU/ha/year
- 120 to less than or equal to 300 NU/ha/year
- Greater than 300 NU/ha/year

3. Applicable legislation, policies and programs

This section identifies the legislation, policies and programs that apply to outdoor livestock areas. Some of the laws apply directly to farming practices while others are applied indirectly.

a. National

Fisheries Act

The Federal *Fisheries Act* always applies where fish habitat is concerned. 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 main objective of this *Act* is to protect fish including their habitat and other life requirements. The deposition of any deleterious substance (contaminant) is in contravention of the legislation, per Section 36(3): "… 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."

Manure and sediment runoff are considered deleterious substances. Manure and sediment could enter surface water as a result of unrestricted livestock access to surface water or runoff from outdoor livestock areas.

b. Provincial

There are three provincial regulations that apply to outdoor livestock areas; each is outlined below. Where there is overlap between the *Nutrient Management Act* (NMA) and the *Environmental Protection Act* (EPA) the NMA applies. For example, should a storm cause manure to flow from an outdoor confinement to a watercourse and the farm has a Nutrient Management Strategy the NMA applies, otherwise the EPA and the Ontario Water Resources Act (discussed below) would apply

Environmental Protection Act

The *Environmental Protection Act* (EPA) generally prohibits anyone from polluting the environment and is enforced by the Ontario Ministry of the Environment. Sections 6 and 14 of the EPA prohibit pollutant releases except where the discharge of a contaminant is a result of normal farming practices. The exception for normal farming practices allows activities that are necessary for raising livestock (e.g. manure to be spread on fields) without the approvals that are required for other wastes.

Section 14 and the definition of adverse effect below display the normal farming practices exemption contained in the EPA.

> 14.1 Subject to subsection (2) but despite any other provision of this Act or the regulations, a person shall not discharge a contaminant or cause or permit the discharge of a contaminant into the natural environment, if the discharge causes or may cause an adverse effect.
>
> Exceptions
>
> (2) Subsection (1) does not apply to,
>
> (a) a discharge that is authorized under this Act or the *Ontario Water Resources Act*, if the discharge does not cause and is not likely to cause an adverse effect; or
>
> (b) a discharge of a contaminant that arises when animal wastes are disposed of in accordance with normal farming practices, if the only adverse effect that is caused or that may be caused by the discharge is an adverse effect referred to in clause (a) of the definition of “adverse effect”.
>
> Adverse effect means,
>
> (a) “impairment of the quality of the natural environment for any use that can be made of it”, not the other portions of the definition which are as follows:
>
> (b) injury or damage to property or to plant or animal life,
>
> (c) harm or material discomfort to any person,
>
> (d) an adverse effect on the health of any person,
>
> (e) impairment of the safety of any person,
>
> (f) rendering any property or plant or animal life unfit for human use,
>
> (g) loss of enjoyment of normal use of property, and
>
> (h) interference with the normal conduct of business.

Essentially normal farming practices (i.e. a farm operation that uses proper and acceptable customs and standards as well as technology consistent with proper advanced farm

management practices) by their nature do affect natural systems, but not cause adverse impacts as noted above.

Ontario Water Resources Act

The Ontario Ministry of the Environment is responsible for enforcement of the *Ontario Water Resources Act* (OWRA). Two sections apply to outdoor livestock areas.

Section 30(1): "Every person that discharges or causes or permits the discharge of any material of any kind into or in any waters or on any shore or bank thereof or into or in any place that may impair the quality of the water of any waters is guilty of an offence." This includes manure and sediment.

Under section 32 of the Act the Ministry can order a person who holds a certificate of approval to make changes if it is found that material is being discharged into the water that could impair its quality.

Nutrient Management Act and Ontario Regulation 267/03 - General

The *Nutrient Management Act* (NMA) only applies to all farm operations in the following instances:

- No high trajectory irrigation guns are to be used apply manure or non-agricultural source materials if they are able to spray more than 10 meters
- The application of anaerobic digestion output that is from a mixed anaerobic facility that is not a regulated mixed anaerobic digestion facility
- Vegetated filter strip construction and use
- Farm operation receives off-farm anaerobic digestion materials for treatment through mixed anaerobic digestion in a regulated mixed anaerobic digestion facility

The balance of the NMA and regulations only apply to phased-in farms (i.e. operations with 300 NU or greater or that produce more than 5 NU and have applied for a building permit for livestock housing and/or manure storage or constructing a manure storage made out of earth or constructing a regulated mixed anaerobic digestor under the NMA regs).

Compliance and enforcement of the *Nutrient Management Act* is the responsibility of the MOE. According to "Complying with Environmental Legislation on Farms" (MOE, September 2009), the MOE's on-farm compliance program uses a problem-solving approach to help farmers comply with the law and manage environmental issues through education and outreach. Minor violations can be addressed through voluntary abatement plans, authorizing document amendments (to the nutrient management strategy and/or plan), and provincial officer orders. Enforcement, including *Provincial Offenses Act* summons and investigation and prosecution, would be used in situations where serious issues are identified.

Permanent Outdoor confinement areas (OCAs) on farms that are required to have a nutrient management strategy must comply with the following rules under O. Reg. 267/03. There are no requirements for pasturing and grazing under O. Reg. 267/03.

Under the *Clean Water Act* the approval of, and compliance with, nutrient management strategies is a prescribed instrument.

The following identifies sections of the O. Reg. 267/03 related to outdoor confinement areas and farm animal yards.

Section 55: “A person who owns or controls a low-density or high-density permanent outdoor confinement area shall not construct a new structure or pave all or part of the load-bearing surface of the confinement area, so as to increase the capacity of the confinement area, unless the confinement area is not located” within 100 m of a municipal well, 15 m of a drilled well that is at least 15 m deep with at least six m of casing, within 30 m of any other well or within 15 m of a field drainage tile.
Edited amendment copies from the NM Act.

Section 57: Animals in a high-density or permanent OCA where the farm unit generates at least 300 nutrient units cannot have access to surface water. Note that low density outdoor/non-permanent OCA animals may have access to surface water. Other legislation generally prohibits this activity, but these acts and regulations are operated on a complaint basis and therefore have limited impact.

Section 58: Animals may only be kept in a permanent OCA if there is a nutrient management strategy for the operation, the manure produced is in accordance with the strategy and a runoff management system is in place.

Section 60: Manure may be mounded (i.e. mixed with bedding material to make it more solid and manageable) in an OCA and if it’s used for bedding material, as identified in an approved nutrient management strategy, it may be left (i.e. not moved to a storage facility or applied).

Section 61: Describes special requirement for applying and storing snow with manure (e.g. gentle field slopes, reduced application rate and buffers along surface water).

Section 81. (2, 3) : All runoff from farm animal yards and outdoor confinement areas must be equipped with a runoff management system capable of managing all the runoff from the area.

Section 81. (5): Permanently vegetated areas such as permanent hay fields or permanent pastures can be used to manage runoff from outdoor confinement areas, farm animal yards and small solid manure storages (less than 300 $m^{2)}$ per the requirements below.

Table 4.1 - Location Requirements for Permanently Vegetated Areas to Manage Runoff Areas (PVA’s)

Feature	Value or Comment
Minimum distance to field tile	3 m
Minimum distance to a municipal well	100 m
Minimum distance to a drilled well	15 m
Minimum distance to any other well provided that the area is used for a permanent solid nutrient storage facility that is used to store non-agricultural source materials	90 m
Minimum distance to any other well	30 m

Other requirements for permanent vegetated areas under the Regulation include:

- Minimum soil depth of 0.5 m
- PVA for a permanent solid nutrient storage facility or yard must have a flow path that measures at least 150 m from surface water or tile inlets where it handles manure with a dry matter content of greater than or equal to 30 percent or at least 50 m where it handles manure with a dry matter content of 50 percent or greater.

- PVA for outdoor confinement area must have a flow path that measures at least 100 meters if the outdoor confinement area is less than 500 m^2 or at least 150 if the outdoor confinement are is 500 m^2 or more.
- There must be no more than 150 NU in an outdoor confinement area using a PVA for runoff and the outdoor confinement area cannot be more than 2,000 m^2.

Part IX.2 of O. Reg. 267/03 - Vegetated Filter Strip Systems

Vegetated filter strip systems are an engineered method to treat runoff from OCAs, farm animal yards and solid manure storages. The requirements important to source water protection under O. Reg. 267/03 are displayed in the following table and list.

Table 4.2 – Location Requirements for Vegetated Filter Strips

Feature	Value or Comment
Floodplain	Not in 1 in 100 year floodplain
Minimum soil depth over bedrock	0.5 m
Minimum depth to aquifer	0.9 m
Minimum distance to municipal well	100 m
Minimum distance to drilled wells (>15 m deep, cased >6m)	15 m
Minimum distance to any other well	30 m
Minimum flow path distance to surface water or tile inlet*	50 m
Minimum distance to drilled wells (>15 m deep, cased >6m)	50m

*Not allowed in hydrologic soil group A or organic soils

Other requirements for vegetated filter strips under the Regulation include:

- The strip must designed by a Professional Engineer and built to their specifications based on factors such as slope, infiltration rate for the soil, volume of runoff to be treated, etc.
- 100 percent of the flow must infiltrate the strip.
- Pretreatment of runoff to remove solids is necessary.
- The strip must be inspected at least every six months and repaired when necessary.
- Records of the design, inspections and any actions to ensure proper function must be kept.

There are other options under the NM Regs for managing runoff such as:

a) diverting up slope water away and putting a roof over the area
b) building a liquid storage facility to store the runoff (and potentially manure)
c) sewage works as approved s. 53 OWRA
d) sewage works approved under part 8 of Building Code

Canada-Ontario Environmental Farm Plan

The Environmental Farm Plan (EFP) is a program that is delivered locally through the Ontario Soil and Crop Improvement Association with expertise provided by the Ontario Ministry of Agriculture and Food. It is a voluntary educational program for farmers delivered through local workshops. Participants progress through a risk assessment and action plan development for their farm. The risk assessment gives the farmer the opportunity to assess the current level of environmental concern in up to 23 different areas on the farm and access funding to make

improvements for areas of identified risk. The information sheets on nutrient management for the EFP program are consistent with the requirements of O. Reg. 267/03.

c. Municipal

Municipal Act

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 *Municipal Act*.

Minimum Distance Separation Formulae

Agricultural activities can include livestock facilities (e.g. barns and manure storage), and are generally permitted by municipalities on lands that are designated and zoned for agricultural and rural use. In order to reduce incompatibility concerns about odour from livestock facilities, Provincial minimum distance separation (MDS) formulae are used by municipalities to separate land uses.

Different formulae are applied to new or expanding non-agricultural uses (such as houses) that could impact existing livestock facilities (MDS I), and to new or expanding livestock facilities that could impact existing non-agricultural uses (MDS II). The formulae are applied to lands subject to most types of *Planning Act* applications and to activities that require building permits. The MDS I formulae are applied to low-intensity uses (e.g. industry, one house) proposed within a 1 km radius of the livestock facility, and to high-intensity uses (e.g. a subdivision) proposed within a 2 km radius.

In terms of drinking water source protection, the MDS has the effect of providing separation between new livestock facilities (and permanent nutrient storage facilities) and municipal and private drinking water wells. The MDS requirements may exceed the minimum well separation required under O. Reg. 267/03.

4. Gaps in existing legislation, policies and programs

- Although unrestricted livestock access to surface water is illegal (i.e. *Fisheries Act, Environmental Protection Act, Ontario Water Resources Act*), the general practice of enforcement agencies is to operate on a complaint basis only.

- Inspections of the phased-in operations that require approval under Ontario Regulation 267/03 are scheduled based on complaints, the inherent risk and past communications.

- Although best management practices have been defined, grazing land and pastures are not specifically addressed under any legislation.

Policy Option: Grazing #1
Approach: Manage – Mandatory / Voluntary
Tools:
- Prescribed Instrument
- Risk Management Plan
- Education / Promotion of Best Management

Grazing / Outdoor Confinement Areas – Policy Option #1

Scenario	WHPA 10	IPZ 8, 8.1, 9, 10
Existing Activity	• Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, restricting livestock access to surface water • RMPs scoped to scale and type of use	IPZ 9, 10 • Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, restricting livestock access to surface water • RMPs scoped to scale and type of use IPZ 8, 8.1 – large scale/intensive • NMP/RMP IPZ 8, 8.1 – small scale farms • Education and promotion of BMPs
Future Activity	• Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, restricting livestock access to surface water • RMPs scoped to scale and type of use	IPZ 9, 10 • Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, restricting livestock access to surface water • RMPs scoped to scale and type of use IPZ 8, 8.1 – large scale/intensive • NMP/RMP IPZ 8, 8.1 – small scale farms • Education / promotion of BMPs
Details		
Implementer	RMP - Municipality or Risk Management Official NMP – OMAFRA and MOE	
Effective Dates	*Awaiting MOE guidance*	
Monitoring Ideas	Monitor numbers of RMPs in place and compliance. Monitor numbers of revised NMPs and compliance. Spot check voluntary implementation of BMPs to check effectiveness of education/promotion program.	
Rationale Ideas	NMPs are a comprehensive, effective existing tool to manage the livestock threat. Added measures specific to protecting source water are warranted as are added inspections to ensure compliance. RMPs would bridge the gap where this activity is not regulated. Education and promotion of BMPs would be adequate for operations most distant from the intake.	

Policy Option: Grazing #2
Approach: Manage – Mandatory
Tools:
- Prescribed Instrument
- Risk Management Plan

Grazing / Outdoor Confinement Areas – Policy Option #2

Scenario	WHPA 10	IPZ 8, 8.1, 9, 10
Existing Activity	• Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, restricting livestock access to surface water • RMPs scoped to scale and type of use	• Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, restricting livestock access to surface water • RMPs scoped to scale and type of use (less rigorous measures for lower intensity operations and/or farms located in 8, 8.1)
Future Activity	• Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, restricting livestock access to surface water • RMPs scoped to scale and type of use	• Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, restricting livestock access to surface water • RMPs scoped to scale and type of use (less rigorous measures for lower intensity operations and/or farms located in 8, 8.1)
Details		
Implementer	RMP - Municipality or Risk Management Official NMP – OMAFRA and MOE	
Effective Dates	Awaiting MOE guidance	
Monitoring Ideas	Monitor numbers of RMPs in place and compliance. Monitor numbers of revised NMPs and compliance	
Rationale Ideas	NMPs are a comprehensive, effective existing tool to manage the livestock threat. Added measures specific to protecting source water are warranted as are added inspections to ensure compliance. RMPs would bridge the gap where this activity is not regulated. RMP or NMP required everywhere ensures measures are in place at all locations where this is a significant threat and treats all landowners equally.	

Policy Option: Grazing #3
Approach: Prohibit / Manage – Mandatory
Tools:
- Prescribed Instrument
- Risk Management Plan
- Land Use Planning

Grazing / Outdoor Confinement Areas – Policy Option #3

Scenario	WHPA 10	IPZ 8, 8.1, 9, 10
Existing Activity	• Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, restricting livestock access to surface water • RMPs scoped to scale and type of use	• Manage through RMP where no NMP is required • Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, restricting livestock access to surface water • RMPs scoped to scale and type of use (less rigorous measures for lower intensity operations and/or farms located in 8, 8.1)
Future Activity	• Prohibit under CWA **Variation A** • Prohibit / Manage through Land Use Planning (Ag 1 and Ag 2 zoning to distinguish between more intensive and less intensive operations; more intensive use would be prohibited) • And/or Keeping of Animals by-law under the *Municipal Act* to restrict numbers of animals and prohibit livestock access to surface water	• IPZ 10 – Prohibit under CWA • IPZ 8, 8.1, 9 – Manage through RMP where no NMP is required • IPZ 8, 8.1, 9 - Manage through Prescribed Instrument where NMP is required - add measures to NMP such as more inspections and reporting, restricting livestock access to surface water • RMPs scoped to scale and type of use (less rigorous measures for lower intensity operations and/or farms located in 8, 8.1) **Variation A** • IPZ 10 – Prohibit through Land Use Planning • IPZ 8, 8.1, 9 Manage through Land Use Planning (Ag 1 and Ag 2 zoning; more intensive use would be prohibited) • Keeping of Animals by-law under the *Municipal Act*
Details		
Implementer	RMP - Municipality or Risk Management Official NMP – OMAFRA and MOE	
Effective Dates	Awaiting MOE guidance	
Monitoring Ideas	Monitor numbers of RMPs in place and compliance. Monitor numbers of revised NMPs and compliance.	
Rationale Ideas	Prohibiting livestock in the zones closest to the intake or wellhead would provide added insurance. Elsewhere, the implementation of measures through NMPs or RMPs would manage the risk. NMPs require additional (non-standard) measures specific to protecting source water (e.g., preventing all grazing animals access to surface water, not just those in outdoor confinement areas) as well as added inspections to ensure compliance. RMPs would bridge the gap where this activity is not regulated and the content would mirror that of the enhanced NMPs. Using Planning Act tools to prohibit/manage future activities would reduce the resources needed for RMPs.	

QUALITATIVE EVALUATION

Grazing / Outdoor Confinement Area Policy Options	Option #1	Option #2	Option #3
Impact			
Will this address the existing threat so that it is not significant?	Yes	Yes	Yes
Will it eliminate future threats?	Yes	Yes	Yes
Does it put water first?	Discuss	Discuss	Discuss
Will it adequately protect the source water?	Yes	Yes	Yes
Is it a proven, science based approach?	Yes	Yes	Yes
Will there be evident or measurable results?	No	No	No
Does it take into consideration the potential impacts of climate change?	Discuss	Discuss	Discuss
Acceptance			
Does this have community buy-in?	?	?	?
Will there be no strong opposition by affected persons or bodies?	?	?	?
Was this decision reached through an open, participatory and transparent process?	Yes	Yes	Yes
Does this adequately consider social costs?	Discuss	Discuss	Discuss
Does it have social benefit such as an education component?	No	No	No
Will it be easily understood?	Yes	Yes	Yes
Cost - Landowner			
Is this feasible economically?	?	?	?
Will no ongoing investment be required?	?	?	?
Can it be implemented without financial assistance?	?	?	?
Does it share costs equitably (i.e., shared economic responsibility)?	Discuss	Discuss	Discuss
Cost - Implementer			
Is this feasible economically?	1	3	2
Will no ongoing investment be required?	1	3	2
Can the approach be implemented with existing resources?	?	?	?
Practicality			
Is the scale of the policy suitable for the scale of the threat?	Discuss	Discuss	Discuss
Does it make use of existing knowledge (e.g., best practices)?	Yes	Yes	Yes
Does it make use of existing resources (e.g., agencies that already regulate the activity)?	Yes	Yes	Yes
Will it be relatively easy to enforce?	?	?	?
Does this avoid duplication and overlap?	Yes	Yes	Yes
Can this be implemented easily?	?	?	?

Legend

Yes/No – initial answers provided by staff
Discuss – answers are particularly subjective; should be discussed by SPC members
? – answers to be determined through stakeholder consultation
1, 3, 2 – ranking of options, where appropriate

4.0c Source Protection Plan – Preliminary Policy Development Non-Agricultural Source Material (NASM)

Date: December 21, 2010
To: Mississippi-Rideau Source Protection Committee
From: Allison Gibbons, Senior Environmental Planner
Mississippi – Rideau Source Protection Region

Recommendation 1:

That the Mississippi-Rideau Source Protection Committee approve Policy Option(s) #___ as the Preliminary Policy Concept(s) for the application, handling and storage of non-agricultural source material, direct staff to undertake targeted consultation regarding this (these) Concept(s) and report back with results.

Background

Source Protection Plans must contain policies for all activities that are or would be considered a significant drinking water threat in the Provincial Threat Tables. The policies are intended to ensure existing activities cease to be a significant threat and other activities do not become significant threats.

The application, handling and storage of non-agricultural source material is considered a significant drinking water threat within certain portions of the Wellhead Protection Areas (WHPA) and Intake Protection Zones (IPZ) in the Mississippi-Rideau Source Protection Region. This staff report and the attachments provide background information and policy recommendations intended to prepare SPC members to make a decision on Preliminary Policy Concepts to address this drinking water threat.

Information Provided to Assist with Policy Decisions

- **Backgrounder**
  The attached document titled *Drinking Water Source Protection Background Document – The Application, Handling and Storage of Non-Agricultural Source Material* contains a general explanation of the threat and definitions. It outlines how this activity is currently regulated and identifies legislative gaps.

- **Local Information**
  In general, the application, handling and storage of NASM in areas with a vulnerability score of 10 in a WHPA, and areas with a vulnerability score of 8 to 10 in an IPZ is considered a significant drinking water threat. However, this varies somewhat depending on the content of the NASM. Tables 3 and 4 provide details of the local extent of this drinking water threat for each type of NASM – where it would be considered a significant threat and if the activity currently takes place in these areas.

- **Agency Guidance**
  There is currently no provincial guidance pertaining to this drinking water threat. An Ontario Ministry of Agricultural, Food and Rural Affairs (OMAFRA) representative will provide information at the January SPC meeting about existing regulatory requirements and best practices for NASM (see Agenda Item 2.0).

- **Policy Options for Significant Threats**
  Three potential Policy Options are attached. An initial qualitative evaluation using the Evaluation Framework has been conducted by staff and is included with each option.

- **Moderate and Low Threats**
  Information on moderate and low threats will be provided at the January 2011 meeting. Time permitting, potential policies for moderate and low threats will be discussed.

Attachments:

- Tables 3 and 4 – Non-Agricultural Source Material Significant Drinking Water Threats in the MRSPR
- Drinking Water Source Protection Background Document – The Application, Handling and Storage of Non-Agricultural Source Material
- NASM - Policy Option #1
- NASM - Policy Option #2
- NASM - Policy Option #3

TABLE 3
APPLICATION OF NON-AGRICULTURAL SOURCE MATERIAL (NASM)
SIGNIFICANT DRINKING WATER THREATS IN THE MRSPR

Municipal System	Vulnerable Area and Score	Significant Threat Circumstance NASM – material from a meat plant or sewage works	Potential Existing Significant Threats	Significant Threat Circumstance NASM – no material from a meat plant or sewage works	Potential Existing Significant Threats
Almonte	WHPA 10	Any amount is significant	0	No significant threat circumstance	n/a
Carp	WHPA 10	Any amount is significant	0	No significant threat circumstance	n/a
Kemptville	WHPA 10	Any amount is significant	6	No significant threat circumstance	n/a
Merrickville	WHPA 10	Any amount is significant	1	No significant threat circumstance	n/a
Munster	WHPA 10	Any amount is significant	0	>80% managed lands and <0.5 NU/acre	0
Richmond	WHPA 10	Any amount is significant	0	No significant threat circumstance	n/a
Westport	WHPA 10	Any amount is significant	0	No significant threat circumstance	n/a
Carleton Place	IPZ 10	Any amount is significant	0	No significant threat circumstance	n/a
	IPZ 9	Any amount is significant	0	No significant threat circumstance	n/a
	IPZ 8	Any amount is significant	3	No significant threat circumstance	n/a
Perth	IPZ 10	Any amount is significant	0	No significant threat circumstance	n/a
	IPZ 9	Any amount is significant	0	No significant threat circumstance	n/a
	IPZ 8	Any amount is significant	0	No significant threat circumstance	n/a
Smiths Falls	IPZ 10	Any amount is significant	0	No significant threat circumstance	n/a
	IPZ 8	Any amount is significant	0	No significant threat circumstance	n/a
Ottawa – Britannia	IPZ 9	Any amount is significant	0	No significant threat circumstance	n/a
	IPZ 8.1	Any amount is significant	0	No significant threat circumstance	n/a
Ottawa - Lemieux	IPZ 9	Any amount is significant	0	No significant threat circumstance	n/a
	IPZ 8.1	Any amount is significant	0	No significant threat circumstance	n/a

TABLE 4
STORAGE OF NON-AGRICULTURAL SOURCE MATERIAL (NASM)
SIGNIFICANT DRINKING WATER THREATS IN THE MRSPR

Municipal System	Vulnerable Area and Score	Significant Threat Circumstance (material from a meat plant or sewage works)	Potential Existing Significant Threats	Significant Threat Circumstance (no material from a meat plant or sewage works)	Potential Existing Significant Threats
Almonte	WHPA 10	At or above or entirely below grade; any amount	0	Below or a portion above grade; >0.5 tonnes At or above grade >5 tonnes	0
Carp	WHPA 10	At or above or entirely below grade; any amount	0	Below or a portion above grade; >0.5 tonnes At or above grade >5 tonnes	0
Kemptville	WHPA 10	At or above or entirely below grade; any amount	1	Below or a portion above grade; >0.5 tonnes At or above grade >5 tonnes	0
Merrickville	WHPA 10	At or above or entirely below grade; any amount	1	Below or a portion above grade; >0.5 tonnes At or above grade >5 tonnes	0
Munster	WHPA 10	At or above or entirely below grade; any amount	1	Below or a portion above grade; >0.5 tonnes At or above grade >5 tonnes	0
Richmond	WHPA 10	At or above or entirely below grade; any amount	0	Below or a portion above grade; >0.5 tonnes At or above grade >5 tonnes	0
Westport	WHPA 10	At or above or entirely below grade; any amount	0	Below or a portion above grade; >0.5 tonnes At or above grade >5 tonnes	0
Carleton Place	IPZ 10	At or above or entirely below grade; any amount	0	At, above or a portion above grade >0.5 tonnes	0
	IPZ 9	At or above grade; any amount	0	At, above or a portion above grade >5 tonnes	0
	IPZ 8	At or above grade; any amount	0	No significant threat circumstance	n/a
Perth	IPZ 10	At or above or entirely below grade; any amount	0	At, above or a portion above grade >0.5 tonnes	0
	IPZ 9	At or above grade; any amount	0	At, above or a portion above grade >5 tonnes	0
	IPZ 8	At or above grade; any amount	0	No significant threat circumstance	n/a
Smiths Falls	IPZ 10	At or above or entirely below grade; any amount	0	At, above or a portion above grade >0.5 tonnes	0
	IPZ 8	At or above grade; any amount	0	No significant threat circumstance	n/a
Ottawa – Britannia	IPZ 9	At or above grade; any amount	0	At, above or a portion above grade >5 tonnes	0
	IPZ 8.1	At or above grade; any amount	0	No significant threat circumstance	n/a
Ottawa - Lemieux	IPZ 9	At or above grade; any amount	0	At, above or a portion above grade >5 tonnes	0
	IPZ 8.1	At or above grade; any amount	0	No significant threat circumstance	n/a

Drinking Water Source Protection Background Document

The Application, Handling and Storage of Non-Agricultural source Material

1. Definition

This paper provides background information for **prescribed drinking water threat 6 – the application of non-agriculture source material** and **prescribed drinking water threat 7 – the handling and storage of non-agriculture source material** (NASM)**.**

Nutrients are materials that can be applied to land for the purpose of improving the growth of agricultural crops and for soil conditioning. They are an essential component of plant growth. There are three sources of nutrients to be considered through the drinking water source protection initiative: agricultural source material, non-agricultural source material, and commercial fertilizer. Separate background documents have been developed for both agriculture source material and fertilizer.

According to Ontario Regulation 267/03 – General under the *Nutrient Management Act*, non-agricultural source materials include the following materials that are intended to be applied to land as nutrients, but that are not produced on a farm:

- Pulp and paper biosolids
- Sewage biosolids
- Anaerobic digestion output where less than 50% of the total material is on-farm anaerobic digestion materials (anaerobic digestion is a process used to decompose organic matter by bacteria in an oxygen-limited environment)
- Any other material that is not from an agricultural source and that is capable of being applied to land as a nutrient (such as materials from dairy product or animal food manufacturing).

NASM that will be applied to fields on a farm can be stored in a permanent nutrient storage facility (usually a steel or concrete tank), or on a temporary field nutrient storage site (only for solid NASM stored for more than 24 hours). There are restrictions about what types of NASM can be stored on a farm and for how long.

The primary consideration for reducing or eliminating drinking water threats related to the application, handling and storage of non-agricultural source material is to make sure it does not enter surface water and/or groundwater.

2. What causes these activities to be a drinking water threat?

The Ministry of the Environment (MOE) Tables of Drinking Water Threats (2008, as amended in 2009) identify nitrogen, total phosphorus and pathogens as contaminants that could make their way into surface and groundwater as a result of the application of NASM to land (circumstances

37 to 54, 1970 and 1971), and the handling and storage of NASM (circumstances 1409 to 1432, 1965 to 1968). These nutrients and pathogens could threaten the safety of drinking water sources in certain situations due to runoff or spills.

The source of nitrogen and total phosphorus is dependent on the material that is found in the NASM. Examples may include, human waste, household and personal care products (e.g. soap), or animal by-products.

Threat 1970 and 1971 of the MOE Tables of Drinking Water Threats (2008, as amended in 2009) are the pathogen threats associated with the application of NASM. This threat specifically addresses the following sources of NASM:

- seafood processing operations
- dairy producers
- dairy product manufacturing operations
- pulp and paper mills
- animal food manufacturing operations (from animal sources)
- meat plants
- sewage works

While heavy metals and pharmaceuticals in biosolids are of concern, they are outside the scope of the *Clean Water Act* at this time.

3. Understanding the nature of the drinking water threats

The classification of these activities as a significant, moderate or low drinking water threat is dependent on the 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 the livestock density, the greater the risk to drinking water. As a reminder:

- The application of NASM (chemical threats 37 to 54), and handling and storage of NASM (chemical threats 1409 to 1432) are designated based on a function of managed land percentage and livestock density.
    - Nitrogen for wellhead protection areas (WHPAs) and Intake Protection Zones (IPZs), Phosphorus for IPZs only
    - Nitrogen is a concern for both surface and groundwater.
    - Total phosphorous is only considered a drinking water threat in IPZs and in WHPAs where the groundwater is under the direct influence of surface water (i.e. WHPA-E). This is because excessive inputs of total phosphorous in surface water results in eutrophication and can cause toxic algae blooms both of which impair water quality.
    - Managed lands include cropland, fallow land, improved pasture, golf courses, sports fields and lawns to which ASM, NASM, or commercial fertilizer could be applied. This value was calculated based on MOE Technical Bulletin and is included in the Assessment Report.
    - Livestock density is the number of farm animals in a given area. Livestock density is standardized to nutrient units per acre to account for the fact that 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.

- The application of NASM (threats 1970,1971) / and the handling and storage of NASM (threats 1965 to 1968) of NASM (Pathogen) is tied to material source not managed land percentage or livestock density.

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) 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." For example, the latter case would apply if a licensed applicator spread NASM on land near a river and the NASM subsequently washed into the river.

b. Provincial

Environmental Protection Act

A certificate of approval issued by the Ontario Ministry of the Environment (MOE) under Part V of the *Environmental Protection Act* is required in order to apply NASM to land, or to store it. A separate certificate of approval is required for each specific site (called an Organic Soil Conditioning Site) and for the hauler/spreader (Organic Waste Management System). As of January 1, 2011, the land application of NASM will be regulated under the *Nutrient Management Act*. Existing certificates of approval will remain valid until they are suspended, revoked or expire 5 years from the date of issue.

Section 39 of the *Environmental Protection Act*, which relates to the approval of certificates of approval, is a prescribed instrument under the *Clean Water Act*.

The MOE has published a "Guide to Applying for a Certificate of Approval to Spread Sewage and Other Biosolids on Agricultural Lands (Organic Soil Conditioning)" (March 1996) that outlines the extensive documentation required to support an application for a certificate of approval. The supporting information includes, but is not limited to: source and type of material to be applied, waste analysis report, soil analysis report, terrain description, surface physiology and geology, depth to water table, water wells, separation distances, application areas, crops, schedule of use, notification to adjacent landowners, and confirmation from the municipality that NASM can be applied (i.e. no municipal restrictions).

The MOE, in conjunction with the Ontario Ministry of Agriculture, Food and Rural Affairs, also prepared a document called "Guidelines for the Utilization of Biosolids and Other Wastes on Agricultural Land" (March 1996) that outlines the criteria that must be met before biosolids and other waste materials (e.g. pulp sludge) can be considered for use on agricultural land. The minimum requirements in this document have generally been carried over to *Ontario Regulation 267/03 – General*, under the *Nutrient Management Act* (see below).

Nutrient Management Act and Ontario Regulation 267/03 – General

Sections 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, and compliance with, NASM plans. Ontario Regulation 267/03 – General will be the principal piece of legislation related to the application and on-farm storage of NASM. As of January 1, 2011, Amendment 267/03 will take effect. The new amendment will establish consistent standards and requirements across the province. These will focus on the quality of the material being applied (Table 4.1), ensuring it meets strict criteria and is beneficial to the soil. They also include greater consideration of the material quality and potential odor generation and will cover any Ontario farm where NASM will be applied. The new regulation now includes references to 11 metals. A local SPA would have to add these metals as an MOE approved local threat in their Assessment Report prior to creating policies relating to these specific metals.

NASM Plans

The "Nutrient Management Protocol" (OMAFRA, September 2009) provides technical standards and procedures related to O. Reg. 267/03 – General. A NASM plan is similar to a nutrient management plan, except that it only covers those fields where the NASM will be applied instead of the entire farm unit. Therefore it is possible that a farm could require a NMS, NMS/P and NASM Plan. According to the Protocol, a NASM Plan must contain numerous components including information about the nutrients that will be applied (source, type, content, application rate); the fields where the nutrients will be applied; cropping practices, crop rotation and yields; and on-farm storage (if applicable). The required contingency plan covers topics such as receiving more nutrients than addressed in the nutrient management plan, and unanticipated release of nutrients (e.g. spills).

The purpose of NASM plans are:

- To optimize the relationship between the land-based application of nutrients, farm management techniques and crop requirements; and
- To minimize adverse impacts to the environment by ensuring that fields and storage meet regulatory requirements.

With the recent amendment, NASMs are divided into three categories based on the source of the materials and the level of risk associated with them (Table 4.1).

Table 4.1 – Plan requirements based on category of NASM

Category	Examples of material	Plan requirements
1	unprocessed plant material such as leaf and yard waste, and culled vegetables	NASM plan not required
2	processed plant material, bakery waste, organic matter that does not contain fish or meat	NASM plan registration with OMAFRA for NASM with low metal content; approval by OMAFRA for NASM with high metal content
3[1]	sewage biosolids, pulp and paper biosolids, washwater and waste from a process that involves animal products	NASM plan approval by OMAFRA

[1] Category 3 NASM are specified in the MOE Tables of Drinking Water Threats for pathogen threats.

NASM plans will address the land application of NASM and the storage of NASM on farms, and will be required for any farm where these activities would occur, regardless of the number of nutrient units generated. The plans can be prepared for one to five year periods, and are subject to annual review and summary by the operator.

Consultants who prepare NASM plans must be certified through the Ministry of Agriculture, Food and Rural Affairs (OMAFRA). People who apply nutrients to a field that will require a NASM plan, but who do not own, operate or work as an employee for the farm, must have a Nutrient Application Technician License.

Requirements for the Application of NASM

Before NASM is approved for land application, the operator must demonstrate to the Biosolids Utilization Committee (BUC) that the NASM will have a beneficial use for agriculture. For example, it must increase organic matter, increase soil pH, contain plant available nutrients (nitrogen, phosphorus, potassium), or be a source of water between June 15 and September 30. BUC is an advisory body, with agricultural and environmental expertise, to MOE and OMAFRA. It was responsible for developing the "Guidelines for the Utilization of Biosolids and Other Wastes on Agricultural Land" (MOE and OMAFRA, 1996).

There are restrictions on the application of NASM based on time of year, slope and application rate, application method, incorporation, crop residue, and distances from surface water. For example, NASM cannot be applied to land when the soil is snow-covered or frozen. Sewage biosolids cannot be applied between December 1 and March 31.

The minimum setback requirements for the application of NASM to land are listed in Table 4.2. These setbacks reflect the amendments to *O. Reg. 267/03 – General* that will come into effect on January 1, 2011, and are similar to those specified in the "Guidelines for the Utilization of Biosolids and Other Wastes on Agricultural Land" (MOE and OMAFRA, 1996). Under the *Nutrient Management Act*, the operator will no longer need to provide notification to adjacent landowners or receive confirmation from the municipality. OMAFRA will provide a notice of NASM plan approval to the municipality. For the application of category 3 NASM or category 2 that is CM2, the MOE must be notified at least 24 hours before application begins.

Table 4.2 - Minimum setback requirements for the application of NASM to land

Feature	Value
Minimum soil depth to bedrock	0.3 m [1]
Minimum depth to groundwater table	0.3 m or 0.9 m[2]
Minimum distance to municipal wells	100 m
Minimum distance to drilled wells (>15 m deep)	15 m
Minimum distance to all other wells including dug wells	30 m or 90 m[2]
Minimum distance to individual residences	25 to 450 m[3]
Minimum distance to residential areas, commercial, community or institutional uses	50 m to 900 m[3]
Minimum distance to watercourses	20 m[4]

[1] NASM cannot be applied if the soil depth to bedrock is less than 0.3 m. There are restrictions to the application of NASM for soil depth between 0.3 m and 1 m.
[2] This requirement is dependent on the type of NASM and the method of application.
[3] This distance depends on the odour classification of the NASM.

[4] The minimum distance to a watercourse is dependent on slope, presence of vegetative buffer, method of incorporation into soil, a specified amount of crop residue, or if it is applied to a living crop (such as in a pasture).

A vegetated buffer zone is required between land where NASM is applied and surface water. The buffer zone must have a minimum width of 3 m and be maintained under continuous vegetated cover including perennial grasses, other herbaceous plants, or trees and perennial forage crops that can be harvested as hay or silage.

The minimum distances to other land uses such as residential areas relates to the odour associated with the NASM, however, in terms of drinking water source protection, it has the effect of providing separation between the land application of NASM and municipal and private drinking water wells that may exceed the minimum well separation required under O. Reg. 267/03.

O. Reg. 267/03 restricts the use of high trajectory irrigation guns to land apply liquid manure or NASM on all farms regardless of whether or not they have a nutrient management strategy, nutrient management plan or NASM plan. The regulation also contains rules for the land application of anaerobic digestion output on all farms regardless of whether or not they have a nutrient management plan. The minimum setback requirements listed in Table 4.2 generally apply to the application of anaerobic digestion output where it is considered to be a NASM.

Requirements for the Storage of NASM

The minimum setback requirements for a new permanent nutrient storage facility are listed in Table 4.3. Temporary field nutrient sites must also meet setback requirements if solid NASM is to be stored on the site for more than 24 hours (value in brackets if different). These setbacks reflect the amendments to O. Reg. 267/03 – General that will come into effect on January 1, 2011. Category 3 NASM (see Table 4.1) cannot be stored on-farm.

Table 4.3 – Location Requirement for NASM Storage

Feature	Value
Minimum distance to municipal wells	100 m
Minimum distance to drilled wells (>15 m deep)	15 m (45 m)
Minimum distance to all other wells including dug wells	90 m
Minimum distance to field drainage tiles or piped municipal drains	15 m
Minimum flow path to surface water or tile inlet	50 m
Minimum distance to individual residences	200 m (125 m or 200 m[1])
Minimum distance to residential areas, commercial, community or institutional uses	450 m (250 m or 450 m[1])

[1] This distance depends on the odour classification of the NASM.

The minimum distances to other land uses such as residential areas relates to the odour associated with the NASM, however, in terms of drinking water source protection, it has the effect of providing separation between the storage of NASM and municipal and private drinking water wells that may exceed the minimum separation required under O. Reg. 267/03.

Permanent nutrient storage facilities built after June 30, 2003 can be used to store NASM provided that an engineer confirms that the facility meets the requirements of the *Nutrient Management Act* and is appropriate for the storage of NASM. NASM can only be stored in a permanent facility built before June 30, 2003 if it is subject to a certificate of approval under the *Environmental Protection Act*.

Under O. Reg. 267/03, a permanent solid NASM storage facility must have a runoff management system to handle all of the runoff generated by the facility (e.g. solid NASM piled on a concrete base). The system must consist of at least one of the following:

- A roof used to prevent the entry of precipitation, assuming that any water upstream of the facility has been diverted away from the facility
- Vegetated filter strip systems
- Properly sized runoff collection and storage systems
- A permanently vegetated area (PVA), if runoff from the facility is generated from an area less than 300 sq. m. The location requirements for a PVA are similar to those for the nutrient storage facility (see Table 4.2).
- A sewage works approved under the OWRA or a sewage system approved under the Ontario Building Code.

Compliance

Compliance and enforcement of the *Nutrient Management Act* is the responsibility of the MOE. According to "Complying with Environmental Legislation on Farms" (MOE, September 2009), the MOE's on-farm compliance program uses a problem-solving approach to help farmers comply with the law and manage environmental issues through education and outreach. Minor violations can be addressed through voluntary abatement plans, authorizing document amendments (to the nutrient management strategy and/or plan), and provincial officer orders. Enforcement, including Provincial *Offenses Act* summons and investigation and prosecution, would be used in situations where serious issues are identified.

Canada-Ontario Environmental Farm Plan

The Environmental Farm Plan (EFP) is a program that is delivered locally through the Ontario Soil and Crop Improvement Association with expertise provided by the Ontario Ministry of Agriculture and Food. It is a voluntary educational program for farmers delivered through local workshops. Participants progress through a risk assessment and action plan development for their farm. The risk assessment gives the farmer the opportunity to assess the current level of environmental concern in up to 23 different areas on the farm and access funding to make improvements for areas of identified risk. The information sheets on nutrient management for the EFP program are consistent with the requirements of O. Reg. 267/03.

c. Municipal Tools

Municipal Act

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 *Municipal Act*. For example, Prince Edward County in the Quinte Source Protection Area prohibited the land application of NASM within its boundary through a by-law under the *Municipal Act*. Other municipalities have banned the application of commercial fertilizer on

properties adjacent to surface water. The amendments to O. Reg. 267/03 regarding NASM plans may supersede such a by-law.

Minimum Distance Separation Formulae

Agricultural activities can include livestock facilities (e.g. barns and manure storage), and are generally permitted by municipalities on lands that are designated and zoned for agricultural and rural use. In order to reduce incompatibility concerns about odour from livestock facilities, provincial minimum distance separation (MDS) formulae are used by municipalities to separate land uses.

Different formulae are applied to new or expanding non-agricultural uses (such as houses) that could impact existing livestock facilities (MDS I), and to new or expanding livestock facilities that could impact existing non-agricultural uses (MDS II). The formulae are applied to lands subject to most types of *Planning Act* applications and to activities that require building permits. The MDS I formulae are applied to low-intensity uses (e.g. industry, one house) proposed within a 1 km radius of the livestock facility, and to high-intensity uses (e.g. a subdivision) proposed within a 2 km radius.

The MDS formulae do not apply to NASM storage facilities. However, the MDS formulae do apply to ASM storage facilities, which can be converted and used for NASM storage.

d. Other Programs

Conservation Authorities Act RSO 1990 as amended (August 2002)

Under the Conservation Authorities Act, local Conservation Authorities are given their mandate and direction in the making and administration of land use planning. Conservation Authorities have established Regulations pursuant to Section 28 under which they may:

- Restrict and regulate the use of water in or from rivers, streams, inland lakes, ponds, wetlands and natural or artificially constructed depressions in rivers or streams;
- Prohibit, regulate, or require the permission of the authority to straighten, change, divert, or interfere in any way with the existing channel of a river, creek , stream, or watercourse, or change or interfere with any wetland; and
- Prohibit, regulate or require the permission of the authority for development if, in the opinion of the authority, the control of flooding, erosion, dynamic beaches or pollution or the conservation of land may be affected by development.

In light of these Regulations, the construction of any storage facility would be subject to Conservation Authority requirements. Although review by the Authority is typically triggered by a building permit or Planning Act application, the regulations apply to site alterations.

Manitoba Water Stewardship

The Government of Manitoba has launched a public education campaign to encourage its residents to go phosphorus-free in terms of household cleaning products in order to help address the province's water quality issues, especially in Lake Winnipeg. At the same time it is lobbying for a national approach restricting phosphorus content in household cleaning products. This concept is important since the content of sewage biosolids is based on what people put down their drains.

5. Gaps in existing legislation, policies and programs

- An applicant is required to keep records of how the conditions of a certificate of approval are met, but they are not submitted to MOE unless requested.

- The Environmental Farm Plan program is voluntary and confidential, which makes it enticing for farmers and is a good way to have existing problems corrected. Because of the confidential nature of the program, Source Protection Committees would need to consider how implementation could be monitored if this tool is considered within the Source Protection Plan.

Nutrient Management Act and Ontario Regulation 267/03 – General

Sections 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, and compliance with, NASM plans. Ontario Regulation 267/03 – General will be the principal piece of legislation related to the application and on-farm storage of NASM. As of January 1, 2011, Amendment 267/03 will take effect. The new amendment will establish consistent standards and requirements across the province. These will focus on the quality of the material being applied (Table 4.1), ensuring it meets strict criteria and is beneficial to the soil. They also include greater consideration of the material quality and potential odor generation and will cover any Ontario farm where NASM will be applied. The new regulation now includes references to 11 metals. A local SPA would have to add these metals as an MOE approved local threat in their Assessment Report prior to creating policies relating to these specific metals.

NASM Plans

The "Nutrient Management Protocol" (OMAFRA, September 2009) provides technical standards and procedures related to O. Reg. 267/03 – General. A NASM plan is similar to a nutrient management plan, except that it only covers those fields where the NASM will be applied instead of the entire farm unit. Therefore it is possible that a farm could require a NMS, NMS/P and NASM Plan. According to the Protocol, a NASM Plan must contain numerous components including information about the nutrients that will be applied (source, type, content, application rate); the fields where the nutrients will be applied; cropping practices, crop rotation and yields; and on-farm storage (if applicable). The required contingency plan covers topics such as receiving more nutrients than addressed in the nutrient management plan, and unanticipated release of nutrients (e.g. spills).

The purpose of NASM plans are:

- To optimize the relationship between the land-based application of nutrients, farm management techniques and crop requirements; and
- To minimize adverse impacts to the environment by ensuring that fields and storage meet regulatory requirements.

With the recent amendment, NASMs are divided into three categories based on the source of the materials and the level of risk associated with them (Table 4.1).

Table 4.1 – Plan requirements based on category of NASM

Category	Examples of material	Plan requirements
1	unprocessed plant material such as leaf and yard waste, and culled vegetables	NASM plan not required
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3[1]	sewage biosolids, pulp and paper biosolids, washwater and waste from a process that involves animal products	NASM plan approval by OMAFRA

[1] Category 3 NASM are specified in the MOE Tables of Drinking Water Threats for pathogen threats.

Policy Option: NASM #1
Approach: Manage – Mandatory
Tools:
- Prescribed Instrument - general

Non-Agricultural Source Material – Option #1

Scenario	WHPA 10	IPZ 8, 8.1, 9, 10
Existing Activity	• Prescribed Instrument • The Nutrient Management Act shall be reviewed and amended to ensure the application, handling and storage of NASM ceases to be a significant threat in WHPA 10	• Prescribed Instrument • The Nutrient Management Act shall be reviewed and amended to ensure the application, handling and storage of NASM ceases to be a significant threat in IPZs
Future Activity	• Prescribed Instrument • The Nutrient Management Act shall be reviewed and amended to ensure the application, handling and storage of NASM ceases to be a significant threat in WHPA 10	• Prescribed Instrument • The Nutrient Management Act shall be reviewed and amended to ensure the application, handling and storage of NASM ceases to be a significant threat in IPZs
Details		
Implementer	OMAFRA / MOE	
Effective Dates	Awaiting MOE guidance	
Monitoring Ideas	Monitor changes to the Nutrient Management Act and NASM Plans and compliance with any additional measures required by OMAFRA / MOE to protect source water.	
Rationale Ideas	This approach puts the onus on OMAFRA and MOE to review and improve (if necessary) how this threat is currently regulated. It makes use of existing knowledge and resources and avoids duplication and overlap.	

Policy Option: NASM #2
Approach: Manage – Mandatory
Tools:
- Prescribed Instrument - prescriptive

Non-Agricultural Source Material – Option #2

Scenario	WHPA 10	IPZ 8, 8.1, 9, 10
Existing Activity	• Manage through Prescribed Instrument - NASM Plans • Require additional measures such as more inspections and reporting	• Manage through Prescribed Instrument – NASM Plans • Require additional measures such as more inspections and reporting
Future Activity	• Prohibit through Prescribed Instrument – no approval granted under O. Reg. 276/03	• IPZ 10 – Prohibit through Prescribed Instrument – no approval granted under O. Reg. 276/03 • IPZ 8, 8.1, 9 Manage through Prescribed Instrument - NASM Plans • Require additional measures such as more inspections and reporting
Details		
Implementer	OMAFRA / MOE	
Effective Dates	Awaiting MOE guidance	
Monitoring Ideas	Monitor compliance with NASM plans	
Rationale Ideas	Prohibiting future storage and application of NASM in the zones closest to the intake or wellhead would provide added insurance. Elsewhere, the implementation of measures through NASM plans would manage the risk. NASM Plans may require additional (non-standard) measures specific to protecting source water as well as added inspections to ensure compliance. Using Prescribed Instruments makes use of existing knowledge and resources and avoids duplication and overlap.	

Policy Option: NASM #3
Approach: Prohibit / Manage – Mandatory
Tools:
- Prescribed Instrument

Non-Agricultural Source Material – Option #3

Scenario	WHPA 10	IPZ 8, 8.1, 9, 10
Existing Activity	• Prohibit through Prescribed Instrument – revoke existing Certificates of Approval	IPZ 10 • Prohibit through Prescribed Instrument – revoke existing Certificates of Approval IPZ 8, 8.1, 9 • Manage through Prescribed Instrument – NASM Plans • Require additional measures such as more inspections and reporting
Future Activity	• Prohibit through Prescribed Instrument – no approval granted under O. Reg. 276/03	• IPZ 10 – Prohibit through Prescribed Instrument – no approval granted under O. Reg. 276/03 • IPZ 8, 8.1, 9 Manage through Prescribed Instrument - NASM Plans • Require additional measures such as more inspections and reporting
Details		
Implementer	OMAFRA / MOE	
Effective Dates	Awaiting MOE guidance	
Monitoring Ideas	Monitor compliance with NASM plans	
Rationale Ideas	Prohibiting existing and future storage and application of NASM in the zones closest to the intake or wellhead would provide added insurance. Elsewhere, the implementation of measures through NASM plans would manage the risk. NASM Plans may require additional (non-standard) measures specific to protecting source water as well as added inspections to ensure compliance. Using Prescribed Instruments makes use of existing knowledge and resources and avoids duplication and overlap.	

QUALITATIVE EVALUATION

Non-Agricultural Source Material Policy Options	Option #1	Option #2	Option #3
Impact			
Will this address the existing threat so that it is not significant?	Yes	Yes	Yes
Will it eliminate future threats?	Yes	Yes	Yes
Does it put water first?	Discuss	Discuss	Discuss
Will it adequately protect the source water?	Yes	Yes	Yes
Is it a proven, science based approach?	Yes	Yes	Yes
Will there be evident or measurable results?	No	No	No
Does it take into consideration the potential impacts of climate change?	Discuss	Discuss	Discuss
Acceptance			
Does this have community buy-in?	?	?	?
Will there be no strong opposition by affected persons or bodies?	?	?	?
Was this decision reached through an open, participatory and transparent process?	Yes	Yes	Yes
Does this adequately consider social costs?	Discuss	Discuss	Discuss
Does it have social benefit such as an education component?	No	No	No
Will it be easily understood?	Yes	Yes	Yes
Cost - Landowner			
Is this feasible economically?	?	?	?
Will no ongoing investment be required?	?	?	?
Can it be implemented without financial assistance?	?	?	?
Does it share costs equitably (i.e., shared economic responsibility)?	?	?	?
Cost - Implementer			
Is this feasible economically?	?	?	?
Will no ongoing investment be required?	?	?	?
Can the approach be implemented with existing resources?	?	?	?
Practicality			
Is the scale of the policy suitable for the scale of the threat?	Discuss	Discuss	Discuss
Does it make use of existing knowledge (e.g., best practices)?	Yes	Yes	Yes
Does it make use of existing resources (e.g., agencies that already regulate the activity)?	Yes	Yes	Yes
Will it be relatively easy to enforce?	?	?	?
Does this avoid duplication and overlap?	Yes	Yes	Yes
Can this be implemented easily?	?	?	?

Legend

Yes/No – initial answers provided by staff
Discuss – answers are particularly subjective, should be discussed by SPC members
? – answers to be determined through stakeholder consultation
1, 3, 2 – ranking of options, where appropriate

5.0 Community Outreach

Date: December 21, 2010
To: Mississippi-Rideau Source Protection Committee
From: Sommer Casgrain-Robertson, Co-Project Manager
Mississippi – Rideau Source Protection Region

Recommendation:

1. That the Mississippi-Rideau Source Protection Committee receive the Community Outreach staff report for information.

Background
Staff and MRSPC members participate in many different community outreach activities to raise awareness and understanding of the source protection planning process. These activities include information booths at events, presentations at meetings and articles in newsletters and local papers. It is important that staff and members keep each other informed about the activities they are involved in so that we can coordinate our participation and prepare appropriate materials in advance. This includes coordinating with our neighbouring regions for outreach covering Eastern Ontario.

Past Activities
Members & staff are asked to give a verbal update on any other activities that took place in the past month related to source protection.

1. *Mississippi-Rideau Source Protection Plan Working Group*
    - December 9, Perth (Allison, Sommer, Scott Bryce, Peter McLaren, Eleanor Renaud and Mary Wooding attended)

Upcoming Activities
Members & staff are asked to give a verbal update about any other activities they know about in the coming months related to source protection.

1. *Smith Falls Committee of the Whole*
    - January 10, Smith Falls (Sommer presenting)
2. *Project Managers Meeting*
    - January 11, Toronto (Brian attending)
3. *Provincial Chairs Meeting*
    - January 17-18, Toronto (Chair Stavinga and Sommer attending)