

Risk Management Plan-Scenario 2

*Municipality
of ABCD*



(This Risk Management Plan template has been designed to allow the participant to work through filling out the ten recommended contents sections in a question and answer format).

Applicant Information

Name: _____ **JOE SMITH** _____

Phone: _____ **705 -123-4567** _____ Phone (alternate): _____ **705-231-7654** _____

E-mail: _____ **joesmith@mail.com** _____ Fax: _____ **N/A** _____

Mailing Address: _____ **123 County Road** _____

Town: _____ **Municipality of ABCD** _____ Prov: **ON** _____ Postal Code: _____ **A1B 2C3** _____

Property Information

Roll Number: _____ **6785439873215461** _____

GPS coordinates (if known): (Lat.) _____ **44.500668** _____ (Long.) _____ **-79.867351** _____
GPS: (E) _____ (N) _____

Address of project location (if different from mailing address): Lot: _____ **17** _____ Conc: _____ **8** _____

Fire # or Street Address: _____ **123 County Rd. , Municipality of ABCD, ON** _____

Land Use: Residential Agricultural Commercial Institutional Industrial
 Other (please specify) _____

Name of Vulnerable Area: _____ **Farm View Wellhead Protection Area** _____

Vulnerable Area Zone: WHPA-A WHPA-B WHPA-C WHPA-D
 WHPA-E IPZ-1 IPZ-2

Check all that apply

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Previous Site History (summarize if known):

Property has been farmed by owners since 1950. Livestock has been present on site for several decades. Operations on site may have changed over time.

Significant Drinking Water Threat(s) Information

Specify the activities designated as significant drinking water threats in the area to which the risk management plan will apply. In addition, provide some details about the activity. For example, the types and quantities of chemicals stored.

Threat 3: Application of agricultural source material – Manure generated by livestock on site is applied to 100 acres of cropland north of the barn on site.

Threat 4: Storage of agricultural source material- Manure is stored in an above grade structure with a concrete floor, 3 confining concrete walls, and a roof.

Threat 10: Pesticide Application - Pesticides are applied to the 100 acres of cropland located north of the barn.

Threat 21: Use of land for Livestock grazing and pastureland – A total of 40 young beef cows are pastured on 80 acres of land on site.

Source Protection Plan Policy Information

Provide a reference to the applicable policy or policies in the approved source protection plan

Significant Drinking Water Threat	Applicable Source Protection Plan Policies
<i>Threat 3: Application of agricultural source material</i>	ASM(App)-2: activity designated for purposes of s.57, prohibited within WHPA-A when significant. *Note ASM App-2 does not apply to this scenario, because the App of ASM outside of WHPA-A is not a significant threat if the vulnerability score is lower than 10. **
<i>Threat 4: Storage of agricultural source material</i>	ASM(Store)-1: activity designated for purposes of s.58, requires a RMP when significant
<i>Threat 10: Pesticide Application</i>	PEST(App)-1: activity designated for purposes of s.58, requires a RMP when significant
<i>Threat 21: Use of land for livestock grazing and pastureland</i>	LSTOCK-1 : activity designated for purposes of s.58, requires a RMP where number of animals on land at any time is sufficient to generate nutrients at an annual rate that is equal to or less than 0.5 NU/acre

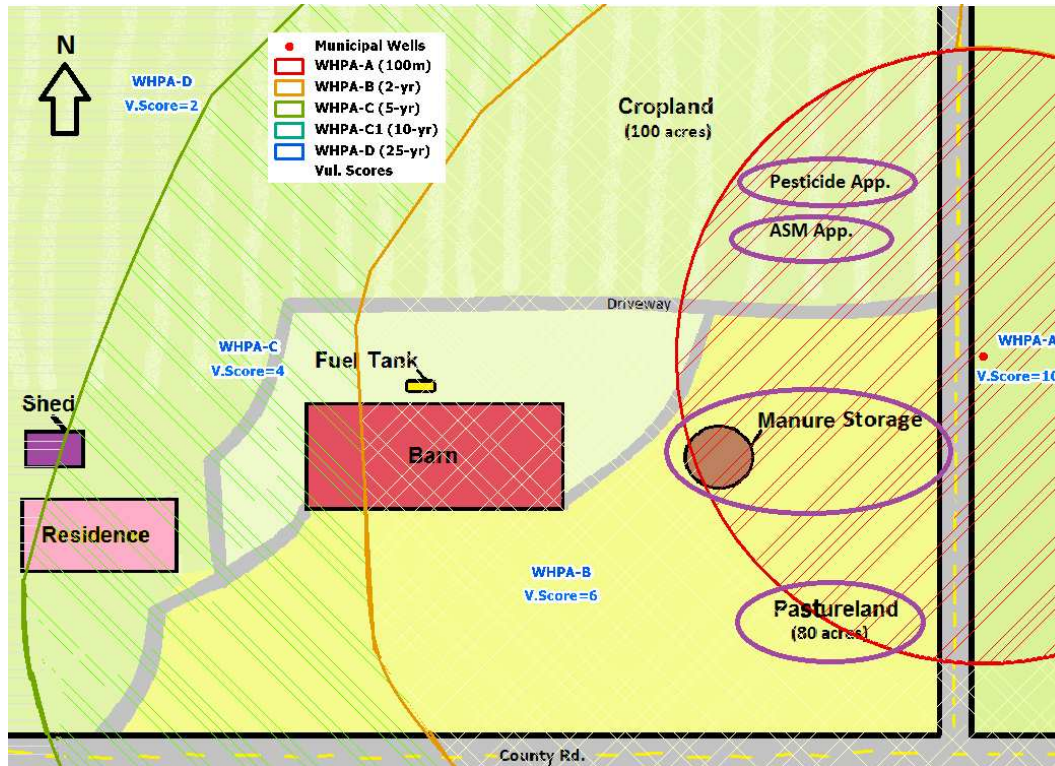
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Map Identifying Threat Activity Location

Circle the Significant Drinking Water Threats on the Map below.



Risk Management Measures

The risk management measures, operational practices, etc, to be undertaken to address the threat.

(*Remember to select measures that are relevant to the protection of groundwater.*)

SDWT	Measure	Rationale
App. of ASM	<p>Land application of nutrients- setback distance to a municipal well: no application of manure permitted to cropland situated in a WHPA where the vulnerability score is 10 (100 m zone).</p> <p><i>*Note* This is the only acceptable measure within vulnerability zone 10, where the application of ASM is prohibited ; the RMO may suggest that additional measures (listed below) be implemented to the croplands outside of the 10 zone.****</i></p>	<p>Restricting the application of nutrients to areas outside of vulnerability zones with a score 10 will ensure that the s. 57 prohibition policy is satisfied, while allowing the activity to continue outside of the specified vulnerability zone. Measure will help ensure activity does not unnecessarily contribute groundwater contamination in close vicinity to municipal well.</p>

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	<p>Nutrient Management Training</p>	<p>Nutrient management training provides information on practices that could contribute to maximize the use of the prescribed materials and crop uptake of nutrients while reducing nutrient loss, runoff, and environmental damage. Awareness and application of techniques could reduce potential for groundwater contamination in vulnerable areas.</p>
	<p>No Nutrient Application Prior to Forecasted Significant Rainfall Events:</p> <p>Do not apply to saturated soils or before a forecasted significant rainfall event to avoid runoff. Check the local weather forecast and use the seven day weather forecasts prior to nutrient spreading; application of biosolids is prohibited on snow covered or frozen ground</p>	<p>Rainfall events that generate runoff shortly after nutrient applications can lead to significant nutrient and pathogen loss from the site, ultimately polluting bodies of water. Under the Clean Water Act, 2006, nutrient application requirements may apply to farmers who do not have a Nutrient Management Plan or Strategy, or NASM Plan. This measure will help ensure that the activity does not contribute unnecessarily to surface or groundwater contamination.</p>
	<p>Reducing Phosphorus Export from Croplands by applying Gypsum</p>	<p>Gypsum improves particle aggregation, reduces erosion and can keep phosphorus and other nutrients from running off fields. Gypsum makes soils more permeable to rainfall, alleviates aluminum toxicity and supplies soils with calcium and sulphur. Research findings show gypsum also reduces soluble phosphorus levels in topsoil.</p>
	<p>Improved Nutrient Use Efficiency - Manure Testing</p>	<p>Sampling and testing of manure for nutrient levels integrates production targets with environmental goals. Managing manure for economically optimum crop production with minimum environmental impact requires knowledge of manure nutrient content. Therefore, sampling and testing of manure for nutrient levels qualifies as a Best Management Practice (BMP). Like all BMPs, it integrates production targets with environmental goals.</p>
	<p>Sub-surface Drainage System -Conduct Regular On-Farm Drainage System Inspection and Maintenance: Regular maintenance involves: - Keep the ditches clear; - Keep the drains working; - Inspect drain outfalls; - Repair and replace broken drains; - Install and inspect silt boxes and catch basins; - Renovation of drains filled with sediments; and - Cleaning and flushing sub-surface drains.</p>	<p>Regular maintenance of drainage systems, including inspection of the surface of drained areas, will help to reduce nutrient and pesticides losses from the system, and to minimize the percolation of nutrient, pesticides, and pathogen contaminated water to groundwater.</p>

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	<p>Practices to Minimize Erosion - Cover Crop</p>	<p>Maintenance of a minimum of 30% ground cover (dead or alive) is critical in the protection against wind and water erosion and leaching all season long. Maintenance of ground cover will contribute to abatement of concentration/volumes of contaminants and reduce potential adverse effects of contamination between the origin of contamination generation and threat/activity.</p>
	<p>Restrict Nutrient Application Outside of the Growing Season - Restrict application of nutrients in the late fall and early spring, when risk of nitrate leaching below the root zone is highest.</p>	<p>During the fall, when crops are not growing, the risk of nitrates moving below the root zone is highest. The sources of nitrogen include nitrogen left over after crop harvest (more applied than the crop used) and nitrogen from fall applied manure. Manure applied after cereal harvest, in late summer and early fall, on sandy soils without growing crops (i.e. cover crops) provides the highest risk for nitrate movement to groundwater.</p>
<p>App. Of ASM cont..</p>	<p>Nitrogen Management - Denitrification Ponds</p>	<p>Nitrate contamination is a major concern for groundwater water sources. Farm drainage is a source of nitrate to source water. Enhancing on-farm denitrification can help to alleviate this problem. Having a water table close to the ground surface during the non-cropping season helps to develop anaerobic conditions for denitrification. Further denitrification can be enhanced by implementing denitrifying ponds where drainage water could be treated to remove excess nitrate before discharge into drainage ditches or streams; construction of control structures to manage soil, water, and water table level; construction of managed riparian zone, that involves the planting of and caring for appropriate plantings, of the land adjacent to a watercourse to facilitate nitrogen uptake from the shallow groundwater and overland flow.</p>
	<p>Enhancing On-Farm Denitrification: Use Alternative Cropping Systems</p>	<p>Farm drainage is a main source of nitrate. Alternative cropping systems can help to alleviate this problem. Alternative cropping approaches can limit the application of manure when the leaching risk is greater. One alternative is to plant grass for a few years in the crop rotation cycle; nitrogen-demanding grass crop to the rotation has several advantages, and still provides feed for a herd. Alternative cropping minimizes the risks of surface runoff and potential groundwater contamination.</p>
<p>Storage & Handling of ASM</p>	<p>Ensure adequate Storage Design for Solid Manure Storage</p>	<p>Ensuring that there are no leaks, cracks, or other structural problems with the storage facility will decrease the chance of contaminants unnecessarily impacting the groundwater system. In order to avoid contaminated runoff, stored manure should be prevented from coming into direct contact with precipitation.</p>

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	Reporting and Notification of Leaks and Spills	Timely reporting of Leaks and Spills will improve field response and lead to more timely remediation. Reports should be made to MOE Spills Action Centre (SAC) , who can activate a field response to initiate service continuity arrangements. Timely response to spill will reduce the potential for adverse effects of spill on drinking water sources.
	Enhanced Design of Manure Storage Facilities	Additional engineering design for manure storage facilities may be necessary when unusual soil conditions may impact the footing or foundation of storage facility. A effective structural design will reduce the risk of spills reaching source waters
	Manure Hauling Off-Site	Removal of excess agricultural source material from the site for either disposal or off-site usage will reduce the potential of manure leachate entering groundwater/ surface water systems, resulting in an overall reduction of potential adverse effects on source drinking water.
	Conduct regular Preventive Maintenance	A preventive maintenance program can prevent breakdowns and failures through adjustment, repair, or replacement of equipment before a major breakdown or failure occurs - this minimizes the risk of potentially adverse leaks or spills.
	Minimum Distance to be maintained between prescribed nutrient Storage Facility to Sub-Surface Drainage System	Field drainage tiles near a manure storage structure are a potential pathway for nutrient leaks or spills to be transported to surface water. Sub-surface tiles always outlet into ditches and/or drains that eventually empty into surface water. All manure storage structures constructed since 2003 must meet regulatory requirements for sub-surface tile drainage systems. All sub-surface tile drainage systems located within 15 metres of an older manure storage structure should also meet these requirements. This measure will help ensure that the activity does not contribute unnecessarily to surface or groundwater contamination.
	Apply siting Constraints for New or Expanding Facilities manure storage facilities ; For new manure storage facilities, consider the proximity of the facility to surface waters, areas of high leaching potential, areas of shallow groundwater, and sink holes or vulnerable wellhead protection areas.	Measure will help ensure that the activity does not contribute unnecessarily to surface or groundwater contamination.
Pest. App	Delineate a No-Spray Zone for Pesticide Application: Leave a suitable no-spray buffer zone between the treatment area and sensitive features such as vulnerable	This measure mitigates non-target deposition of spray. Size of the no spray zone will depend on the type of pesticide used. Unless specified otherwise on the pesticide label, leave at least 10 m between all water

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	wellhead protection areas .	supply sources and sprayed areas to avoid pesticide contamination. This will also reduce the need for cleanup.
	Sub-surface Drainage System -Conduct Regular On-Farm Drainage System Inspection and Maintenance	Regular maintenance of drainage systems, including inspection of the surface of drained areas, will help to reduce drainage problems and will help protect the natural watercourses. It will also help reduce nutrient and pesticides losses from the system and minimize the percolation of nutrient, pesticides, and pathogen contaminated water to groundwater. Regular maintenance involves: - Keeping the ditches clear; - Keeping the drains working; - Inspect drain outfalls; - Remove trees near drains; - Repair and replace broken drains; - Install and inspect silt boxes and catch basins; - Renovation of drains filled with sediments; and - Cleaning and flushing sub-surface drains.
	Select and Phase In Low Toxicity Pesticides	Low toxicity pesticides pose less risk to drinking water. Many conventional pesticides have been identified as neurotoxins, carcinogens, or reproductive and developmental toxicants. Some pesticides are by their nature less risky (e.g. biological pesticides derived from natural materials as plants, bacteria, and certain minerals) pose a lower risk. Alternative pesticides selected should have low-impact on contamination of source water and human health, and low toxicity to non-target organisms (birds, fish, and plants), low potential for groundwater contamination, lower use rates, low pest resistance potential, and in many situations, consider non-chemical methods to control pests, and compatibility with Integrated Pest Management (IPM).
	Person handling pesticides should have/obtain Pesticide Use Certification	Persons certified to handle pesticides will be less likely to mishandle products; education and awareness results in reduced potential for spills and adverse effects to drinking water sources. The Ministry of the Environment (MOE) regulates the sale, use, transportation, storage and disposal of federally registered pesticides in Ontario. Pesticides are classified based on toxicity, persistence in the environment and other factors. Any farmer can purchase and use Class 5, 6 and 7 products. Uncertified farmers who present a Farm Business Registration Number or a signed Farmer Self Declaration form to a General Vendor can purchase Class 4 products for use on the agricultural operations they own or manage. Certified farmers can purchase Class 2 and 3 products for use on the agricultural operations they own or manage, in addition to Class 4, 5, 6 and 7 products.
	Manage Drift during Pesticide Application	Best management practices can help reduce the risk of pesticide drift movement and unintentional deposit of pesticide outside the target area, which can adversely

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		<p>affect nearby sensitive environmental areas, crops, and wildlife.</p> <p>Examples:</p> <ul style="list-style-type: none"> - Do not spray when wind speeds are high or gusty - conditions increase the potential for spray drift. - Minimize nozzle-to-target distance - Do not spray during periods of dead calm at which time the temperature is usually cooler and the relative humidity is typically higher and can result in the spray droplets remaining aloft, like fog. When the wind picks up, these spray droplets can move away from the target area, possibly causing injury to adjacent non-target areas.
	Select and Phase In Low Mobility Pesticides	Select low mobility pesticides to reduce the risk of leaching to shallow aquifers or surface runoff movement to surface waters. Use of low toxicity pesticides may reduce potential adverse effects of contamination on source drinking water.
	Pesticide Application - Equipment Calibration - Calibrate pesticide equipment by ample time, the correct tools, and a fundamental understanding of calibration – Spreading equipment should be calibrated before beginning and re-calibrated at regular intervals to ensure accurate application rates.	<p>Proper equipment calibration will reduce excess pesticide use</p> <p>Improperly calibrated pesticide equipment may cause either too little or too much pesticide to be applied. Excess pesticide inadvertently causes phytotoxicity and increased contamination of surface and groundwater, with little benefit. By calibrating equipment, user is improving operational/best management practices at operating facilities and thereby reducing contaminants risks to water supplies.</p>
	Follow Instructions on the Pesticide Label – All pesticides to be applied in accordance with label directions	Pesticide labels provide specific instructions that reduce risk to the environment in general, and water quality in particular. This measure will help ensure that the activity does not contribute unnecessarily to surface or groundwater contamination.
	Consider local forecasts and weather conditions when planning to apply pesticides - consult the label for product specifications such as optimal application conditions, drying time, absorption rate and retention time.	Considering weather conditions before applying pesticides will reduce adverse effects on source drinking waters, by reducing leaching and runoff potential. Consideration will ensure activity does not contribute unnecessary pesticide contaminants to surface and ground waters.
	Use best management practices for source water protection when applying pesticides	Use best management practices to reduce potential contamination risks. Some recommended best management practices include soil incorporation, early pre-plant application, split application, post-emergence application, placing the pesticide into the top two inches of soil by tillage, where it is less likely to be removed by surface runoff, reducing runoff by as much as two-thirds compared to surface application.
Livestock grazing & pasturing	Pasture Management - Herd Management: Reduce Field Grazing Pressure (E.g. Reduce field grazing pressure by: - Providing supplemental feed to prevent overgrazing;	Proper grazing management will prevent overgrazing and allow pasture to recover, thereby increasing plant health and reducing erosion. Forage plants that have been grazed too close are weakened and may die, leaving bare areas that are more susceptible to erosion. Overgrazing can also

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	<ul style="list-style-type: none"> - Don't bring the animals back before plants have recover - Move animals to new pasture based on residual plant material - Reduce the number of animals per acre to a level the pasture can support.) 	<p>reduced soil depth, soil organic matter, and soil fertility. The loss of soil depth and organic matter is critical in determining the soil's water-holding capacity and how well pasture plants do during dry weather.</p>
	<p>Monitor Pasture Conditions</p>	<p>Monitoring pasture vegetation will help maintain grazing management systems and ensure proper functioning grazing. This will reduce potential impacts from contaminants generated pastureland. (E.g. Monitor grazing systems through:</p> <ul style="list-style-type: none"> - Grazing frequency (includes complete rest); - Livestock stocking rates; - Livestock distribution; - Timing (season of forage use) and duration of each rest and grazing period - Adequate vegetative cover to protect soils from erosion and to conserve scarce moisture)
	<p>Use Grazing Schemes and techniques to Improve the Health and Productivity of Pastures</p>	<p>Several grazing schemes and combination of techniques can be used to control grazing, reducing the degradation of the environment through erosion and water pollution from contaminated runoff. No one grazing scheme is best for all situations, and a combination of techniques may work best for each farm situation: (Eg. practice rotational grazing, inter-seed rangeland with higher producing compatible grasses and legumes)</p>
	<p>Employ Vegetative Stabilization Practices</p>	<p>Practices used to re-establish vegetation may be necessary on pastures to reduce erosion and leaching rates. Increased infiltration and subsequent percolation may cause more soluble substances to be carried to groundwater. Planting vegetation, such as trees, shrubs, vines, grasses, or legumes, may result in higher uptake of the nutrients in the soil, reducing the amount that can be washed into surface waters or leached into groundwater.</p>
	<p>Pasture Management - Setbacks for Feed Supplement Areas and Livestock Watering Areas- Consider the proximity of feeding and watering facilities to areas of high leaching potential, areas of shallow groundwater, and vulnerability zones.</p>	<p>Distancing feed supplement and watering areas from sensitive features will reduce the potential adverse effects of a discharge between the system and drinking water sources.</p>
	<p>General Inspection, Soil Testing and Management of Pasture Areas - Weekly Inspection of Pasture Areas for nutrient levels that integrates production targets with minimum environmental impact</p>	<p>Pastures should be managed to maintain a healthy sward that will maximize productivity while minimizing soil damage through compaction and erosion. Good management will reduce Nitrate residues in soil water to a minimum, give unrestricted pasture root development, leading to good plant growth and vigour, less drought stress and better clover-N fixation, lessen the period of soil saturation and associated slow pasture growth and cow foot problems, minimize topsoil loss through erosion and</p>

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		runoff, reduce fertilizer requirements, and minimize the need for remedial subsoiling or artificial drainage. This is a valuable tool to avoid pugging and compaction damage and to manage runoff and leaching.
	Rotational Grazing – subdivide pasture into several small paddocks	Subdivision of pasture is a useful way to balance livestock needs with forage supply; livestock graze the paddocks in sequence, moving to a new paddock when the forage is ready for grazing. A permanent vegetative cover for the soil reduces erosion relative to tillage agriculture resulting in abatement of concentration/volumes of contaminants .

Implementation Schedule

Develop an implementation schedule **for any two** of the risk management measures listed on the previous page.

SDWT	Measure	Timeline
Pest. App.	Phase In Low Mobility Pesticides	The landowner will begin to phase in the use of low mobility pesticides on the date of RMP approval. All pesticides applied on site will be of a low mobility variety within 6 months of RMP approval.
Storage of ASM	Example: Conduct regular Preventative Maintenance	Example: <u>A visual Inspection</u> of the storage facility will be carried out biweekly by farm staff; effective the date of RMP approval. <u>Preventative Maintenance</u> of the structure will be carried out once a year. <u>Immediate maintenance repairs, adjustments or replacements</u> will be made when a breakdown or defect is identified.

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Monitoring and Reporting Requirements

1. The Risk Management Official will be provided progress reports on the implementation of the following measures by the specified date:

(For the 2 risk management measures selected above, indicate the date by which a progress report will need to be supplied).

Risk Management Measure	Submission date for Progress Report
<i>Example</i>	<i>Example</i>
Phase in Low Mobility Pesticides	4 months after approval of RMP

Circle and fill in the blanks in the statement below.

Site will be inspected (annually, biannually, quarterly, monthly), beginning in (month/year)

Example : *Site will be inspected biannually beginning March 1st , 2014.*

2. Outline how frequently the Risk Management Plan is to be scheduled for review and updates.

Example : *The Risk Management Plan drafted this 19th day of February, 2014, will be reviewed and updated(if required) biannually following scheduled biannual inspections.*

Form G-100 11/07/2012	(for office use only)	Application # <u> 324 </u>
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Declaration of Applicant(s)

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1. I/we have completed this application in full and I/we certify that the information contained in this application and any supporting documentation is true and complete to the best of my/our knowledge.
2. I/we are the owners of the mentioned property or have included a letter of permission from the property owner.
3. I/we understand that I/we are responsible for implementing the measures described herein.
4. I/we understand that failure to comply with all the requirements of an approved Risk Management Plan may result in action by the Risk Management Official or Risk Management Inspector.
5. I/we understand that I/we will be responsible for ensuring the technical and structural adequacy and legal requirements of any activities or structures.
6. I/we have included all other required documentation.
7. I/we agree to obtain all necessary permits and approvals from applicable agencies, which may include local municipalities, public health units and conservation authorities.
8. I/we acknowledge that this Risk Management Plan must be presented to the RMO/RMI or designate when asked.
9. I/we acknowledge that this Risk Management Plan cannot be transferred to another person engaged in or proposing to engage in the activity at that location, without the written consent of the Risk Management Official.

Signature of Applicant(s)

Date

Joe Smith

Feb., 19th, 2014

NOTE: All information collected on this application form is subject to the Freedom of Information and Protection of Privacy Act (FIPPA). Information may be provided to the Ministry of the Environment and other regulatory bodies.

NOTE: Incomplete applications will delay the approval process. Please ensure applications are complete before submission.

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