INFOSHEET #11

MILKING CENTRE WASHWATER

How to address concerns identified in your Environmental Farm Plan Worksheet #11

environmental farm plan
sustainably farmed

Based on Environmental Farm Plan Workbook, 4th ed. 2013

This infosheet outlines options to address concerns identified in your Environmental Farm Plan (EFP) as they relate to milking centre washwater.

All options are classed as **Actions**, **Compensating Factors**, or **Monitoring**.

- **Actions** address the identified concern, and will change the EFP rating to (3) or (4) Best.
- **Compensating Factors** are alternatives that will adequately address the concern, but will not change the rating in the EFP worksheet
- **Monitoring** is an alternative in special circumstances only. When and how monitoring can be used is explained in the infosheet.

In most cases, you'll need more information before choosing and implementing options. Sources for more information are noted at the end of this infosheet.

For help with technical terms, see the full Glossary in your EFP Workbook.

Sustainable Canadian Agricultural Partnership
Ontario
Canada

PRETREATMENT OF WASHWATER

11–1. Milking centre cleanup

BACKGROUND	WHAT CAN YOU DO?
If manure, spilled feed, or any other solids are not cleaned off the milking centre floor before washing, they will be carried down the drain with the washwater. The solids could overload the septic system sediment tank and be carried to the septic treatment trench system – building up in the tiles to the point of clogging and causing system failure. (This is not a concern where washwater is directed to a liquid manure or runoff storage.)	**OPTION 1 – ACTION** **Remove all manure, spilled feed, or any other solids from the milking centre floor before washing.**

Before washing the milking centre floor, clear the solids away with a shovel and broom.

11–2. Water volume used in milking centre

BACKGROUND	WHAT CAN YOU DO?
Routinely keeping water use to a minimum in the milking centre saves money and maintenance, and protects water resources. Excessive water use increases energy and chemical costs. It also puts unnecessary demand on the milking centre washwater storage, and may mean a larger storage is required. Also, if too much washwater needs to be processed in a sediment tank and treatment trench system on a daily basis, the system can become flooded, quit working, and possibly contaminate ground water.	**OPTION 1 – ACTION** **Reduce the amount of water used for milking centre cleanup to less than 18 L (4 gallons) per cow per day:** • evaluate and record amount of water used • use an energy-conservation sink to reduce water use by as much as 45% • clean up the milking centre floor with a shovel and broom rather than trying to do it all with water • always be careful to use enough water to ensure proper cleaning of the milking system.

By using an energy conservation sink, you can reduce water use by as much as 45%.

11–3. Water treatment

BACKGROUND	WHAT CAN YOU DO?
To safeguard water quality, water softener and other types of water treatment systems should be inspected and serviced on an established schedule. Dairy equipment supply technicians are a good resource for solving water quality issues. Be aware that no one type of treatment will handle all concerns. In many cases, diligent monitoring will be required to maintain water quality.	**OPTION 1 – ACTION** **Schedule annual inspections and servicing of water softener and other types of water treatment systems by a qualified water technician.** **Reuse and/or recycle discharge water, but not through the septic system:** • in some cases, directing the discharge to a liquid manure storage or a runoff storage dedicated to that purpose is an acceptable solution.

Water softener and other types of water treatment systems need to be inspected and serviced annually.

11–4. Use of chemical cleaners and sanitizers

BACKGROUND	WHAT CAN YOU DO?
Water hardness can change over time, and automatic cleaning equipment can go out of calibration. Water should be tested periodically to determine optimum chemical balance. Equipment should be tested to determine whether it is performing correctly.	**OPTION 1 – ACTION** **Check water hardness and cleaning equipment calibration on an established schedule, and adjust as needed:** • test your water every six months • have a qualified person check the chemical balance and at the same time adjust the automatic dispensers to deliver the required input.

Excessive chemical use is expensive. Testing water and checking equipment can save money.

11–5. Method of storage/disposal

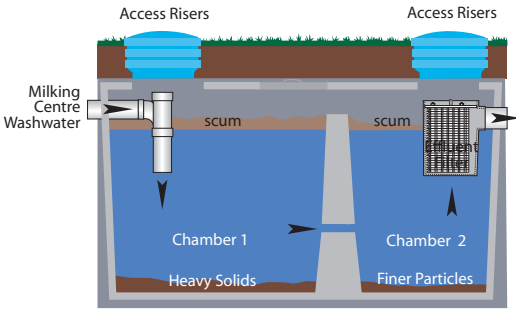
BACKGROUND	WHAT CAN YOU DO?
Milking centre washwater must be stored in a suitable liquid manure storage, separate storage, or runoff storage until it is spread on the land. Otherwise, it can be disposed of in a properly designed sediment tank and treatment trench system, or in an alternative approved treatment system such as a constructed wetland.	**OPTION 1 – ACTION** **Store the washwater in a liquid manure storage, separate storage, runoff storage, or anaerobic digester:** • make sure the storage has adequate capacity to contain both the manure and milking centre washwater. **OPTION 2 – ACTION** **Treat the washwater in the sediment tank and treatment trench system or other approved treatment system:** • remove first rinse of the milking system and feed it – otherwise it could clog the treatment trench system • clean milking centre floor with a shovel and broom to remove solids prior to washing it down.

Disposal of washwater in liquid manure storage with adequate capacity is a practical solution.

DISPOSAL BY SEDIMENT TANK AND TREATMENT TRENCH SYSTEM

11–6. Design and age of system

BACKGROUND	WHAT CAN YOU DO?
A treatment trench system consists of a sediment tank and a series of adjoining trenches. The sediment tank settles out any solids that may be washed down the drain, and breaks them down through anerobic digestion. This prevents clogging of the distribution system (weeping tile) in the trenches. The distribution system applies the liquid (effluent) from the sediment tank over a large area to allow it to percolate into the soil. Bacteria in the soil further break down contaminants in the liquid. If saturated soil or bedrock is too close to the bottom of the distribution system, pollutants can enter ground water before they are treated sufficiently. There must be sufficient depth between the bottom of the trench and saturated soil to allow for drainage of the treated effluent. Otherwise, the system could become flooded and quit working. If the system is properly installed and inspected and properly maintained, it should work trouble-free for many years.	**OPTION 1 – ACTION** **When the system is installed, have it inspected and approved by the municipal building inspector.** **Carefully maintain the system:** • watch for any early sign of failure such as water accumulating on the soil surface above any of the treatment trenches.



The sediment tank should be pumped when it is two-thirds full of settled solids.

11–7. Milking system cleanup

BACKGROUND	WHAT CAN YOU DO?
The first-rinse water from a milking equipment wash cycle usually contains a high percentage of milk. A small amount of milk entering a sediment tank and treatment trench system daily will plug the septic tiles in a matter of months or even weeks, leading to failure of the system. Therefore it is important to keep the first rinse out of the sediment tank and treatment trench system. (This will not be a concern if the washwater is being directed to a liquid manure or runoff storage.)	**OPTION 1 – ACTION** **Remove first rinse from the milking equipment wash cycle:** • use it to replace water in the milk replacer formulations, or feed it to calves that are older than normal weaning age. Note that this liquid is very low in nutrients: never substitute first-rinse water for milk. **OPTION 2 – ACTION** **Store all first-rinse water for later application to crop fields.**

The first rinse from a milking equipment wash cycle can be used to replace water in the milk replacer formulations fed to calves.

11–8. Sediment tank design and maintenance

BACKGROUND	WHAT CAN YOU DO?
The size of the sediment tank and the frequency with which it is emptied are two key factors in how well the treatment trench and sediment tank system will function. If the tank is too small, washwater is not in the tank long enough to allow the sediment to settle out. The same thing can happen if the tank becomes full of sediment, thus reducing the available volume of the tank. If the tank does not have the proper baffles or T connections, sediment could also enter the septic tile and block the lines.	**OPTION 1 – ACTION** **Replace the existing tank with a standard two-compartment septic tank with capacity for at least four days' production of washwater.** **Clean out sediment tank at least once per year:** • at cleanout time, check that the baffle and T connections are in place and functioning properly to prevent scum from entering the tile and clogging the system.

11–9. Access to treatment trench area

BACKGROUND	WHAT CAN YOU DO?
Vehicle and animal traffic over treatment trenches can compact the soil, which will slow drainage of washwater from the treatment trench – possibly leading to flooding of the tile bed. In extreme cases, vehicle traffic may cause breakage of the distribution system, leading to total system failure.	**OPTION 1 – ACTION** **Restrict access to the treatment trench area:** • fence off the treatment trench area from livestock and vehicles.

This treatment trench area will be fenced off from livestock and vehicles once installation is complete.

11–10. Visual signs of performance

BACKGROUND	WHAT CAN YOU DO?
If the ground over the treatment trenches is wet and spongy, or if there is a noticeable odour, too much washwater is wicking to the surface instead of draining downward. These are indications that the system is not functioning properly – due to poor drainage beneath the tile bed, a saturated treatment bed, or a clogged or broken tile. This situation needs to be investigated and remedied as soon as possible.	**OPTION 1 – ACTION** **Investigate signs of trouble and take corrective measures as soon as possible:** • to help you determine what is contributing to the problem, review all of the previous options in this infosheet that deal with management, design and construction of the sediment tank and trench system.

11–11. Distance from sediment tank and treatment trench to nearest surface water

BACKGROUND	WHAT CAN YOU DO?
All sediment tank and treatment trench systems must be properly located in relation to surface water to reduce the risk of surface water contamination. Any outbreak of wastewater to the ground surface has the potential of reaching surface water. Legislation stipulates minimum separation distances between washwater treatment systems and surface water.	**OPTION 1 – ACTION** **Relocate the sediment tank and treatment trench system the required distance from surface water:** • distance must be more than 15 m (50 ft) • the new location should account for site-specific soil type and topography • the new treatment trench system location should change the final EFP distance rating to a (3) or (4) Best. **OPTION 2 – MONITORING** For existing sediment tank and treatment trench systems in good working condition: • monitor the sediment tank and treatment trench system regularly for surface outbreaks, odours, wet ground conditions over the bed, or the backup of effluent.

11–12. Distance from sediment tank and treatment trench to the well

BACKGROUND	WHAT CAN YOU DO?
Sediment tank and treatment trench systems must be properly located in relation to water wells to reduce the risk of water well contamination. This question addresses the level of natural protection provided by the soil around the well and well location relative to the treatment trench system. Where a high potential for contamination currently exists, more drastic actions may have to be carried out. Legislation stipulates minimum separation distances between each type of well and the sediment tank and the treatment trench system components.	**OPTION 1 – ACTION** **Relocate the sediment tank and treatment trench system the required distance from the well:** • the new sediment tank and treatment trench location should change the final EFP distance rating to a (3) or (4) Best • well water should be tested for indicator bacteria at least three times a year, and once a year for other parameters such as nitrate until the new sediment tank and treatment trench are installed. **OPTION 2 – ACTION** **Drill the new well the required distance from the sediment tank and treatment trench system:** • the new well location should change the final EFP distance rating to a (3) or (4) Best • the old well must be properly decommissioned. **OPTION 3 – MONITORING** For existing sediment tank and treatment trench systems in good working condition: • test the well water for indicator bacteria at least three times a year and once a year for other parameters such as nitrate • have a plan in place in case water test reveals water well contamination – e.g. shocking the well, installing water treatment equipment • if you have an EFP rating of (1), contact your municipal building inspector for further guidance. Note that monitoring of well water is not a complete solution – resolving problems may require replacement of sediment tank and treatment trench system, etc.

A drilled well must be at least 15 m (50 ft) from a treatment trench.

ALTERNATIVE TREATMENT SYSTEMS

11–13. Alternative treatment options

BACKGROUND	WHAT CAN YOU DO?
Several other options are possible for the treatment of milking centre washwater. These systems have to be designed for specific conditions on site. Before proceeding with one of the alternatives, investigate it fully to make sure it will do the job.	**OPTION 1 – ACTION** **Construct and install the most appropriate alternative system:** • aerobic treatment unit (ATU) • vegetative filter strip • constructed wetlands. **Be sure to obtain building permits and any other approvals.**

Constructed wetlands may be a treatment option. They must be properly designed for specific conditions on site.

Best Management Practices publications present in-depth explanations, tips and advice for Ontario farmers.

FOR MORE INFORMATION

Ontario Ministry of Agriculture, Food and Rural Affairs

Many sources of supplementary information are available. Below are some suggestions to get you started. Most can be found online at **www.ontario.ca/omafra** or ordered through ServiceOntario.

Handling Milking Centre Washwater in an Environmentally Responsible Manner – Order no. 11-039

Rural Septic System Checklist – Order no. AF144

BEST MANAGEMENT PRACTICES

BMP publications are excellent sources to better understand on-farm environmental issues and discover a range of proven, practical options to address them. BMP publications are available at no charge to Ontario farmers. Below are a few sample titles. To order, see ServiceOntario information.

A Phosphorus Primer

Controlling Soil Erosion on the Farm

Cropland Drainage

Manure Management

Water Management

Water Wells

Inquiries to the Ontario Ministry of Agriculture, Food and Rural Affairs

Agricultural Information Contact Centre

Ph: 1-877-424-1300

Email: ag.info.omafra@ontario.ca

Web: **www.ontario.ca/omafra**

Order through ServiceOntario

Online at ServiceOntario Publications – **www.ontario.ca/publications**

By phone through the ServiceOntario Contact Centre

Monday–Friday, 8:30 am–5:00 pm

416-326-5300

416-325-3408 TTY

1-800-668-9938 Toll-free across Ontario

1-800-268-7095 TTY Toll-free across Ontario

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