environmental farm plan
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INFOSHEET #11

MILKING CENTRE WASHWATER

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

Based on Environmental Farm Plan Workbook, 5th ed. 2025

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

All options in this infosheet 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, please see the full glossary in your EFP Workbook.

Sustainable Canadian Agricultural Partnership
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PRETREATMENT OF WASHWATER

11-1. Milking centre cleanup

BACKGROUND

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's 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.)

Removing manure and any solids from holding area and parlour floor prior to hosing reduces volume of water required to clean the floor.

WHAT CAN YOU DO?

OPTION 1 – ACTION

Remove all manure, spilled feed, or any other solids from the holding area and milking centre floor before washing.

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

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

11-2. Water volume used in milking centre

BACKGROUND

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 require a larger storage. If a sediment tank and treatment trench system are used, too much washwater volume can result in the system becoming flooded, failing and contaminating groundwater.

WHAT CAN YOU DO?

OPTION 1 – ACTION

Reduce the amount of water used for milking centre cleanup to less than 18 L (4 gallons) per cow per day:

- have a professional assess and calibrate your washing system equipment to ensure you are using the correct volume of water and chemicals
- 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

11-3. Water treatment

BACKGROUND

To safeguard water quality, water softeners 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.

Diligent monitoring will be required to maintain water quality.

WHAT CAN YOU DO?

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.

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

11-4. Use of chemical cleaners and sanitizers

BACKGROUND

Water hardness can change over time, and automatic cleaning equipment can go out of calibration. Water should be tested at least once per year to determine optimum chemical balance. Equipment should be tested to determine whether it is performing correctly.

WHAT CAN YOU DO?

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

11-5. Method of storage or disposal

BACKGROUND

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.

WHAT CAN YOU DO?

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 a sediment tank and treatment trench system, or in another treatment system approved under the Building Code or by the Ministry of the Environment, Conservation and Parks (MECP):

- remove the first rinse of the milking system and feed it to livestock – 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

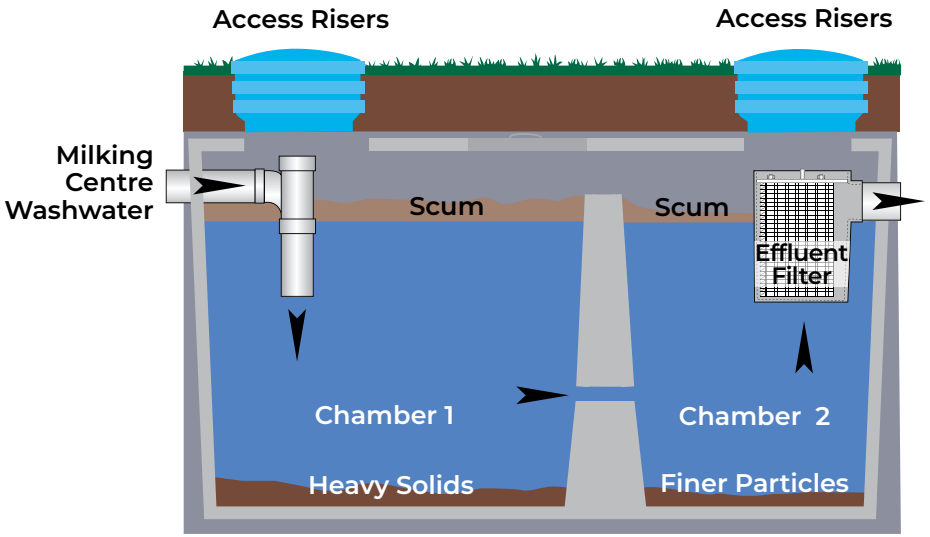
BACKGROUND

A treatment trench system consists of a sediment tank and a series of adjoining distribution 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 groundwater 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 designed, installed, inspected and properly maintained, it should work trouble-free for many years.



Pump the sediment tank when it is two-thirds full of settled solids.

WHAT CAN YOU DO?

OPTION 1 – ACTION

When the system is installed, have it inspected and approved by the appropriate approval authority (e.g., health unit or building official).

Maintain the system:

- ensure the vegetation above the leaching bed is maintained (e.g., mowed)
- has a good cover of grass or very shallow rooted plants over the leaching bed
- watch for any early sign of failure such as water accumulating on the soil surface above any of the treatment trenches, or water breakouts down-gradient of the distribution system, which can result in wet or soggy areas

11-7. Milking system cleanup

BACKGROUND

The first-rinse water from the 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. It is important to keep the first rinse out of the sediment tank and treatment trench system.

WHAT CAN YOU DO?

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

A building permit from the local authority (e.g., municipality, health unit) is required to build/install a septic system. Hire an experienced professional (engineer, septic contractor) to design and install a septic system.

The size of the sediment tank and the frequency 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 doesn't remain in the tank long enough (short retention time) to allow the sediment to settle out. If the tank becomes full of sediment, it also reduces the retention time.

If the tank does not have the proper baffles or T connections, sediment could enter the septic tile and block the lines.

There are regulatory requirements under the Ontario Building Code for designing and installing a septic system. An effluent filter is required in every septic tank to prevent suspended solids from entering the leaching bed.

WHAT CAN YOU DO?

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 baffles and T connections are in place and functioning properly, and clean the effluent filter. This will reduce scum and sediment from entering the tile and clogging the system.

11-9. Access to treatment trench area

BACKGROUND

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.

WHAT CAN YOU DO?

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

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, this indicates that the system is not functioning properly.

A malfunctioning system may occur because of 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.

WHAT CAN YOU DO?

OPTION 1 – ACTION

If you observe wet and spongy ground or a noticeable odour:

- excavate a test pit in the treatment trench area to help you determine what is contributing to the problem
- take corrective action to fix the problem

LOCATION OF SEDIMENT TANK AND TREATMENT TRENCH SYSTEMS

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

BACKGROUND

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 release 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.

WHAT CAN YOU DO?

OPTION 1 – ACTION

Relocate the sediment tank and treatment trench system the required distance from surface water:

- distance must be more than 60 m (200 ft.)
- the new location should account for site-specific soil type and topography

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 releases, 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

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.

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

WHAT CAN YOU DO?

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

Construct 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 impacted well water is not a complete solution – resolving problems may require replacement of sediment tank and treatment trench system, etc.

11-13. Alternative treatment system

BACKGROUND

Several other options are possible for the treatment of milking centre washwater. These systems must be designed for specific conditions on site. Investigate options before proceeding with one to ensure it will perform adequately.

WHAT CAN YOU DO?

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, MECP approvals such as an Environmental Compliance Approval (ECA), and any other approvals.

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

FOR MORE INFORMATION

ONTARIO MINISTRY OF AGRICULTURE, FOOD AND AGRIBUSINESS (OMAFA)

- Agricultural Information Contact Centre (AICC)
  Toll free: 1-877-424-1300 | e-mail: ag.info.omafa@ontario.ca

  Find most of the resources listed below at www.ontario.ca

Factsheets

- Handling milking centre washwater
- Milking centre design and construction for parlour milking
- Planning and building a goat milk house
- Water management in agriculture

Best Management Practices Series

- Septic Smart
- Water Management
- Water Wells
- Phosphorus Primer
- Cropland Drainage

AgriSuite

- Nutrient storage facility sizing tool
- Nutrient management strategy & plan (NMS&P) tool

LEGISLATION/ACTS

- Nutrient Management Act, 2002
- Ontario Water Resources Act, 1990
- Ontario Building Code
- Ontario's Code and Guide for Sewage Systems, 2024
- Environmental Protection Act, 1990, Part V
- Fisheries Act, 1985