

Wastewater Lagoon Cleanout

How do they do that?
Why is it important?

Aerated Lagoons 101

Vermont has about 25 aerated lagoon facilities that treat municipal wastewater. The two major products of this wastewater treatment process are (1) the treated wastewater and (2) biosolids (or sludge) that accumulates on the lagoon bottoms.

The treated wastewater is continuously discharged from the lagoon system after being disinfected. The discharge must meet rigid standards contained in either an indirect or a direct discharge permit issued by the Wastewater Management Division.

The biosolids are allowed to accumulate on the bottom of the lagoons. The thickness of the biosolids layer is measured in the spring and fall to track how fast it is accumulating. Eventually, this monitoring will indicate the layer is getting so thick that the biosolids will soon be adversely impacting the wastewater treatment process. If the biosolids aren't removed, the quality of the treated wastewater will not meet the permit standards. Cleanouts generally occur every seven to ten years and are planned for early fall when the water temperatures are lower and the level of the receiving waters are high.

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Lagoon Before Cleanout



Cleanout Preparation

The permittee must obtain an emergency pollution permit in order to lower the water level of the lagoons and to cover any potential permit violations which may be reasonably expected during a cleanout. Depending on how the biosolids will be managed, the permittee must also have either an approved sludge management plan (for disposal) or a solid waste certification from the Residuals Management Section of the Wastewater Division if the biosolids will be applied to agricultural lands. A certification requires the biosolids to be sampled and analyzed just prior to the cleanout. When the biosolids are being disposed of via land application, it specifies the location and the application rate.

A manure pump is brought to the lagoon to mix hydrated lime into the biosolids. The lime stabilizes the biosolids to reduce disease causing pathogens (bacteria) to a safe level and to reduce odors.



Wastewater Management Division's Paul Olander (in the pond) and Chuck Kellogg, former Benson Selectman, moving stabilized biosolids to the manure pump intake

The Cleanout

After the lagoon water level has been dropped down close to the biosolids blanket, the lime is mixed into the solids using the manure pump. After testing shows lime stabilization has occurred, the biosolids are pumped into a tanker truck. The tanker truck then spreads the stabilized biosolids onto the surface of the approved land parcel being careful not to exceed the approved application rate. Alternatively, the biosolids can be dewatered and disposed in a landfill.

The lagoon's aeration system is usually refurbished after the biosolids have been removed. Finally, the wastewater is once again let into the clean lagoon to be treated and the facility returns to its day-to-day operations.

Tanker Truck Land Applying the Biosolids



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Lagoon After the Cleanout





We offer our sincere thanks to the wastewater treatment facilities operators and our staff for completing these unpleasant, but very necessary projects to protect our environment.

Thank you.

