Maine Farm-A-Syst

Farmstead Assessment System Worksheet 6

Assessing the Risk of Groundwater Contamination from Household Wastewater Treatment

Why should I be concerned?

Virtually all farms use a septic system or similar onsite wastewater treatment system. While these systems are generally economical and safe, household wastewater can contain contaminants that degrade water quality for such uses as drinking, stock watering, food preparation and cleaning.

Potential contaminants in household wastewater include disease-causing bacteria, infectious viruses, household chemicals and excess nutrients such as nitrate. Viruses can infect the liver causing hepatitis. They can also infect the lining of the intestine causing gastroenteritis (vomiting and diarrhea). If coliform organisms (a group of indicator bacteria) are found in your well water, they show that the water is potentially dangerous for drinking and food preparation. Your septic system is one potential source, along with livestock yards and others.

The goal of Farm-A-Syst is to help you protect the groundwater that supplies the drinking water for you, your neighbors, and the public. It is not used for, nor is it related to, any type of enforcement action from any agency.

How will this worksheet help me protect my drinking water?

- It will take you step by step through your drinking water well condition and management practices.
- It will rank your activities according to how they might affect the groundwater that provides your drinking water supplies.
- It will help you determine which of your practices are reasonably safe and effective, and which practices might require modification to better protect your drinking water.
- **When you see this symbol ! behind any text in the worksheet you will know that it is an illegal activity. Remember this is for your use and will not in anyway lead to enforcement.**
- **Be sure to read the footnotes to see what the *, italicized or bold font means.**

How do you fill out the worksheets?

Focus on the well that provides drinking water for your home or farm. If you have more than one drinking water well on your farmstead, fill out a worksheet for each one.

- Use a pencil. You may want to make changes.
- For each category listed on the left that is appropriate to your farmstead, read across to the right and circle the statement that best describes conditions on your farmstead. (skip and leave blank any categories that don't apply to your farmstead.)
- Then look above the description you circled to find your "Rank number" (4, 3, 2, or 1) and enter that number in the blank under "Your Rank."
- Directions on overall scoring are explained in the next section "What do you do with the rankings?"
- Allow between 20-45 minutes to complete the worksheet to figure out your risk ranking for management practices and complete the Farmstead Improvement Action Plan.

What do you do with the rankings?

Step 1: Look over your rankings for individual activities:

- Low-risk practices (4's): ideal; should be your goal despite cost and effort
- Low-to-moderate-risk practices (3's): provide reasonable groundwater protection
- Moderate-to-high-risk practices (2's): inadequate protection in many circumstances
- High-risk practices (1's): inadequate; pose a high risk of polluting groundwater

Any individual rankings of "1" require immediate attention. Some concerns you can take care of right away; others could be major-or costly-projects, requiring planning and prioritizing before you take action.

Find any activities that you identified as 1's & 2's and list them under "High Risk and Medium-High Risk Practices" in the Farmstead Improvement Action Plan section following the worksheet.

Step 2: Read Fact Sheet # 6, Household Wastewater Treatment, and consider how you might modify your farmstead practices to better protect the publics and your drinking water. This may help with filling out the Farmstead Improvement action Plan.

Step 3: Fill out the Farmstead Improvement Action Plan (FIAP). Contact your local Soil and Water Conservation District for technical assistance and help with the FIAP if needed.

Step 4: Implement the FIAP- Contact NRCS for possible designs and/or funding for practices. Funding availability depends on the practice installed and the current USDA farm programs.

Glossary

Household Wastewater Treatment

These terms may help you make more accurate assessments when completing Worksheet #6. They may also help clarify some of the terms used in Fact Sheet #6.

Approved disposal system: A subsurface wastewater disposal system that meets state standards and is approved by the Department of Human Services, Division of Health Engineering.

Cesspool: Covered excavation in the ground that receives sewage directly from a building's sanitary drainage system. It is designed to retain the organic matter and solids and permit liquid to seep into soil cavities. Cesspools are no longer approved in Maine, but existing, properly functioning cesspools are grandfathered.

Clear water infiltration: Entry of water into a system that does not need treatment, such as rainfall or tile drainage, through unsealed joints, access ports and cracks. It is unwise to allow clear water to enter subsurface wastewater disposal systems.

Design capacity: Maximum volume of liquid that can be treated in a particular wastewater treatment system. For systems that include subsurface wastewater disposal and distribution, capacity is also based on the soil's ability to accept and treat sewage effluent. When filling out the worksheet, if you don't know the design capacity of your system, use 90 gallons per bedroom per day as an estimate.

Effluent: Liquid discharged from a septic tank or other treatment tank.

Holding tank: An approved watertight receptacle for the collection and holding of sewage.

Hydraulic loading rate: The volume of waste discharged per unit area per unit time.

Scum: Floatable solids, such as grease and fat.

Sludge: Settleable, partially decomposed solids resulting from biological, chemical or physical wastewater breakdown.

Worksheet # 6

Household Wastewater: Assessing Drinking Water Contamination Risk

	Low Risk (Rank 4)	Low-Mod Risk (Rank 3)	Mod-High Risk (Rank 2)	High Risk (Rank 1)	Your Rank
Type of Well					
6.1	Drilled well with over 50' of casing.	Drilled well with 25'- 50' of casing.	Drilled well with less than 25' of casing or covered dug well that surface water can not enter.	Dug well that is uncovered and/or is not protected from surface water entry or a shallow point well.	_____
Household Wastewater Treatment System					
6.2 Public sewer	Public sewer systems pose a low risk to groundwater	_____	_____	_____	_____
OR					
6.3 Subsurface wastewater disposal system installed after 1974	Designed by a licensed site evaluator, and permit issued for construction. System properly installed and maintained. *	Designed by a licensed site evaluator, and permitted, but disposal areas installed into sand or gravel deposits without liners. System not properly maintained. *	Designed by a licensed site evaluator but with no permit	Not designed by a licensed site evaluator and with no permit.	_____
OR					

	Low Risk (Rank 4)	Low-Mod Risk (Rank 3)	Mod-High Risk (Rank 2)	High Risk (Rank 1)	Your Rank
Subsurface wastewater disposal system installed before 1974 or not designed by a licensed site evaluator 6.4 Septic tank	Septic tank is properly sized and constructed and is in good working order.	Septic tank is slightly undersized but is in good working order.	Septic tank is undersized, and not in good working order. Not sited on highly permeable soils or shallow to bedrock.	Significantly undersized, a metal tank and not in good working order. Sited on highly permeable soils or shallow to bedrock.	_____
6.5 Type of Disposal Area	Shallow trench or bed that was designed on a percolation (perk) test	Deep trench or bed designed on a perk test.	Cesspool, no perk test.	Unknown age, size, and type of disposal area.	_____
6.6 Horizontal Separation of Wastewater Disposal Area from Water Supply	Subsurface disposal area located greater than 100' downslope from well.	Disposal area located between 25' and 50' downslope or greater than 100' upslope from well.	Disposal area located between 25'-50' downslope or 50'-100' upslope from well.	Disposal area located less than 25' downslope, or less than 50' upslope, from well.	_____
Subsurface wastewater disposal system installed before 1974 or not designed by a licensed site evaluator...continued 6.7 Leach Field Soil Type	Soils that are well drained and have dense restrictive layers.	Soils that are sandy loam textured or finer and have dense restrictive layers, but have a perched water table above the restrictive layer (moderately well drained) at depths greater then 15".	Soils that are sandy loam or finer textured with or without a restrictive layer but with a high seasonal water table of between 7"-15" (somewhat poorly drained), OR, soils which are loamy sand to fine sand in texture, OR any soil which is moderately deep to bedrock (20"-40").	Coarse sands or gravels, OR very shallow to bedrock soils OR soils with a high seasonal water table of less than 7".	_____

** 750 gallons capacity for 1-2 bedrooms, 1000 gallons capacity for 3-4 bedrooms, ad 250 gallons additional capacity for each bedroom over 4.

	Low Risk (Rank 4)	Low-Mod Risk (Rank 3)	Mod-High Risk (Rank 2)	High Risk (Rank 1)	Your Rank
Maintenance					
6.8 Tank pumped	Pumped every 3-5 years. Inspected when pumped.	Pumped every 5-10 years. Inspected when pumped.	Pumped only when necessary. Not inspected.	Tank never pumped or inspected.	_____
Quality of Wastewater					
6.9	Minimal use of household chemicals. No disposal of solvents and toxic cleaning agents (including septic tank cleaners). No water softener, or not recharged on site.	Careful use of household chemicals. No disposal of solvents and toxic agents (including chemical septic tank cleaning agents). No water softener, or not recharged on site.	Moderate use of household chemicals. *Some disposal of solvents and toxic cleaning agents, including chemical septic tank cleaners.*	Extensive use of household chemicals. *Moderate to extensive disposal of solvents and toxic cleaning agents.*	_____

Only Italicized Type in the sections with represent a higher-risk choice, this practice also violates Maine law.

Farmstead Improvement Action Plan

Here is where you will use the numbers under the "Your Rank" column of the worksheet. Everything that was marked with a 1 or 2 should have an action plan to come up with an alternative low risk practice. There is an example provided in the first row below.

Worksheet Section #	List High Risk and Med-High Risk practice(s)	Alternative Low Risk practice (Include potential sources of technical and financial assistance.)	Action Plan	
			Planned completion date	Indicate date when completed

Worksheet Section #	List High Risk and Med-High Risk practice(s)	Alternative Low Risk practice (Include potential sources of technical and financial assistance.)	Action Plan	
			Planned completion date	Indicate date when completed

Worksheet Section #	List High Risk and Med-High Risk practice(s)	Alternative Low Risk practice (Include potential sources of technical and financial assistance.)	Action Plan	
			Planned completion date	Indicate date when completed

I understand that this farmstead assessment (Farm-A-Syst) and corresponding Farmstead Improvement Action Plan were developed on the basis that I have disclosed, to the best of my knowledge, all information pertaining to my farmstead operations.

Farmstead address:

Street _____

City _____ ME, Zip code _____

Watershed name: _____

___ Aerial map with farmstead boundaries is attached

Producer's signature _____

Date ____/____/_____

Farm-A-Syst conducted by:

Name _____

Title _____ Date ____/____/_____

Acknowledgments

Update by Androscoggin Valley Soil & Water Conservation District partnered with Maine CDC Drinking Water Program. 2007-2008.

Revision Editors of Farm-A-Syst Worksheet #6: Megan Wooster, AVSWCD; Susan Gammon, AVSWCD; Andrews Tolman, State of Maine CDC Drinking Water Program; David Rocque, Maine Soil and Water Conservation Commission; Susan Brea-Kelley, Maine Rural Water Association. 2008.

Original Farm-A-Syst team members: John M. Jemison, Jr., University of Maine Cooperative Extension; Marianne DuBois, Maine Department of Environmental Protection: Tammy Gould. Board of Pesticides Control; Chris Jones, Natural Resources Conservation Service; Lisa Krall, Natural Resources Conservation Service; Craig Leonard, Maine Department of Agriculture; Craig Neil, Maine Geological Survey; David Rocque, Maine Soil and Water Conservation Commission; and David Lytle. University of Maine Cooperative Extension. Original Worksheet #6 Adapted by David Rocque, Maine Soil and Water Conservation Commission. 1995.