

Land Use – Cash Crop

Scenario: A cash crop operation is located partially within the WHPA-C of a wellhead protection area. The vulnerability assessment of this WHPA has identified a vulnerability score within WHPA-C of 6. The operation includes a farming building. The house has a septic system.

Case Study preparation

A) Identify any of the 21 Activities which are applicable to this site

	Operation of Waste Disposal Site	x	Sewage treatment facilities (septic system)
	Handling and storage of road salt		Application of road salt
	Storage of snow	x	Handling and storage of fuel
	Storage of agricultural source material	x	Management of agricultural source material
x	Application of agricultural source material to land		Handling and storage of non-agricultural material
x	Application of non-agricultural source material		Handling and storage of organic solvents
	Use of land for livestock grazing or outdoor confinement area or yard		Handling and storage of dense non-aqueous phase liquid (DNAPL's)
x	Handling and storage of fertilizer	x	Application of commercial fertilizer
	Handling and storage of pesticide	x	Application of pesticide
x	Any activity which reduces the recharge of an aquifer	x	Any activity which takes water from an aquifer or surface water body without returning to the same aquifer or surface water body
	Management of runoff that contains chemicals used in de-icing aircraft		Other

B) Vulnerability

Location: WHPA-C

Vulnerability Score: 6

Case Study 1- Fertilizer application

The application of fertilizer to land such that the total available nitrogen or phosphorus in all nutrients applied exceeds the crop production requirements by 15% or more poses a low risk to drinking water sources.

The risks score is between 41 and 50, dependant on the percentage of managed land and the livestock density in the area (measured in nutrient units per acre).

A) Policy Approach – Identify the policy approach(es) that could be applied to this land use/activity

Policy Approach	May be Applied To	
	significant threats	Moderate and Low Threats
Education & Outreach Programs	2	1
Incentive Programs		1
Monitoring Activities		1
New or Amended Provincial Instruments (only those to be prescribed)		1
Land Use Planning Approaches (e.g. official plans, zoning by-laws, site plan controls)		
Risk Management Plans (s. 58 of CWA)	2	
Prohibitions (s. 57 of CWA)		
Restricted Land Uses (s. 59 of CWA)	2	

Others that you might propose :

B) Identify any provincial instruments which may apply to this scenario

Excessive fertilizer application - impact on groundwater quality. Low risk, hesitate to use provincial instrument for low risk threats. Missing provincial instruments like those under the Drainage Act and Fisheries Act, Federal instruments?

C) Proposed Policy – Draft a policy based on one or more of the approaches identified above to address the risk posed in this scenario.

Education, BMPs (e.g., soil tests), Encourage personal RMPs, Monitoring (surface and groundwater quality), Incentives (test beyond the Health Unit biological parameters).

“All landowners within the WHPA-C be encouraged to do BMPs and follow the EFP.”

D) Consider whether the policy developed above may be applied to the application of fertilizer in the part of the farm in a WHPA-B with a vulnerability score of 10. In this area the percentage of managed land is 50% and the livestock density is 0.5/acre. In this location the application of commercial fertilizer, if applied such that the total available nitrogen or phosphorus in all nutrients applied during the year exceeds the crop production requirements by 15% or more, is a significant risk. If the policy

developed above is not applicable to this situation identify a different policy which should apply.

2 No legislation regarding fertilizer. Policy as before plus more. Concern about municipality not knowing what to do, NMA does not apply still, “All landowners within the WHPA-B must follow an RMP”

Case Study 2 – Manure Application

In the same cash crop operation as in Case 1 where parts of the land cropped are in WHPA-C with a vulnerability score of 6 consider the policies which might be applied to the application of agricultural source material (ASM) to land such that the total available nitrogen or phosphorus in all nutrients applied exceeds the crop production requirements by 15% or more. This activity poses a low risk to drinking water sources. The risks score is between 41 and 50, dependant on the percentage of managed land and the livestock density in the area (measured in nutrient units per acre). There is no risk related to pathogens in WHPA-C.

WHPA-C

Vulnerability = 6

E) Policy Approach – Identify the policy approach(es) that could be applied to this land use/activity

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Policy Approach	May be Applied To	
	significant threats	Moderate and Low Threats
Education & Outreach Programs	X pathogens	X nitrogen
Incentive Programs		
Monitoring Activities		
New or Amended Provincial Instruments (only those to be prescribed)	x	

Land Use Planning Approaches (e.g. official plans, zoning by-laws, site plan controls)		
Risk Management Plans (s. 58 of CWA)	x	
Prohibitions (s. 57 of CWA)		
Restricted Land Uses (s. 59 of CWA)	x	
Others that you might propose :		

F) Identify any provincial instruments which may apply to this scenario

G) Proposed Policy – Draft a policy based on one or more of the approaches identified above to address the risk posed in this scenario.

H) 2 Consider whether the policy developed above may be applied to the application of ASM in the part of the farm in a WHPA-B with a vulnerability score of 10. In this area the percentage of managed land is 50% and the livestock density is 0.5/acre. In this location the application of ASM, if applied such that the total available nitrogen or phosphorus in all nutrients applied during the year exceeds the crop production requirements by 15% or more, is a moderate risk related to the nitrogen. The risk related to the pathogens in the ASM is significant in this zone, with a risk

score of 90. If the policy developed above is not applicable to this situation identify a different policy which should apply.

Monitoring PGM will be different for pathogens and nitrogen because of existing Health Unit pathogen monitoring. Education and outreach, NMP (BMPs not instruments), possible need for amendment to existing tool (NMA). Provincial legislation in place to allow zoning bylaw in OPs (site plan control policies).

Provincial Instruments that may apply:

NM Plans