
# Top Wastewater Treatment Myths

Jonathan Kaiser

Ashley Donnelly

November 1, 2022


# Top Wastewater Treatment Myths

Jonathan Kaiser

Ashley Donnelly

November 1, 2022

DISCLAIMER:
Materials being presented represent our own opinions and do NOT reflect the opinions of NOWRA.

# MYTH 1

Septic Odors from a Treatment Tank are Normal.

https://www.frontrangeseptic.com/causes-septic-tank-odor/

Question:

What are common reasons for septic odors?

- Overload of organic loading
- Hydraulic overloading
- Broken airline
- Certain household cleaners

# Reasons for Treatment Tank Orders

- Investigate Design, Installation, and Settling
  - Incorrect venting location, broken airline, I&I
- Hydraulic/organic overloading
  - Higher flow rates than system can handle, garbage disposal, homeowner abuse
- Homeowner Abuse
  - Inorganics, harmful cleaners, pharmaceuticals
- Area-Specific Factors
  - Sulfides



https://www.nationsonline.org/maps/USA/Missouri_map.jpg

# MYTH 2

You can Size any Treatment System Based on Hydraulic Loading Alone.

# Why Organic Loading is Also Important

- Not all influent is the same.
- For commercial systems, actual flow is typically closer to design flow.

# MYTH 3

Bacteria and Additives are Needed to Start up a Treatment System and Keep it Running

Question:

Which Treatment Technology Most Often Needs Seeding for Startup?

- Extended Aeration
- Fixed Film
- Moving Bed Biofilm Reactor (MBBR)
- Membrane Bioreactor (MBR)

# MYTH 4

## NSF-Certified Treatment Units can be Used for Commercial Applications

# NSF/ANSI Standard 40 Testing

- Residential strength wastewater treatment systems.
- Treatment capacity: 400 – 1,500 gpd
- 6-month test
  - 16 weeks design loading
  - 7.5 weeks stress/design loading (power failure, laundry, vacation, etc.)
  - 2.5 weeks design loading
- cBOD5: 25 mg/l 30-day average
- TSS: 30 mg/l 30-day average
- pH: 6.0 – 9.0

# MYTH 5

NSF Testing is not Difficult and not a Good Indicator of System Performance.

# NSF/ANSI Standard 40 Testing

- Residential strength wastewater treatment systems.
- Treatment capacity: 400 – 1,500 gpd
- 6-month test
  - 16 weeks design loading
  - 7.5 weeks stress/design loading (power failure, laundry, vacation, etc.)
  - 2.5 weeks design loading
- cBOD5: 25 mg/l 30-day average
- TSS: 30 mg/l 30-day average
- pH: 6.0 – 9.0

# Rigorous Testing

- System sees full hydraulic load every day
- According to census from 1990:
  - Each person in the US generates between 45 to 70 gpd of domestic wastewater.
- Testing provides a big safety factor!

https://www.epa.gov/sites/default/files/2015-06/documents/2004_07_07_septics_septic_2002_osdm_all.pdf

# MYTH 6

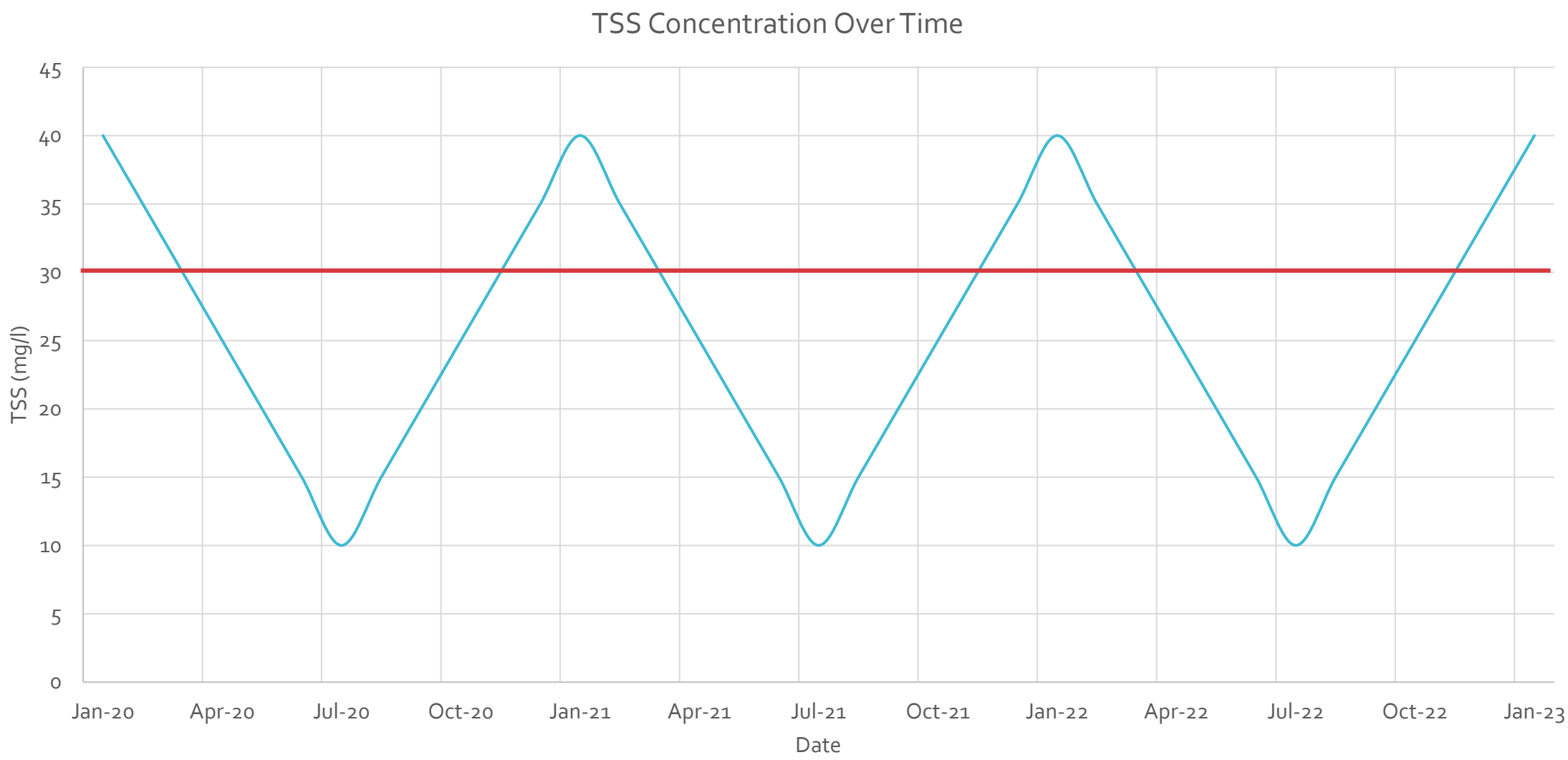
# Treatment Units Designed to a Certain Treatment Level Always Meet Those Levels


https://www.rshydro.co.uk/water-quality-monitoring-equipment/water-quality-testing-equipment/wastewater-samplers/portable-water-sampler/isco-3710-portable-composite-sampler/

https://www.scientificamerican.com/article/wastewater-monitoring-offers-powerful-tool-for-tracking-covid-and-other-diseases/

# NSF/ANSI Standard 40 Testing

- Residential strength wastewater treatment systems.
- Treatment capacity: 400 – 1,500 gpd
- 6-month test
  - 16 weeks design loading
  - 7.5 weeks stress/design loading (power failure, laundry, vacation, etc.)
  - 2.5 weeks design loading
- cBOD5: 25 mg/l 30-day average
- TSS: 30 mg/l 30-day average
- pH: 6.0 – 9.0


TSS Concentration Over Time
TSS (mg/l)
45
40
35
30
25
20
15
10
5
0
Jan-20
Apr-20
Jul-20
Oct-20
Jan-21
Apr-21
Jul-21
Oct-21
Jan-22
Apr-22
Jul-22
Oct-22
Jan-23
Date

# Top Wastewater Treatment Myths Summary

- A properly functioning treatment system should have little to no odors.
- The NSF certification process is rigorous and only for residential applications.
- If properly designed, installed, and maintained, treatment units should meet treatment requirements on average.
- When designing a treatment system, both hydraulic loading and organic loading need to be considered.
- Bacteria and other additives are typically not required to start up a treatment system.


# Questions?

Jonathan Kaiser
Jkaiser@infiltratorwater.com

Ashley Donnelly
Adonnelly@infiltratorwater.com