

Spring Biosolids Symposium Economics of Septage

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Plover
Wastewater
Utility





Topics

- How treatment facilities are designed
- Impacts of treating septage
- Why the rates are different



Types of Treatment Facilities

- Pond / Lagoons
- Recirculating sand filters
- Mechanical plants
 - Activated sludge
 - Trickling filters
 - Sequencing batch reactors
- **Different treatment systems have different abilities to treat septage**



DNR Permits

- State licenses facilities to discharge
- State sets limits on allowable discharges to receiving streams
- Permits commonly contain limits on Suspended Solids (TSS), Biochemical Oxygen Demand (BOD), phosphorus, and ammonia
- Monitor for potential future limits (Hg, Chlorides, PFOS/PFAS)



Treatment Facility Design

- Based on population and industrial contributions
- Based on the anticipated flow and loading of the **sewered** community over 20 year period
- Based on required level of treatment, which varies by community
- Based on available land/site restrictions




Treatment Facility Design

Treatment facilities are tailored to each community's needs and requirements



Capacity

- Treatment facilities are rated for the amount of volume, BOD, TSS, and etc
- Capacity is usually proportionate to community size
- Communities with industry usually need more capacity
- Communities may have large seasonal changes in daily flow and loading



No two treatment
facilities are the
same!!

Typical Wastewater / Septic Tank Waste Comparison

	Residential Wastewater	Septic Tank	
BOD	250 mg/l	6,500 mg/l	26x
TSS	250 mg/l	13,000 mg/l	52x
PO4	8 mg/l	210 mg/l	25x
NH3	20 mg/l	97 mg/l	5x



Impact of Septage

2,000 gallons of septic tank waste is equivalent to the wastewater generated by 800 people* in one day.

*based on suspended solids

Impact of Septage

Average Flow	150,000 GPD	5 million GPD
Population Equiv	1,200 people	40,000 people
2000 g. Septage Equiv	800 people	800 people
Impact, % Pop.	67%	2%



Shock Loading

- High volume discharges can overwhelm tanks and equipment
- High organic strength waste can overwhelm **biological** processes



Impact of Debris

- Large facilities usually have mechanical equipment which is better suited to remove heavy concentrations of debris
- Smaller facilities have limited or no mechanical equipment to remove debris



Facility Operational Restrictions

- Ability to treat
- Available capacity
- System upsets - whether or not related to septage
- Operator **must** meet permit limits regardless of source of wastewater
- Available manpower
- Facility layout/access
- Operator attitude

Where Does the Rate Come From?





Reasons for Differences in Rates

- No two facilities are alike
- Age (i.e. debt load)
- Economies of scale
- Labor saving design/equipment
- Community's philosophy to encourage or discourage acceptance
- Guidance in WI DNR Chapter 281.49



Concerns of Operators

- Fear of plant upsets
- Leaving a mess
- Not paying bills on time
- Cheating
 - Volume recorded
 - Passing septage off as holding tank
 - Fly by nights



Concerns of Haulers

- Cost
- Limitations/restrictions
- Want to get in and out quick
- Extended hours access
- Convenient truck accommodations



Priorities of Sewered Communities

- Serve connected customers at the lowest reasonable cost
- Meet all regulatory requirements
- Preserve capacity for community expansion



Benefits for Facilities and Haulers

- Make use of unused capacity at facility
- Generate revenue for facilities
- Haulers can service customers during poor field conditions
- No land spreading complaints
- Perceived as a better environmental alternative

Time for Quiet Reflection

