TREATING WASTEWATER IN THE NORTH

Samples are taken and tested all through the system and before releasing anything to the environment.

Lagoon

Make sure there is at least 1 metre of space between the wastewater and top of the lagoon.

Wastewater brought in trucks or pipes.

� ODOR
� BLOCKED OUTLETS
� CRACKED BERM

"What's going on in there?"

Inspection and monitor for:

- Damage to signs, fences, and truck area.
- Blocked outlets.
- Odors, superficial lifting.
- Colours change.
- Floating debris.
- Signs of leaks.

Report and fix.

Properly treated effluent is returned to the environment.

Wastewater rests in lagoon.

"What's going on in here?"

Lagoon

Particles sink to the bottom of the lagoon and become sludge.

Effluent is "decanted" from the lagoon to the wetland, usually by pump or siphon.

Wetland

Slowed by plants and soil, the water flows through wetland while being treated naturally.

Water is filtered by the soil, grasses and other plants.

WasteWATER DEPOSITED IN LAGOON

Particles sink to the bottom of the lagoon.

"What's going on in there?"

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REPORT AND FIX

MAKE SURE THERE IS AT LEAST 1 METRE OF SPACE BETWEEN THE WASTEWATER AND TOP OF THE LAGOON

NUTRIENTS ABSORBED
- By plants
- Into soil and sediment
- By microbes

Water is filtered by the soil, grasses and other plants.

"What's going on in here?"

Wetland

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WASTEWATER

Northern context

Wastewater is any water used in a home, business, or industry. Greywater comes from sinks, showers, washers, etc. Blackwater comes from toilets. In most systems, these two get mixed together into regular sewage. We need to treat wastewater before it goes back into the environment, to prevent polluting the land and water. The best wastewater treatment systems take into account the unique challenges of the north.

NORTHERN CHALLENGES

- Small, isolated communities
- Extremely cold climate
- Limited, even no, local and human resources
- Bedrock and permafrost
- Evacuating waste treatment systems have to make changes for the changing climate, and any new wastewater systems will need to take these changes into account.

SOME EFFECTS OF CLIMATE CHANGE

- More rain and snow
- Increased risk of flooding
- Faster erosion and rising sea level
- Thawing permafrost
- Changes to groundwater flow

MANTAIN THE SYSTEM

What and when to monitor

- Every day during discharge
  - Check outlets for erosion or blockage
- Once a week during ice-free time
  - Remove floating debris, algae, and plants
  - Track water levels. Let someone know if there is less than 1m of room from water surface to lagoon edge
- Once a year
  - Check berms for leaking
  - Check signs, fences, and truck areas for damage
  - Remove large vegetation
  - Remove any non-sewage waste
  - Check berms, dams, and levees. Look for erosion, cracking, slumping, and lifting
- Every 5 years
  - Measure depth and quality of sludge

MANAGING SLUDGE

Sludge builds up over the years

As more and more waste material settles to the bottom of a lagoon, it will start to reduce the lagoon’s storage space and negatively impact the effluent quality.

- Measure the depth and quality of sludge every five years and make a plan to remove it if its causing major impacts to the effluent quality and storage capacity. Sludge should be put in a landfill or processed into biosolids. Biosolids can be used in revegetation projects or as a landfill cover material if it meets quality standards.

SELECTING A NEW SITE

Plan for capacity needs

- When looking for a site, it is important to do some planning.
- The regional land and water boards should be identified and consulted early on in the process of planning a new wastewater treatment area. Other municipal, territorial, provincial, and federal regulations may apply.
- Community consultation should be part of all stages of development, including the collection of background mapping, identifying potential sites, and determining the objectives of the wastewater treatment system.

CONSIDER WHEN SELECTING A SITE

- Impacts of climate change
- Important local areas
- Clutter and visibility
- Impacts on fish, birds, and other wildlife
- Distance to drinking water sources
- Distance to airports
- Ground conditions
- Identify a site that will be able to hold wastewater. ASHGO production for up to 15 months. Account for snow, ice, snow, potential flooding as well as sludge accumulation.

LEARN THE LINGO

Lagoon, effluent, wetland, sludge

A sewage lagoon is a large pond that holds and treats wastewater. It is the first step in the wastewater treatment system, and primarily uses gravity to settle out solids. Wastewater enters the lagoon from the septic system through a pipe or from a truck.

Waste material that settles to the bottom of a lagoon is called sludge. When it builds up, there is less space in the lagoon and the treatment process doesn’t work as well.

After the sewage lagoon, wastewater is released into a wetland treatment area. This wetland is usually a shallow lowland close to the sewage lagoon, made to remove organic material and settle out more solids from the wastewater.

Treated wastewater flows from a wetland into the receiving environment - the natural surrounding lands and water.

Water released from lagoons and wetlands is called effluent. It’s important to make sure things are working properly and limit pollution.

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ECOLOGY NORTH

1-867-873-8091, www.ecologynorth.ca

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