



AEM Tier 2 Worksheet

Watershed Site Evaluation

Background

What happens on the land affects the water. The type of farm activities occurring, along with a farm's soil, topography, and location within a watershed, affect the farm's risk for pollution of ground and surface water. This worksheet helps farmers know their watershed, and the associated water quality issues and opportunities within the watershed their farm may be impacting at the local, state, and national levels.

Every surface waterbody in New York State has been classified by the Department of Environmental Conservation (DEC) according to its "best use." Best use categories include: drinking water supply, public bathing, recreation, aquatic life support, fish consumption, shell fishing, natural resources habitat/hydrologic use, and aesthetics. Each use has a set of standards associated with it that limit the concentrations of various contaminants that can be present in the water.

A water quality problem exists where a classified best use is negatively impacted. The effects can range from precluding a use to situations where a waterbody's best use is threatened as defined below:

Precluded: Frequent/persistent water quality or quantity conditions and/or associated habitat degradation prevents all aspects of the waterbody use

Impaired: Water quality and/or habitat characteristics frequently impair a classified use. Also applied when the classified use is supported, but at a level significantly less than what would be expected. Natural ecosystem functions may be disrupted. These waters have severe impacts.

Stressed: Waterbody uses aren't significantly limited or restricted, but occasional water quality, or quantity conditions and/or associated habitat degradation periodically discourage the use of the waterbody.

Threatened: Water quality presently supporting best use and ecosystem experiencing no obvious signs of stress; however, existing or changing land use patterns may result in restricted use or ecosystem disruption. These waters are the least impacted.

The primary pollutants impacting best uses can result from land use activities within a watershed and include nutrients (phosphorus and nitrogen), sediment, toxic substances (pesticides and petroleum products), pathogens, oxygen-demanding substances (organics such as manure and whey) and elevated water temperatures (thermal stress). In any given watershed there are a number of potential sources of these pollutants such as: agriculture, timber harvesting, construction activities, land disposal of waste, and modifications to streambanks or stream channels.

In many areas of the state there are watershed management plans or aquifer/wellhead protection plans that identify pollutants of concern and land uses or activities that pose a potential risk to water quality. Agricultural Environmental Management (AEM) Strategic Plans at the County level address agricultural sources of pollution that may impact water quality.

Glossary

Aquifer: Water bearing soil or rock formation that is capable of yielding usable amounts of water.

Best Management Practice (BMP): Methods, measures or practices determined to be the most practical and effective in preventing or reducing the impact of pollutants generated by nonpoint sources.

Concentrated Flow: The rapid flow of water through a field that may result in the formation of gullies.

Contamination: Alteration of a water resource by the introduction of a chemical or other substance or the raising of water temperature so that the water resource is unfit for a specified use.

Erosion: Detachment and movement of soil caused by rain or surface water runoff.

Hardpan: Also referred to as fragipan, is a dense and brittle layer in soils that owe their hardness mainly to extreme density or compactness rather than high clay content or cementation. This layer is so dense that roots cannot penetrate and water moves through it very slowly.

Highly Erodible Land (HEL): Land containing soils with a high susceptibility to erosion when cultivated based on soil erodibility, slope, slope length and rainfall factors.

Hydrologic Soil Group: Refers to soils grouped according to their runoff and leaching characteristics.

Hydrologic Unit Code (HUC): A numerical designation for cataloging watersheds nationwide used by the U.S. Geological Service and the USDA Natural Resources Conservation Service.

Land Capability Class: Shows in a general way suitability of soils for growing crops. Capability classes are designated by Roman numerals I – VIII. The numerals indicate progressively greater limitations. The subclass “w” indicates that water in or near the soil interferes with plant growth or cultivation.

Leaching Potential: Estimate of the possibility for the downward movement, through the soil, of chemical substances dissolved in water.

Pathogens: Any microorganism that causes disease, such as a bacterium or virus.

Primary Aquifer: Highly productive aquifers (yields greater than 50 gallons per minute, thickness of saturated deposit greater than 20 feet, or area of aquifer 5 to 10 square miles).

Principal Aquifers: Potential sources of public drinking water with yields greater than 10 gallons per minute that are not presently being used intensively as a water source by a major municipal system.

Runoff: That portion of precipitation; such as rain, snowmelt or irrigation water; that flows over the land surface.

Sinkhole: A natural depression in a land surface that connects with a subterranean passage. Sinkholes usually occur in limestone regions and are formed by solution or collapse of a cavern roof.

Soil Map: A map showing where various soil types are distributed in a given area (most often published in a county report).

TMDL: A Total Daily Maximum Load (TMDL) is a regulatory term in the Clean Water Act describing the value of the maximum amount of a pollutant that a waterbody can receive while still meeting water quality standards. Alternatively, TMDL is an allocation of that water pollutant deemed acceptable to the subject receiving waters.

Waterbody: A lake, pond, stream, river, reservoir, wetland or bay.

Watercourse: Water flowing over a non-vegetated channel to a waterbody.

Watershed: The geographic region within which water drains to a particular river, stream, or body of water. Large watersheds may be composed of several sub-watersheds.

Tools and References

The following tools and references may be helpful when filling out this worksheet:

- Your county's AEM Strategic Plan
- USDA Natural Resource Conservation Service (NRCS) County Soil Survey Report, Soil and Water Features Table; <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>
- NRCS Field Office Technical Guide, Sections I and II; http://efotg.sc.egov.usda.gov/efotg_locator.aspx
- 7.5 minute U.S. Geological Survey (USGS) Topographic Map;
- GIS based aquifer maps for NYS: <http://www.nysgis.state.ny.us/inventories/health.htm>
- Regional scale surficial & bedrock geology maps for NYS: <http://www.nysm.nysed.gov/gis/>

Part 1: Potential Water Resource Concerns for the Farm

A. Potential Farm Groundwater Issues

Has there been groundwater contamination or concerns about groundwater issues on or near the farm? Yes ____ No ____

If yes, explain _____

Is the farm, including crop fields, adjacent to homes that rely on wells or spring developments for drinking water? Yes ____ No ____

Is the farmstead or any of the crop fields within 300 feet upslope or at grade with the wellheads or springs? Yes ____ No ____

If yes, describe locations: _____

Does the farm sit atop a primary or principal aquifer? Yes ____ No ____ Identify: _____

B. Potential Farm Surface Water Issues

In which watersheds and sub watersheds is the farm located? *Note: the farm may be in more than one watershed, if so list all watersheds.*

Name of Twelve Digit HUC Watershed(s) _____

Name of stream(s) _____

Name of river(s) _____

Name of lake/reservoir, bay or estuary _____

Do any of the watersheds/sub watersheds above have a TMDL designation? Yes ____ No ____

Which ones _____

What are the pollutants of concern for the TMDL _____

C. NYSDEC Waterbody Inventory & Priority Waterbodies List

In order to fulfill certain requirements of the Federal Clean Water Act the New York State Department of Environmental Conservation must provide regular, periodic assessments of the quality of the water resources of the state. This information has been compiled into an inventory data base used to record current water quality information, characterize known or suspected water quality problems and issues, and track progress toward their resolution. www.dec.ny.gov/chemical/36730.html

Are any of the waterbody(s) listed in Section B of this worksheet included on NYSDEC’s Waterbody Inventory/Priority Waterbody List (WI/PWL)?
 Yes _____ No _____.

If yes, summarize information available from the Waterbody Inventory Data Sheet in the table below:

Waterbody Name	Classified Use	Use Impairment	Severity (level of impact – threatened, stressed, impaired, precluded)	Pollutants of Concern	Known or Suspected Sources (circle if primary)

D. Identification of Public Drinking Water Sources – NYSDOH Source Water Assessment Report

The New York State Department of Health (NYSDOH) has conducted a susceptibility analysis of each source of water that is used to supply drinking water to the public. *Note: assessment reports were provided to Conservation Districts by the NYSDOH in February 2005 containing assessments for all the public water systems in the county. Since the information used to create these reports is now over 10 years old, Districts may add or delete information related to the “Contaminants of Concern” to reflex current conditions as appropriate.*

Use the table below to summarize the potential sources of contamination for those public water supply sources such as rivers, lakes or reservoirs downstream from the farm or public wells within one mile of the farm that are at risk from agricultural activities.

Source Water Assessment Summary of Significant Findings			
Name of public drinking water supply _____			
Water Source (e.g. spring, well, river, lake, reservoir) _____			
Potential Sources of Contamination	Potential Impacts to Water Source	Contaminates of Concern	Description

Part 2: Farm Soils/Topography

Soils on a farm vary in their ability to transmit water to surface and groundwater sources. The potential for runoff and leaching can be assessed for different soil types by referring to the County Soil Survey/Web Soil Survey <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

If potential ground water concerns were identified in Part 1 of this worksheet there may be a heightened risk of groundwater pollution if soils are farmed that (check below):

- Are glacial outwash or well drained alluvial soils over sand or gravel deposits.
- Are less than 20" to fractured bedrock.
- Contain sinkholes, or are less than 40" deep over limestone.
- Adjacent to/or above the farm's water supply (well or spring).

Or, if surface water concerns were identified in Part 1 there may be a heightened risk of polluting nearby waterbodies if soils are farmed that (check below):

- Have slopes greater than 8 percent, or are highly erodible (HEL) that lack best management practices for controlling surface runoff.
- Are predominately clay soils, or shallow soils over hardpan or unfractured bedrock.
- Have seasonal concentrated flows or conservation practices such as subsurface drainage tile that directly outlet into a waterbody.
- Are seasonally saturated (land capability class 2w or wetter).
- Are within 100 feet of a waterbody.
- Flood frequently (once every 2 years).

Those areas checked above are considered hydrologically active areas. These are areas that can have a high potential for transporting pollutants to surface and groundwater depending on their location (proximity to a waterbody) and type of farming conducted on them.

List areas of the farm to be assessed further based on the results of Part 2 of this worksheet, as these areas of the farm may be hydrologically active and should be a priority for Tier 3 planning: _____

Part 3: Other Natural Resource Concerns/Opportunities

Are there programmatic or additional natural resource concerns or opportunities identified for the watershed or the farm: *(please check or identify)*

- Threatened or endangered species _____
- Invasive species _____
- Air quality non-attainment area _____
- Farmland protection participant _____
- Concentrated Animal Feeding Operation _____
- State or Federally regulated wetland _____
- Certified Organic farm _____
- Other: _____
