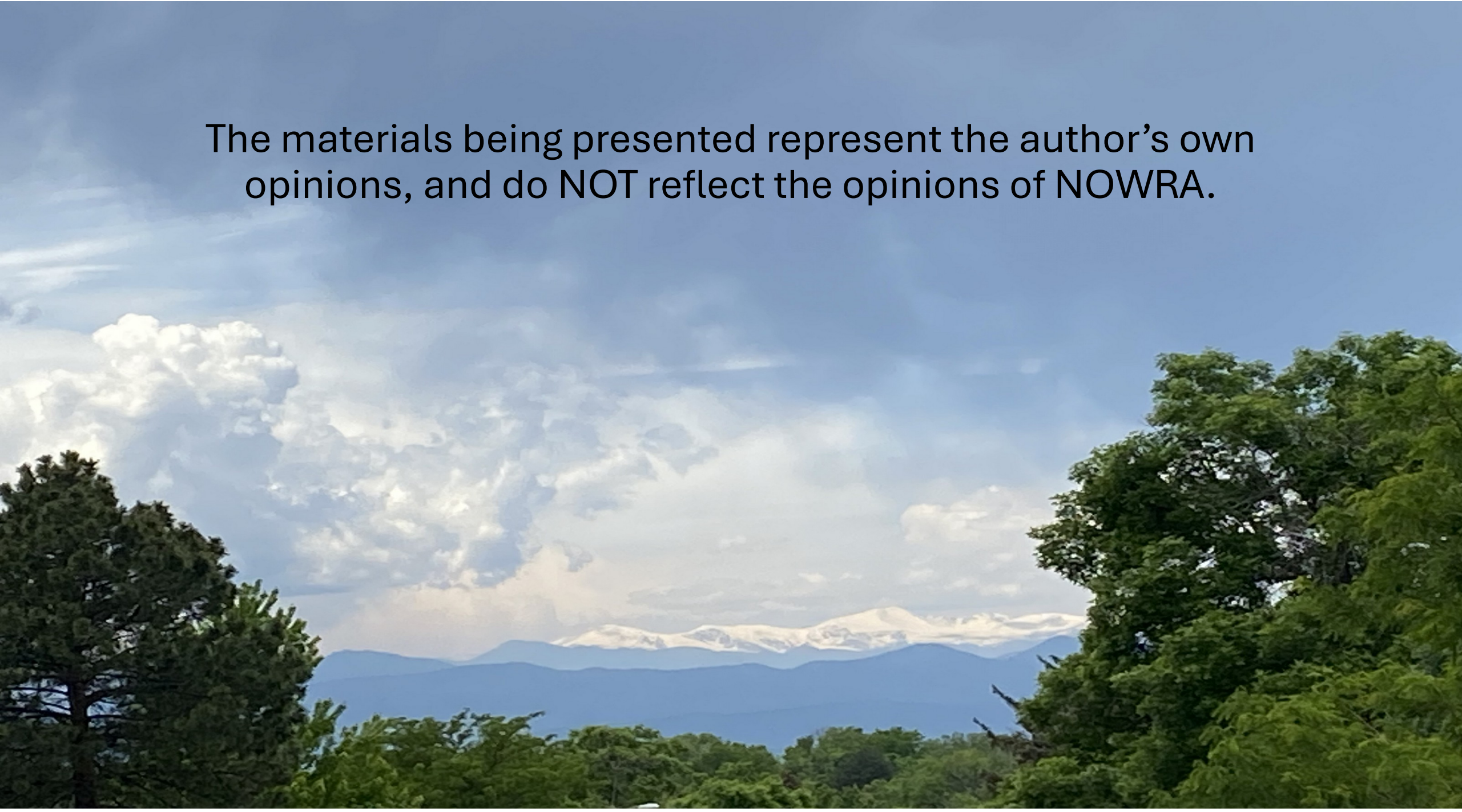
Infiltrator™
Part of ADS

High Strength Wastewater: Design, Results, and Lessons Learned

NOWRA Mega Conference
October 2026

Sheryl Ervin, P.G.
Senior Regulatory Specialist




The materials being presented represent the author’s own opinions, and do NOT reflect the opinions of NOWRA.

Agenda



- Minnesota HSW Registration Options
- Minnesota HSW Sampling Program
- Background and Administrative Rules
- HSW Product Sampling Program
- Sample Selection
- Sample Results
- Moving Forward
- Lessons Learned
- Questions?







Background

- 22 years in the OWWS Industry
  - 9 – Regulator
  - 13 – Manufacturer
- Other
  - Environmental
  - Oil and Gas Exploration

Minnesota Administrative Rules

Category B

- Systems designed to treat HSW
- Septic tank effluent levels
  - $CBOD_5$ >125
  - TSS >60
  - O&G >25



Proprietary Treatment Technology Registration Renewal Requirements September 2021



- Third-party sampling
- Quarterly sampling
- Influent/effluent samples
  - Report completed by third-party
    - —Sample results
    - —Flow measurements
    - —O&M summary

Proprietary Treatment Technology Registration Guidance

Verify Operational Performance

- Legally: A procedure used to establish with reasonable certainty that a conservation measure was installed and is in service (Chapter 194-37 WAC)
  - Consistent with industry procedures that reflect a balance of cost and accuracy
    - Price of HSW treatment equipment monitored ~$67,000.00
    - Cost of monitoring and creating this report > $40,000.00



Proprietary Treatment Technology Registration Guidance Road Map

HSW Verification Protocol

- Used to provide accurate and representative data that meets the definition
- April 2024 – Data presented to the TAP



DIVERSE FACILITY TYPES

- 1 Convenience store
- 1 RV dump station
- 2 Systems designed by PE’s
- 4 food service facilities
  - 2 Bar and Grill Establishments
  - 1 Brewery
  - 1 Church camp/retreat cafeteria



BY THE NUMBERS

- 5 systems
  - 1 year or more of quarterly sampling
- 1 system
  - sampled 3 times
    - 2 were reported
- 1 new system
  - sampled 2 times
    - not reported

BY THE NUMBERS

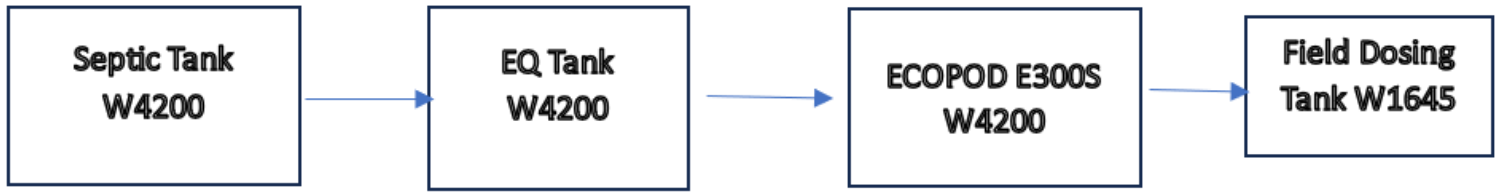
- 99.9 % of systems met HSW parameters on at least one influent parameter
  - 4 locations routinely exceeded approved design capacity of the units for BOD
  - 5 out of the 6 were above 70% of design loading for BOD
  - No system utilized a true grease interceptor

North 20 Brewery

Design Flow - 1,570 gpd

Design BOD_5 - 400 mg/L

System Layout:



Influent (Raw)

Date	Flow gpd	BOD_5 mg/L	O&G mg/L
3/27/2023	3046	1090	102
6/19/2023	643	1600	11
9/20/2023	653	1360	6
12/21/2023	1218	1210	17

Effluent

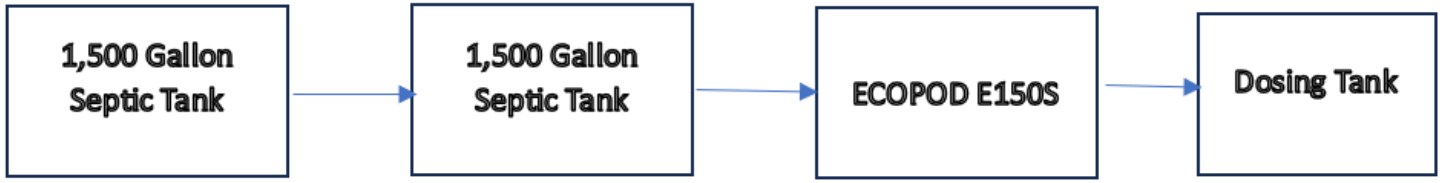
Date	BOD_5 mg/L	O&G mg/L
3/27/2023	58	6
6/19/2023	56	<5
9/20/2023	22	<5
12/21/2023	<20	<22

Red Eye Tavern

Design flow – 860 gpd

Design BOD_5 – 450 mg/L

System Layout:



Influent (Raw)

Date	Flow gpd	BOD_5 mg/L	O&G mg/L
3/29/2023	428	1130	30
7/31/2023	261	1560	101
9/11/2023	591	3400	1040
12/13/2023	615	1910	73

Effluent

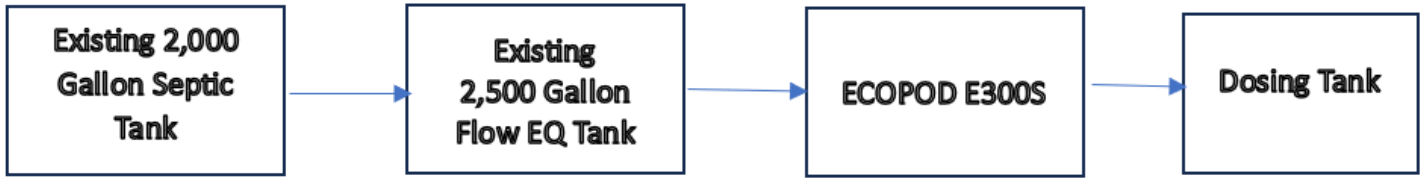
Date	BOD_5 mg/L	O&G mg/L
3/29/2023	28	<5
7/31/2023	<20	<5
9/11/2023	14	6
12/13/2023	53	5

White Water

Design flow – 800 gpd

Design BOD_5 – 900 mg/L

System Layout:



Influent (Raw)

Date	Flow gpd	BOD_5 mg/L	O&G mg/L
3/27/2023	225	3000	51
6/19/2023	451	2520	21
9/20/2023	1192	1970	24
12/21/2023	431	2560	20

Effluent

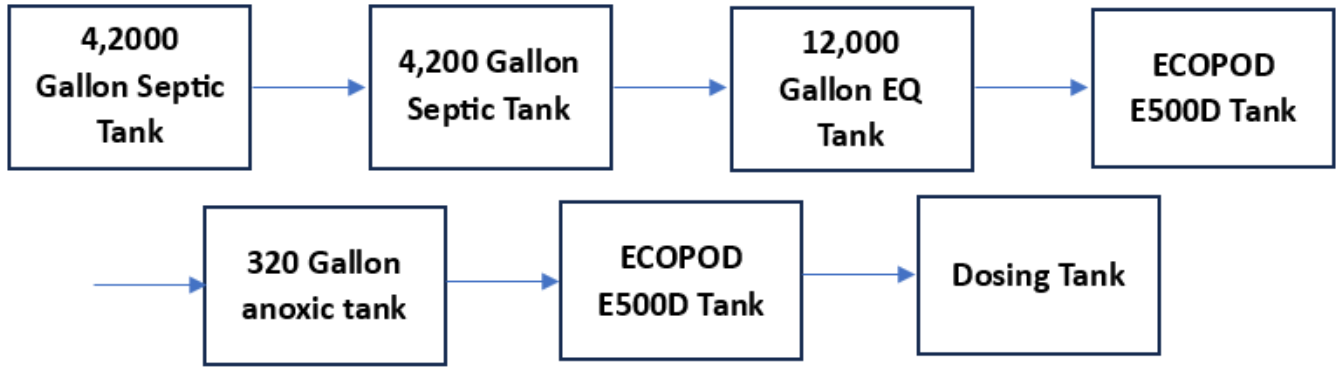
Date	BOD_5 mg/L	O&G mg/L
3/27/2023	25	<5
6/19/2023	Blower Off	No Sample
9/20/2023	34	<5
12/21/2023	39	6

Shakopee

Eq Design flow – 2,835 gpd

Design BOD_5 – 452 mg/L

System Layout:



Influent (Raw)

Date	Flow gpd	BOD_5 mg/L	O&G mg/L
9/20/2023	1937	1150	24
12/21/2023	2040	584	59

Effluent

Date	BOD_5 mg/L	O&G mg/L
9/20/2023	<6	<5
12/21/2023	23	<5

BY THE NUMBERS

- 84 total effluent samples taken for BOD/TSS/O&G
- 96 % effluent samples passed TL-C requirements
  - TSS was exceeded on 3 samples
- Only 2 Systems had known O&M providers during testing

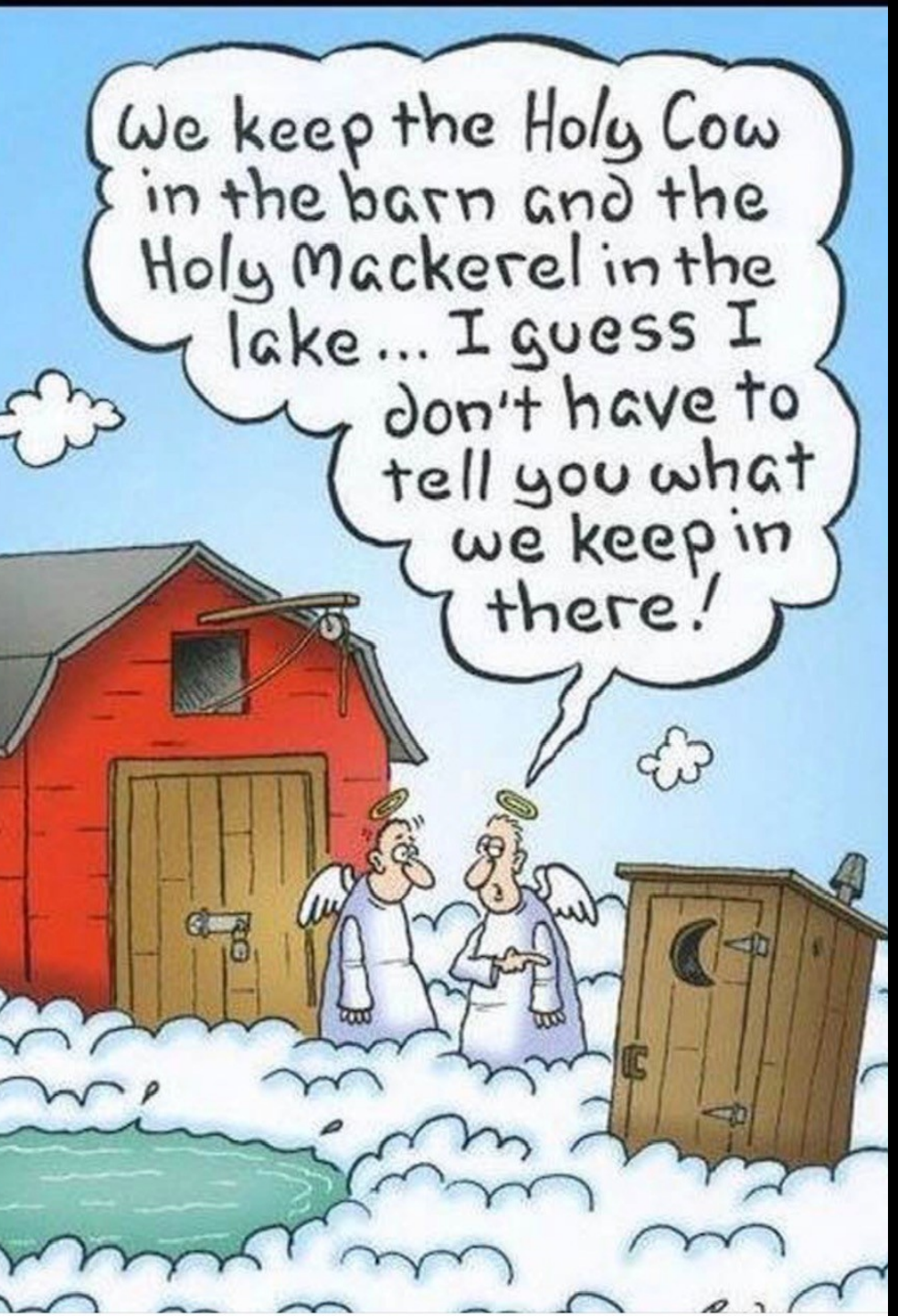
Results and Moving Forward



- 66 samples collected
  - 63 met TL-C requirements
- Property owners must understand how changes inside affect wastewater
- Ongoing SP training needed
- Treatment technology received full product listing for high strength wastewater



- No performance or design distinctions if designed by PE's
- Influent parameters MUST be properly defined
- If sampling continues to be a requirement, it should be funded by the facility and reported on all HSW systems
- O&M personnel must receive proper training
- O&M plans are not always followed or enforced



Questions?

Sheryl Ervin, P.G.
Infiltrator Water Technologies
servin@infiltratorwater.com
(816) 266-3476