Source Protection

MOECC Implementation of Source Protection Plan Policies

SGBLS SPC November 26, 2015

Purpose

1. To provide an overview of how the Ministry of Environment and Climate Change (MOECC) will comply with its obligations under the CWA when issuing or amending a prescribed instrument
2. Additional actions the ministry has taken to implement source protection policies.

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Source Protection Plan – Policy Approaches

- Source Protection Committees are enabled through legislation to use a variety of policy tools in their source protection plans
- The Province (Ministries) can be named as the implementation body

Prohibition
Risk Management Plans
Restricted Land Uses
Land Use Planning Approaches
Prescribed Instruments

Municipality

Municipality/Planning Boards

Province

January 1, 2015 MOECC Implementation

Legally Binding

Incentive Programs
Education and Outreach
Other

- **Contaminated Sites**
- **Water Quantity**
- **Spills**
- **Wells**

Municipality,
Conservation Authority
Province

Non-Legally Binding

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Drinking Water Threat Activities

1 – **waste** disposal — MOECC

2 – **sewage** — MOECC

Agriculture

3 – application of ASM
4 – storage of ASM
5 – management of ASM

6 – application of NASM
7 – handling and storage of NASM — MOECC

8 – application of commercial fertilizer
9 – handling and storage of commercial fertilizer

10 – application of pesticide
11 – handling and storage of pesticide — MOECC

21 – livestock grazing

12 – application of **road salt**
13 – handling and storage of **road salt**

14 – storage of **snow**

Industrial

15 – handling and storage of **fuel** — MOECC*

16 – handling and storage of **DNAPL**

17 – handling and storage of an **organic solvent**

18 – chemicals used in the de-icing of aircraft

Water Quantity

19 – consumptive water taking — MOECC

20 – activity that reduces the recharge of an aquifer

Clean Water Act (General Reg. 287/07)

MOECC — MOE issues instruments for threat activity

* Fuel Storage at Drinking Water Systems Only

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Preparing MOECC for Implementation Project

Project Scope:

- Prescribed Instrument policies for significant drinking water threat activities

Waste	Pesticides	Wastewater (Sewage)
PTTW	NASM	Hauled Sewage

- Fuel storage at Drinking Water Systems
- Spills response policies
- Compliance/inspections policies

Implementation Framework

Focus: Source Protection (PI) Policies

1. Provincial approach to implementation (to manage any activity)
2. Formal program-specific guidance though new Operational Policies
3. Application screening process and roles
4. Provincial implementation date: January 1, 2015 (October 1, 2014 for plans in effect)

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Project Deliverables

Each program area:

1. Defined how ministry will interpret SP PI policy objectives in future instrument decisions (for each sub-threat activity)
   - Define any terms and conditions required to manage significant drinking water threat activity
2. Identified criteria and business processes for geo-spatial screening of prescribed instruments
3. Developed a plan to address existing instruments for significant drinking water threats

Deliverable 1:
Source Protection PI Policy Analysis

Analysis

- Led by regional program leads, who identified who to consult
- Reviewed all SPP policies / proposed terms and conditions
- Gap analysis between what SPPs proposed and current PI terms & conditions
- Interpretation “ensure the activity never becomes a SDWT”

Conclusions

- Current regulations, policies, guidelines and ECA/instrument terms and conditions are comprehensive and sufficient; or
- Develop new/more protective conditions to put in the ECA; or
- Refuse to issue ECA.

Approval

- Defined approval process

Outcomes by Program Area

- Waste
- Sewage
- Pesticides
- Hauled Sewage / Bio-solids (NASM)
- PTTW
- Land Use Planning
- Fuel Storage at Drinking Water Systems
- Spills Response

MOECC Standard Operating Policy EBR Information Posting

- On April 1, 2015, the ministry posted a summary SOP on the EBR to support the ministry's implementation of source protection PI policies
- http://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTIzODA5&statusId=MTg1ODcw&language=en
- The content of the SOP for ensuring approvals PIs **conform with policies in source protection plans**
- The SOP will apply on a province-wide basis, to ensure a consistent approach to implementing source water protection policies.

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Outcomes

Waste

Future waste ECAs:

- If the Policy directive **prohibits** the significant threat activity in a source water protection vulnerable area- no ECA will be issued.
- If the Policy directive required to **manage** the threat activity in source water protection vulnerable area - current ECA procedures are sufficient.

Existing waste ECAs:

- MOECC identified approximately 50 sites that are located in SP vulnerable area where there a significant drinking water threat.
- ECAs identified that need to be reviewed and updated.

Outcomes

Sewage – Approvals

Future Sewage ECAs:

Require SP Supplementary Report with new ECA applications

- Details on how source protection is considered
- Must outline methods to mitigate threats to drinking water, emergency/ contingency plans, design requirements etc.

Existing Sewage ECAs:

Additional operational requirements for existing sewage dischargers

- Contingency planning
- Maintenance and regular inspections

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Outcomes

Sewage Approvals – Stormwater Example

Design Requirements (New Facility):

- Design must provide Enhanced Level water **quality** control as per the ministry's Stormwater Management and Planning Manual, 2003.
- Design must include an additional 20% water **quantity** control in addition to the requirements of the ministry's Stormwater Management and Planning Manual.
- Design must be accompanied with erosion and sediment control measures to cover all phases of construction.

Operational Requirements (Existing Facility)

- The erosion and sediment control measures plan must be kept up-to-date with records of inspections and maintenance made available for inspection by the ministry.
- The monitoring and reporting plan must be kept up-to-date and on-site or at the operating authority's office.

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Outcomes

Sewage Approvals – Sanitary Sewers & Pipes Example

Design Requirements (New Facility):

- New and replacement sewers are to be constructed of materials and with joints that are equivalent to watermain standards of construction and are to be pressure tested in accordance with Division 441 (formerly 701) of the Ontario Provincial Standards Specification (OPSS).

Operational Requirements (Existing Facility):

- Operational procedures established to include CCTV inspections every 5 years with records made available for inspection by the ministry.

Outcomes

Sewage – SP condition in ECAs

"The Owner shall, within sixty (60) calendar days of the Minister of the Environment posting approval of a Source Protection Plan on the Environmental Registry established under the Environmental Bill of Rights, 1993 for the area in which this Approval is applicable, apply to the Director for an amendment to this Approval that includes the necessary measures to conform with all applicable policies in the approved Source Protection Plan."

How will the ministry assess compliance with this condition?

- It is the responsibility of the ECA owner to determine if source protection plans apply to them
- Conservation Authorities or local GIS Tools are available to assist in determining applicable plans/zones

Outcomes

Pesticides

Future Pesticide Permits:

- Land extermination pesticide permits (approx. 70-80 per year for forestry, right of way, aerial agriculture)
- Regional Pesticides Specialists will screen permit applications using mapping tool

SDWT threat activities will require additional protective measures:

- Not issue permit where prohibitive policies apply
- Manage SDWT activities by including appropriate permit conditions such as:
  - emergency response measures and spill contingency plans for pesticide mixing, loading, and handling
  - site specific setbacks to watercourses, timing restrictions (including consideration of weather events), spills/runoff management, or other measures

Existing Pesticide Permits:

No impacts as permits are issued for short term

Outcomes

Hauled Sewage/Biosolids

- Significant change to how ECAs are issued by the ministry
- Changes apply to low, moderate and significant drinking water threats
- Scope of program implementation relatively broad (more land area subject to new operational policies)

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Outcomes

Hauled Sewage

Future ECAs for Significant Drinking Water Threats:

- Will not approve the application of untreated hauled sewage on lands where the activity has been identified as a significant drinking water threat
- Will apply to both new sites and renewal sites

Future ECAs for Low and Moderate Drinking Water Threats:

- More detailed site information required to verify site conditions
- Enhanced operational requirements introduced
- Ensure minimum standards are incorporated into ECAs

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Outcomes

Biosolids

Future ECAs for Significant Drinking Water Threats:

- Will not approve the application or storage of biosolids if proposed within 100m of a municipal wellhead
- Will apply to both new sites and renewal sites
- Site specific approach for applications received beyond 100m of well

Future ECAs for Low and Moderate Drinking Water Threats:

- If ECA application received, program lead staff will work with local staff to determine approach

Existing instruments:

- Will be updated as applications come in for renewal

Outcomes

PTTW

NOTE:

- Limited water quantity policies at time of this project.
- Ministry initial review of new water quantity policies to determine impact to PTTW program.
- Work underway to assess how water budget work can be incorporated into permit conditions may result in future changes to PTTW program and inspection/compliance direction.

Outcomes

PTTW

Future PTTWs:

- No new terms and conditions in PTTW
- No prohibition policies

Existing PTTWs:

- No changes

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Project Deliverable – Summary – Prescribed Instrument Policies Implementation

SP threat activities by Program Area	Instrument Application Screening			Standard Operating Policy	
	SDWT Primary Screening		Secondary Screening	Significant Drinking Water Threat Activities	Moderate or Low Drinking Water Threat Activities
	Screener	Criteria			
Waste	EAB	vuln≥8 ICA	SPPB to identify applicable SP policy requirement. • Prohibit (or) • Manage	Current program is protective. No additional requirements	Current program is protective. No additional requirements
Sewage	EAB	vuln≥8; (pipes only vuln=10); ICA		Storage of sewage below grade activity: do not issue ECA. For other sewage sub-threat activities specific design measures and operational conditions are defined in SOP.	Current program is protective. No additional requirements
NASM	SWR PSU (new) (interim)	WHPA vuln=10, IPZ vuln≥8, ICA		Refuse within 100m of well to align with NMA. Consider additional requirements on an individual application basis.	
Hauled Sewage	SWR PSU (new) (interim)			Do not issue ECA.	Max 2 year duration. New minimum terms and conditions.
Pesticides	Regional Pesticides Specialist	vuln≥9 -for MCPA[1] vuln≥8.1		Additional defined terms and conditions.	Current program is protective. No additional requirements
PTTW	not required at this time	n/a	n/a	SPPB-led project underway to determine how water budgets can be considered in water quantity management, including PTTW decisions	No additional requirements

[1] MCPA is short form for the pesticide 2-methyl-4-chlorophenoxyacetic acid

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Outcomes

Land Use Planning

- Official plans are required to conform with SPP land use polic and consider vulnerable areas as per the Provincial Policy Statement.

- Ministry planners review Official Plan for SPP conformity as p of the broader review coordinated by regional planners through the Ministry of Municipal Affairs and Housing one window process

- The ministry is in the process of developing internal processes for Environmental Assessment and Official Plan reviews

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Outcomes

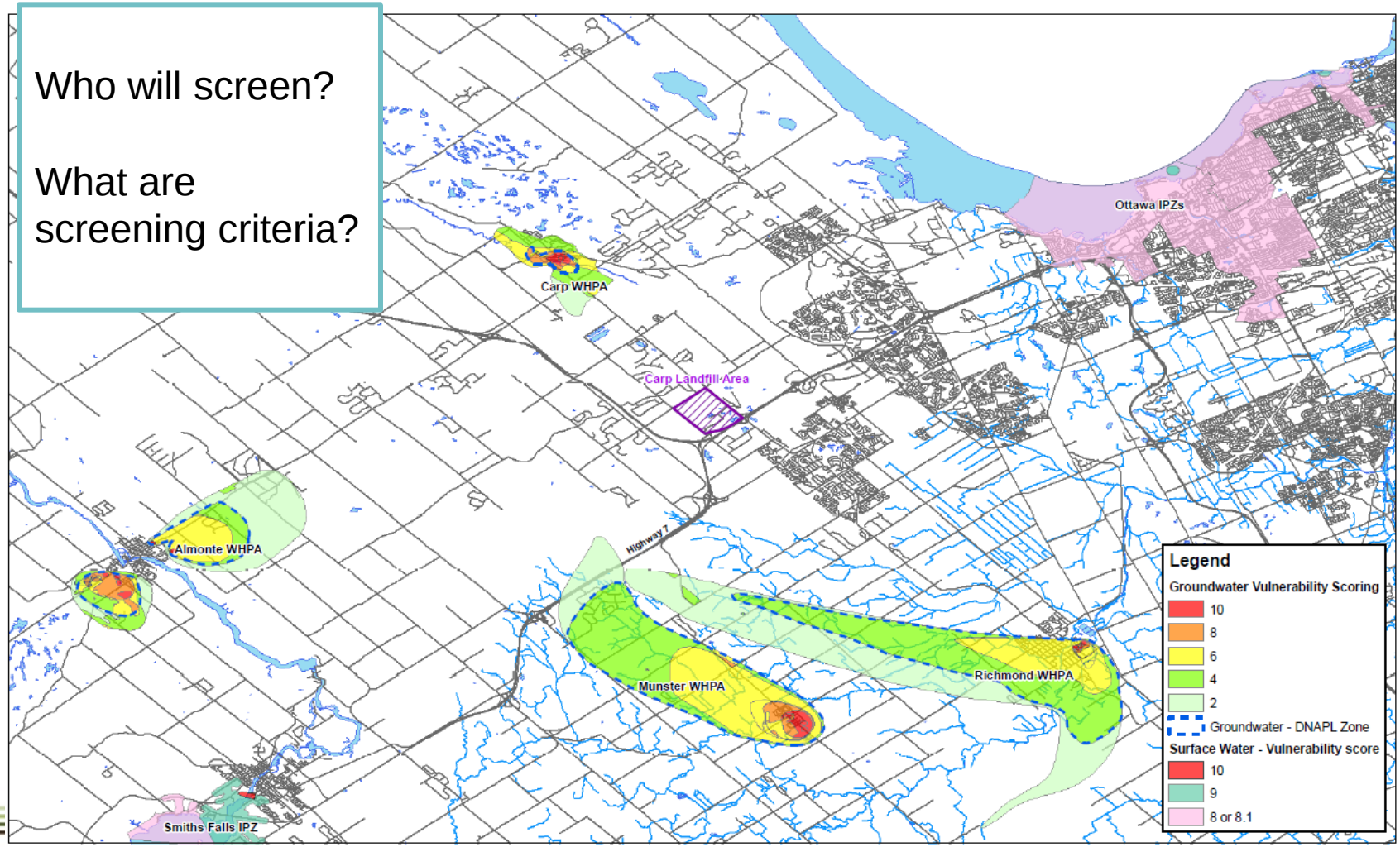
Fuel Storage At Drinking Water Systems

- Fuel storage at drinking water systems can be a significant drinking water threat
- The ministry will require additional terms and conditions in Drinking Water Permit and Licences to ensure proper storage and handling of fuel at drinking water systems
- Addition terms and conditions include:
  - Secondary containment
  - Spill/leak detection and spill response procedures
  - Collision protection
  - Protection of oil lines from physical damage
- The approving Director under Part V of the SDWA will be notifying DWS owners of this requirement and DW Permit and Licences will be updated starting fiscal 2015/16

Deliverable 2:
New Business Process: Application Screening

Who will screen?

What are screening criteria?



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Screening Tools: MOECC Source Protection Interactive Map

- Source Protection Programs Branch (SPPB) worked with Operations Division (OD) to prepare for implementation of SPP policies.

- SPPB supports OD by leading some specific components of ministry implementation, including:

  - Secondary screening of Environmental Compliance Approval (ECA) applications to determine waste and sewage prescribed instrument policy direction.
  - Official Plan review for source protection conformity and considerations.

ECA Secondary Screening and Review

- OD completes the preliminary geospatial screening of waste and sewage ECA applications to determine whether the proposed undertaking is located in a source protection vulnerable area where it could be a significant drinking water threat (SDWT).

- If flagged by OD, SPPB conducts the secondary screening of the application, including:
  - Based on the vulnerability score and threat circumstances, determining whether it is a SDWT
  - If it is a SDWT, determining whether an applicable Source Protection Plan prescribed instrument policy applies
  - Providing OD with the policy outcome – to prohibit or manage

ECA Screening and Review

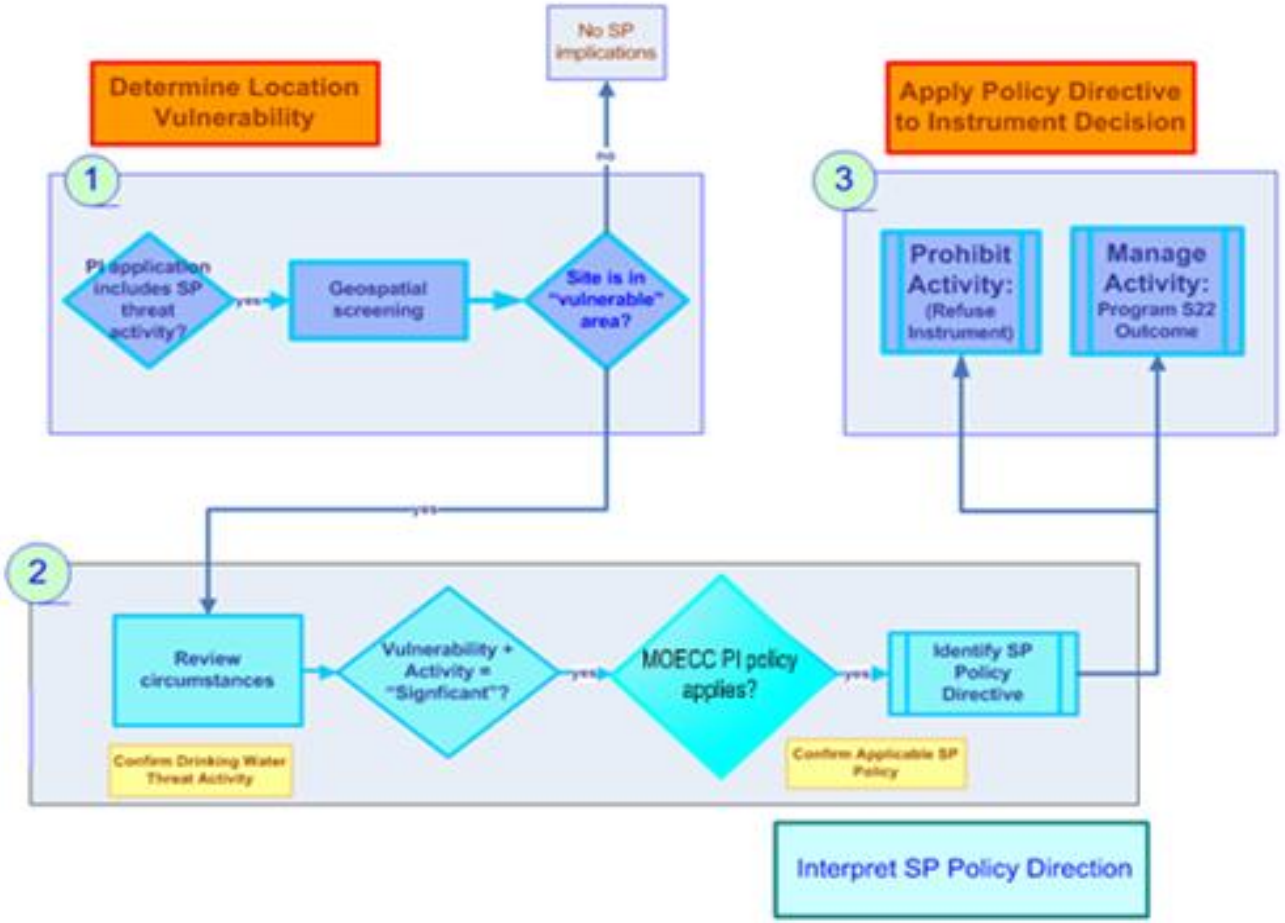
Applying Source Protection to Instrument Reviews

Preliminary Screening

OD

Secondary Screening

SPPB



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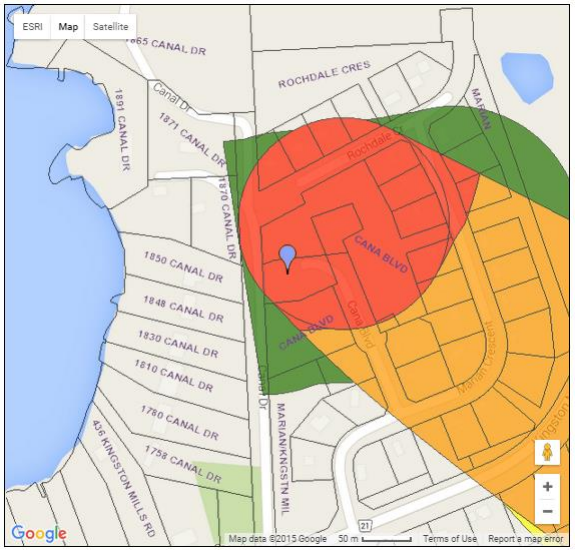
Screening Tools: Who is Screening?

- Provincial program areas using the mapping tool to screen applications:
  - Environmental Approvals Branch (MOECC)
  - OMAFRA (nutrient management plans)
  - Ministry of Natural Resources and Forestry (MNRF)

Sewage ECA Example: Manage Policy

1. ECA Application received for the demolition and reconstruction of the Cana WWTP located in Kingston, Ontario in Cataraqui SPA

2. Preliminary SP Screening using Source Protection map tool indicates: the site is located in a WHPA-A with a vulnerability score of 10



3. Secondary Screening confirms that the combination of pathogen circumstances in the Table of Threats and the location in vulnerable area (WHPA A with a score of 10) are met. Therefore, the undertaking is a SDWT activity.

4. Consult applicable SPP to determine policy direction. Cataraqui Source Protection Policy# 6.2.13-CW applies. Since the undertaking is the replacement of existing sewage works or facilities, policy direction is to manage the threat activity by ensuring the design incorporates appropriate risk management measures to protect the source of drinking water.

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Sewage ECA Example: Manage Policy Continued….

5. SPPB communicates to OD that a “manage” policy applies.

↓

6. OD documents ECA screening results and the file is forwarded for technical review

↓

7. During the technical review of the proposed sewage works, the Technical Reviewer refers to the SOP to confirm that the “Design and Operational Requirements” of the proposed sewage works have been met to manage the significant drinking water threat. This is in addition to the current review requirements. For example, design must be accompanied with erosion and sediment control measures to cover all phases of construction

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Hauled Sewage Example: Prohibit Policy

Application for Hauled Sewage Land Application

A Site is located in Lake Simcoe and Couchiching/Black River SPA in IPZ 2 vulnerable area with a score of 8.1.

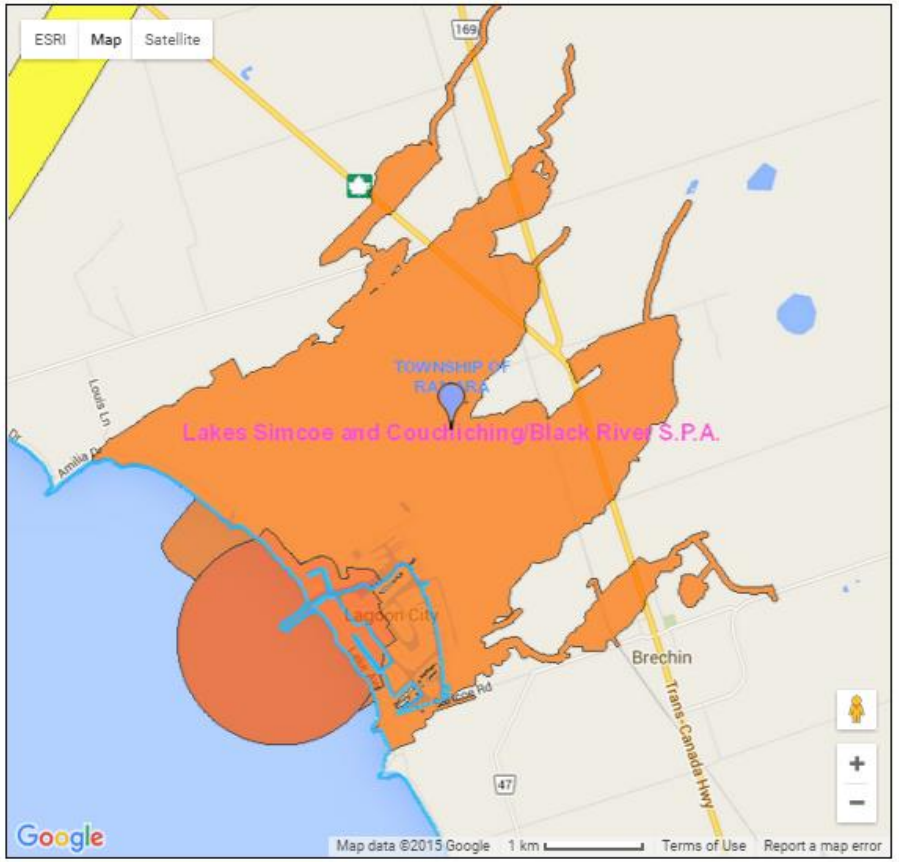
The activity is a SDWT activity based on location and circumstances:

1) Land application of hauled sewage in any quantity

2) The application may result in the presence of one or more pathogens in groundwater or surface water

<u>Outcome</u>:

- OD SOP prohibits the issuance of hauled sewage ECA where the activity is a SDWT
- Applicant notified that the ECA will not be issued



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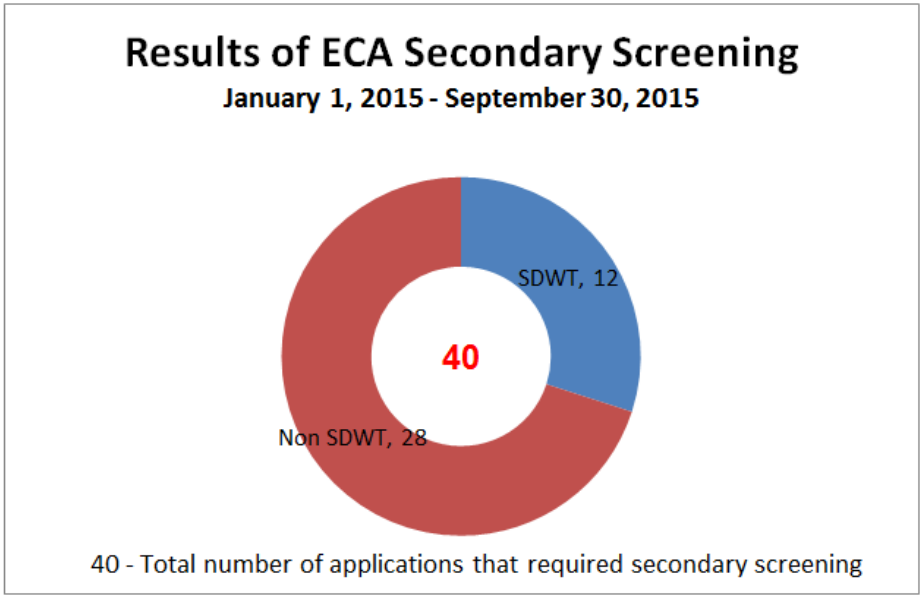
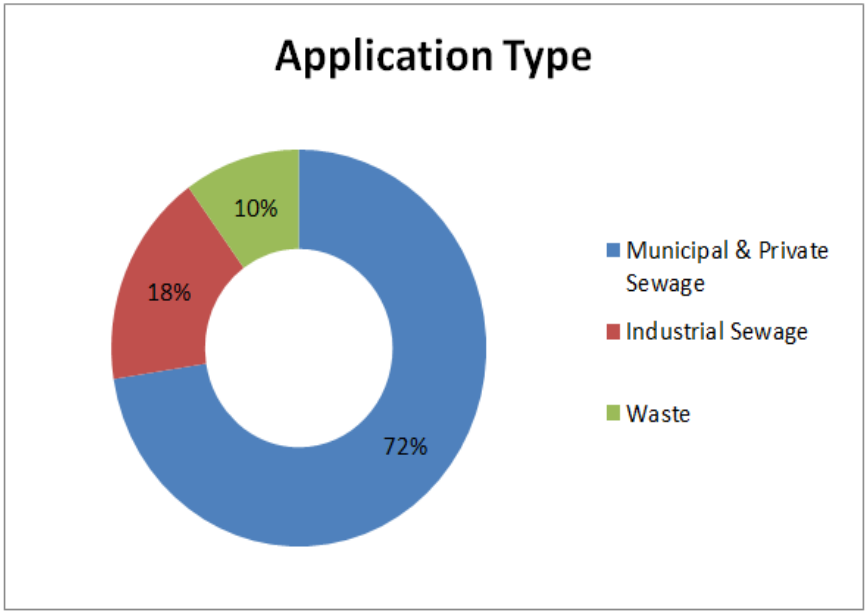
Example: Outcome of Waste and Sewage Screening





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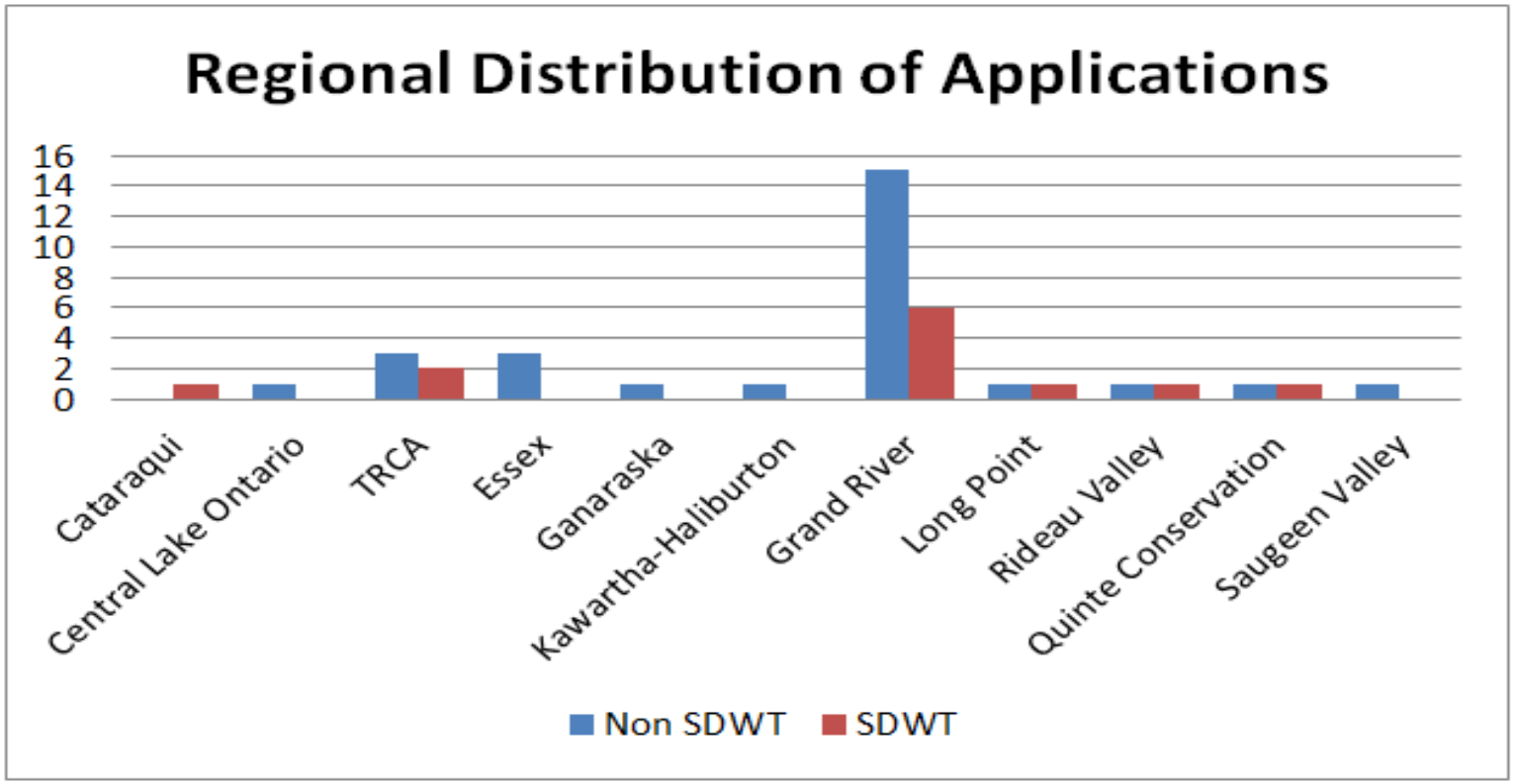
Distribution of Waste and Sewage ECAs Screened For Source Protection



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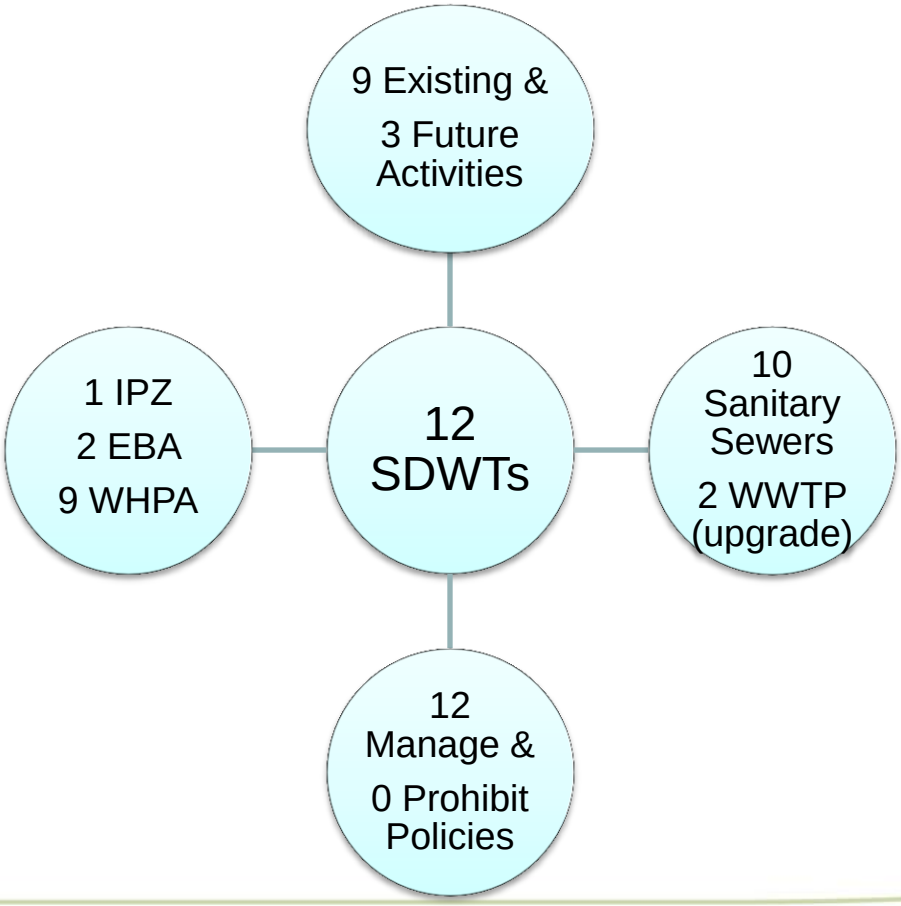
Significant Drinking Water Activity "Screened In"



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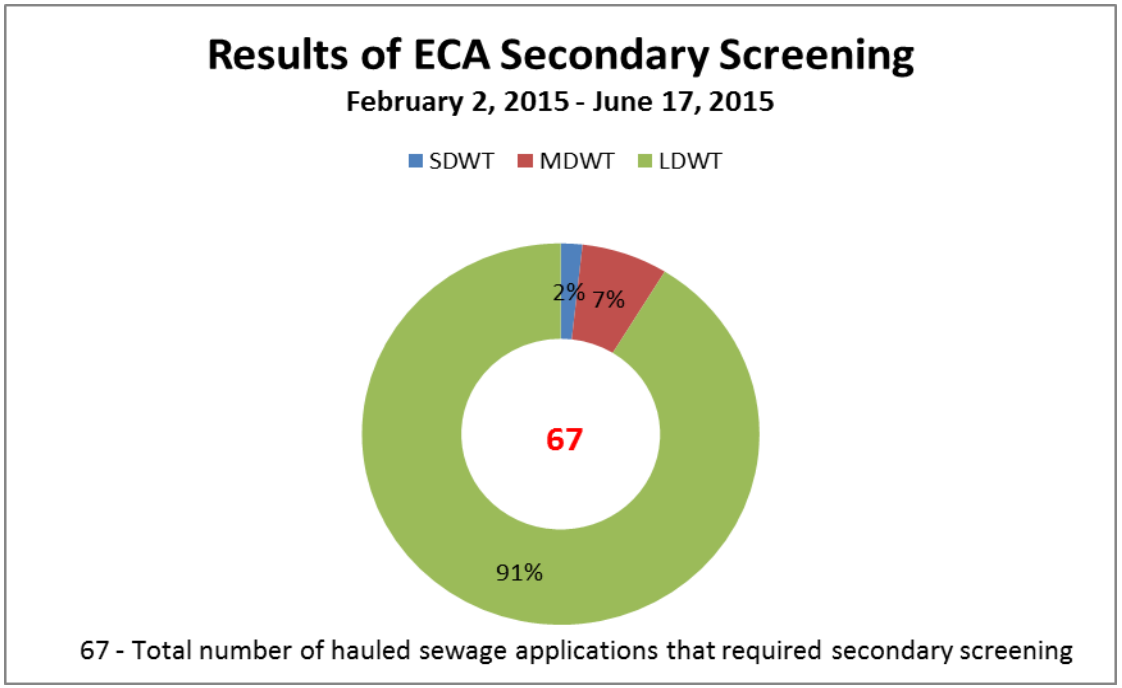
Example: Outcome of Hauled Sewage Screening



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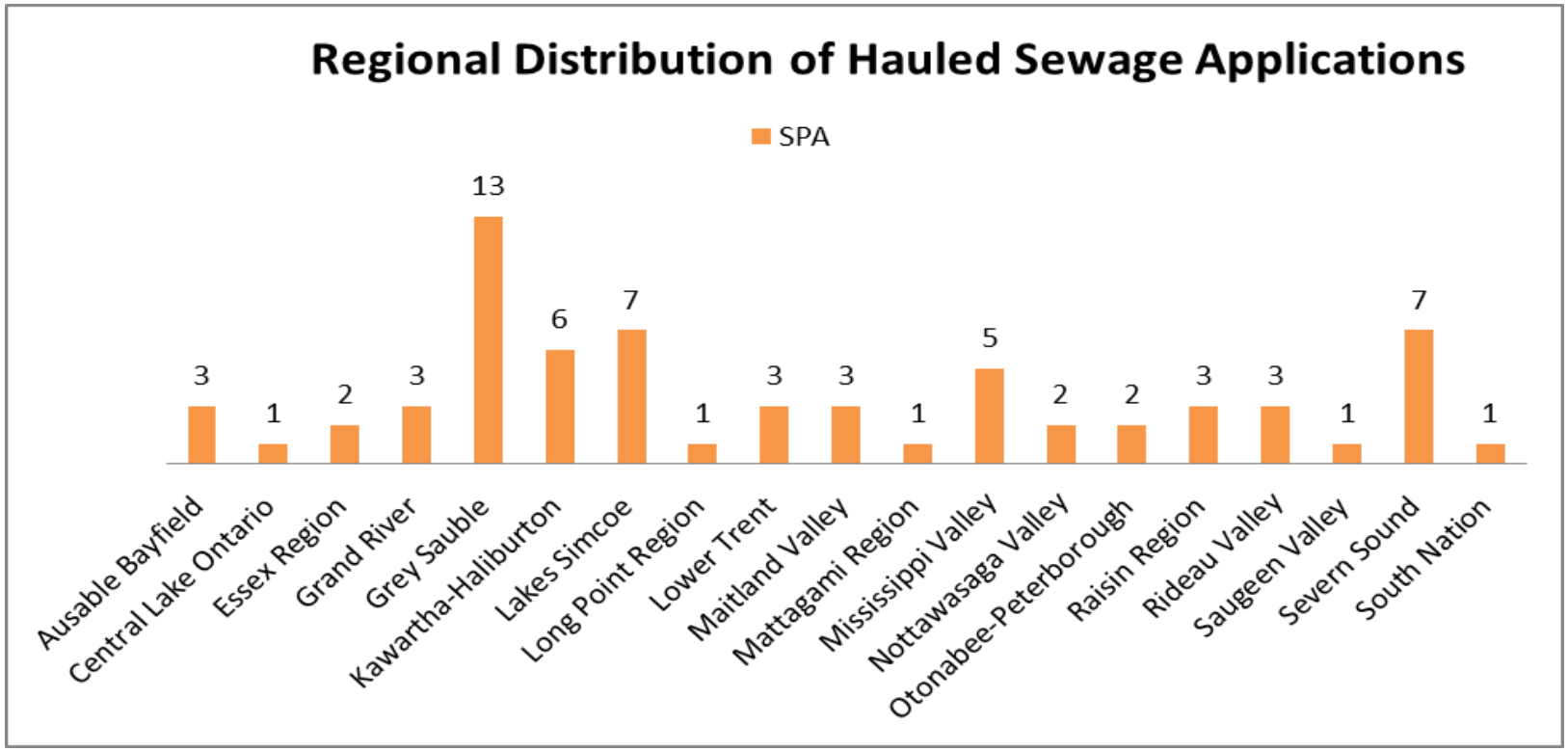
Distribution of Hauled Sewage ECAs Screened For Source Protection



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Deliverable 3:
Existing Instruments Plan

- SPPs require existing ECAs be addressed within three years of plan approval
- Ministry is in the process of :
  - Identifying existing instruments (screening)
  - Determine if issued instruments need to be amended to conform with SOP

Example:

Post 1999 Approvals:

- ~ 200 Sewage ECAs identified in vulnerable areas
- screening required to confirm if the activity is a SDWT

Pre-1999 Approvals:

- Information provided via site inspections and file review

Additional Action By the MOECC To Implement “Other Non-PI” Source Protection Plan Policies

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Spills Response

- As of November 2014, every spill reported to the ministry is geo-spatially accessed to determine if it's in a source protection vulnerable area
- New spill response procedures developed to assist Spills Action Centre (SAC) spill response action
- Updated notification protocols to ensure prompt communication with the affected municipalities, agencies and authorities
- Procedures reviewed on a quarterly basis and updated accordingly

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Source Protection Procedure

Caller reports a spill to land or water

Check the Interactive Address Map

Is the spill located in a SWP Zone?

No

- Follow Normal Operating Procedures, including need for Emergency Response Plan (ERP) and document in database (IDS).
- Enter into the Incident Description “Spill not within SWP Zone”.
- For ‘unofficial sites’ enter the GPS Coordinates.

Yes

WHPA-A WHPA-B WHPA-C WHPA-E (GUDI)	IPZ-1 IPZ-2 IPZ-3

WHPA-D
WHPA-F
HVA
SGRA
ICA

Is the vulnerability score ≥ 8?

No

Yes

Is the type and quantity of the material discharged or potentially discharged of concern? Click for Examples

No

- Follow Normal Operating Procedures, including need for ERP and document in IDS.
- Select ‘Source Water Protection Area’, and any other selections that apply, from the Receiving Medium pick list.
- Copy the Search Results table from the mapping tool and paste into the IR.
- For ‘unofficial sites’ enter the GPS Coordinates.
- Route to the OD district office.

Yes

Contact appropriate Water Treatment Plant Operator

After-Hours – Page the ERP.
E-mail details to DWCOC and AWQC.
Business Hours –Immediate verbal notification to the District Office.
Send an email to DWCOC and AWQC. District Office to provide a priority field response.

NOTE: If this procedure does not indicate that a priority field response is warranted, SAC normal operating procedures still apply. Circumstances may still warrant a field response.

Spills to Watercourses*

For all Spills to the Great Lakes and their Interconnecting Channels – see also Card 11, 20 and 21

During Business Hours SAC Officers are to Contact the District/Area Office for ALL SPILLS

Card 10

Additional questions following Primary Assessment - Card 3:

Reporting Details

1. Name of watercourse?
2. Location of spill on watercourse?
3. Flow of watercourse?
4. Is the impacted part of the watercourse accessible by land?
5. Is there a water treatment plant downstream?
6. Name of conservation authority?
7. Has municipality been notified?

Note:

- *If fish or waterfowl kill, also see Card 39.*
- *If pesticides involved, also see Card 17.*
- *If manure spill, also see Card 42-C.*
- *For all spills to Great Lakes or their Interconnecting Channels, also see Card 11, and as applicable Cards 20 and 21.*

Is the spill potentially hazardous? i.e. threatens health/safety/environment

Yes

No

Determine if the spill is located in a Source Water Protection (SWP) Zone

Complete report and forward to District Office

Sewage bypass /overflow events resulting from equipment failure, power failure, human error, and other abnormal occurrences, are handled and documented as **SPILLS.**

Note: Sewage bypass /overflows normally result from weather conditions such as high rainfall, flooding and snow melt. These are almost always directed to the nearest surface watercourse.

MOE Procedure F-5-1 requires the plant operator to notify SAC and the local health unit. SAC may assist with notification if this action appears to be necessary.

*Essentially all surface waters, including tributary streams, wetlands, ponds, lakes, etc.

SAC Actions:

1. Ensure Police, Fire Dept, and Works Dept. are notified as required.
2. During business hours contact district office. Off hours determine need to dispatch ERP as per "call-out criteria" (Card 1-C) with any route directions established by police or other authority in charge on-site.
3. Determine if the spill is in a Source Water Protection Zone.
4. Determine if any DWS, Designated Facilities, Sensitive Receptors, etc. would be affected using the Drinking Water System Maps.
5. Contact local health unit if the spill has the potential to impact public health or private drinking water users.
6. Contact WTP's if they may be affected. For **ANY** contact that SAC has with a WTP, export and email a copy of the IDS report to the SDWB DW Compliance Operations Coordinator. If water intakes are to be closed, notify the drinking water inspector responsible for the plant (during regular business hours), the SDWB DW Compliance Operations Coordinator (see 'DWMD binder) and the EMO-PEOC (Card 53). See "Other Agencies" binder Health Canada section for drinking water health threats to First Nations and federal facilities. Note Card 38 for DWMD support and Card 56 for First Nations.
7. For a major fish kill or significant watercourse impairment, contact Environment Canada (Card 24), possibly MNR (Card 23), and park & conservation authorities. See also Card 24 for spills of "National Interest".
8. For spills from a vessel, notify Env. Canada and the CCG, (Cards 11, 20 and 21).
9. If the release threatens to cross a boundary (Provincial or International), notify the neighbouring jurisdiction environmental contacts, Environment Canada (Card 24) and CCG. Note Card 35 and "Other Government Agencies" contact sheets (harbour authorities and US contacts also noted in Card 11).
10. If report suggests that there is likely a need for addition MOE support refer to Card 57. Brief SAC management.
11. If workers are affected, contact MOL as per MOL procedures.
12. For media support, brief MOE Communications (see also Card 7).
13. For incidents that involve sinking of vessels, vehicles, aircraft and equipment contact MOL Diving Notification Centre

Inspections

- The ministry has prioritized/targeted inspection in source protection areas:
  - 2014/2015: General guidance developed
  - 2015/2016:
    - Identify sites
    - Targeted inspections
- The ministry is incorporating source protection into inspections protocol and guidance materials guidance

Education and Outreach

- Development of an SP Resource E&O Catalogue to support local implementation

- Link to catalogue: http://www.conservation-ontario.on.ca/library?view=category&id=66

- The E&O catalogue includes:
  - General SP background, septic's, road salt, hazardous liquid, agriculture, wells and fuels

Timing of Provincial Implementation

- Provincial implementation date - January 1, 2015
  - for prescribed instruments policies for **future** significant drinking water threat activities
- As of October 1, 2014, the ministry was screening for PI applications in those areas with plans in effect
- As of January 1, 2015, all ministry staff were trained on the program changes to support source protection plan implementation

Resources

Communication of Provincial Approach and New Application Requirements

- EBR Information Notice posting on April 1, 2015
- http://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTIzODA5&statusId=MTg1ODcw&language=en
- Updating applications/guides/forms
- External clients/ stakeholders guidance and information bulletins