

Changes in On-site Wastewater Treatment and Evaluation: Influent Equalization

Joe C. Yelderman, Jr.
Baylor University
Wastewater Research Program

**PREPARED IN COOPERATION WITH AND FINANCED BY THE
TEXAS ON-SITE WASTEWATER TREATMENT RESEARCH COUNCIL**

Onsite Wastewater Treatment

1/3 of US households use onsite
sewage systems

> 1 trillion gallons of wastewater pass
through these systems annually

In Texas;
over 2,000,000 onsite systems
over 500,000 ATU systems

However,

- recent changes in lifestyles, home construction and appliance technology necessitate changes in on-site wastewater treatment.

and

- Problems resulting from underfed systems or surges in loading are becoming more common and pronounced.

One Proposed Change

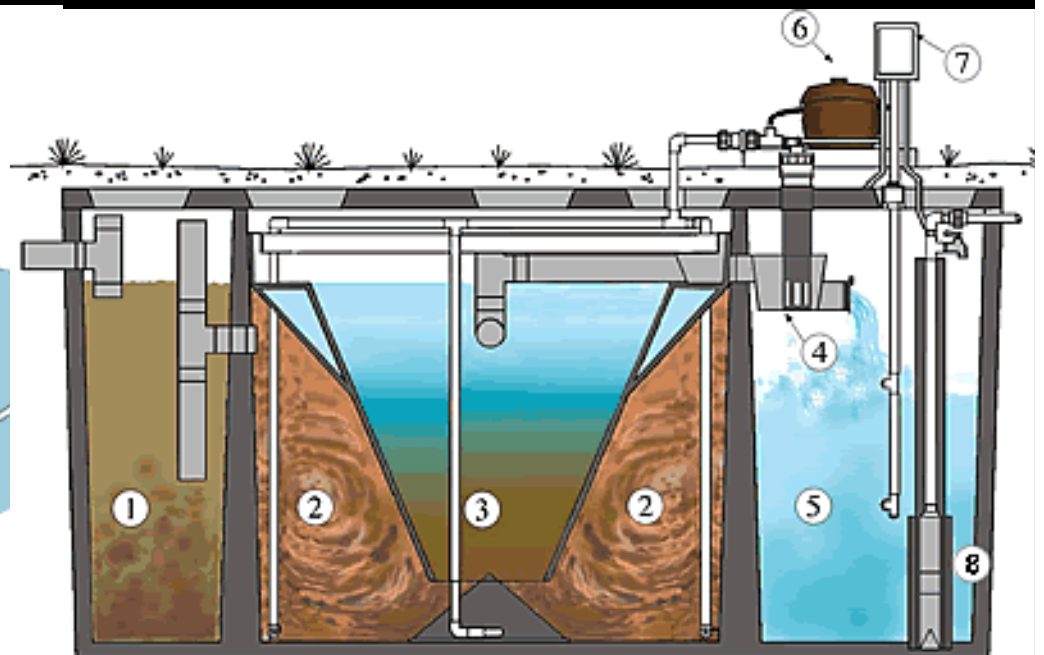
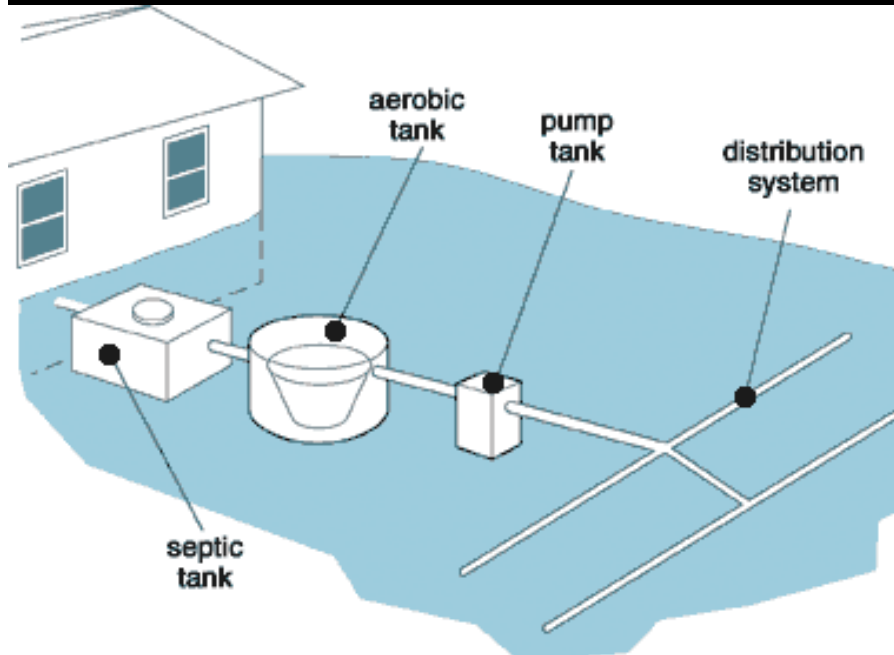
- timed dosing and equalization of influent.
- to improve treatment efficiency and accommodate variations in loading.

AEROBIC ONSITE TREATMENT Systems

Pre-treatment

aeration

post



Questions

- “How significantly does relatively constant dosing (influent equalization) affect effluent quality for CBOD and TSS?”,
- “Does influent equalization allow for better effluent quality when treatment resumes after dosing has been interrupted?”
- “If treatment efficiency is improved significantly can the same size treatment system handle more influent?”

Hypotheses

- 1. Influent equalization will improve treatment.
- 2. Influent equalization will allow greater volumes to be treated.



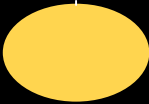
Wastewater
Treatment
Plant

Aerobic
System

Dosing



Return
Pump



Dosing

Return



Standard 40 design loading

- **Dosing**

Household use 480 gpd
4.8 gal/dose at 100
doses/day

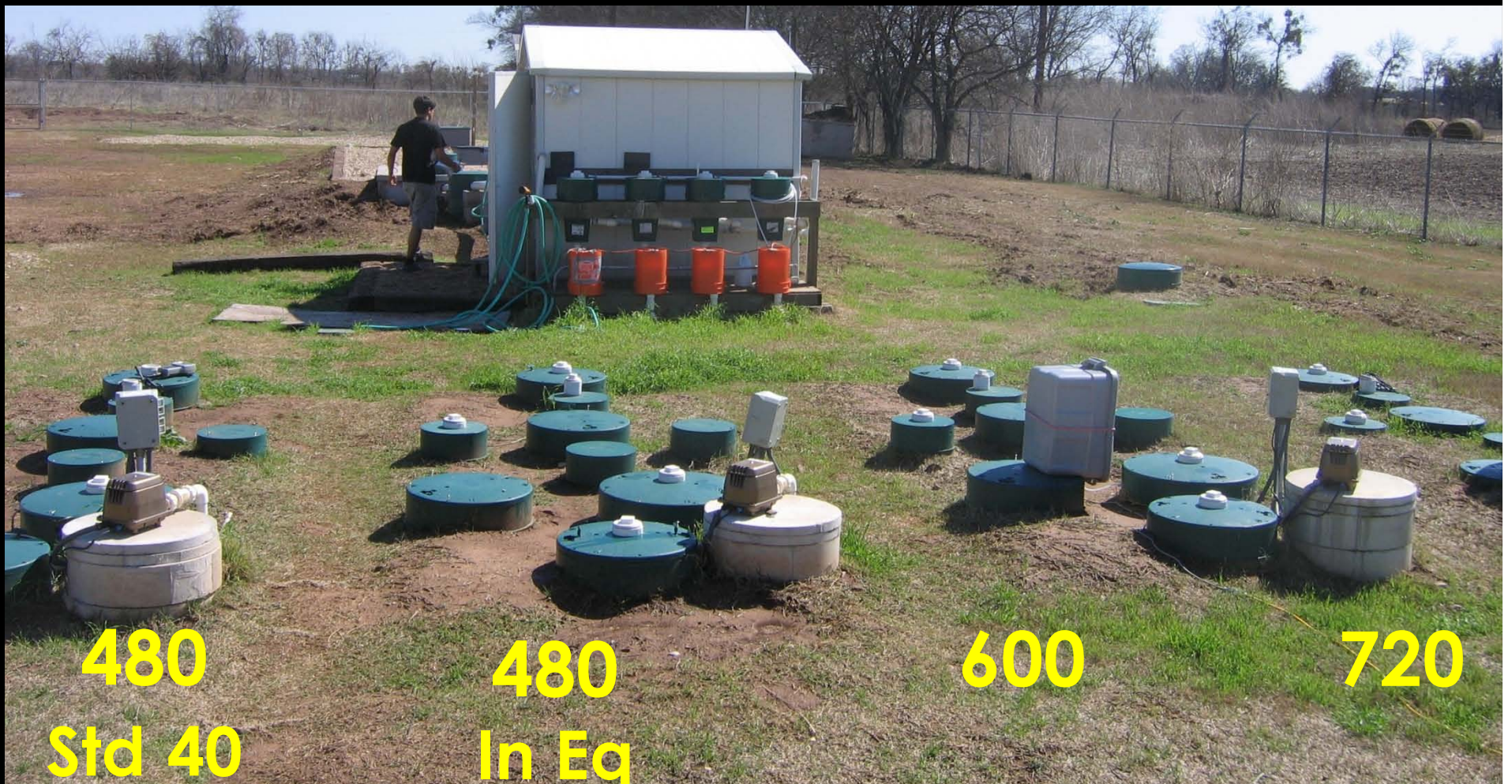
35 between 6am-9am

25 between 11am-2pm

40 between 5pm-8pm



Methods



Progress?



Progress?



Progress?



Acknowledgements

Funding provided by:

Texas Onsite Wastewater Treatment Research
Council

Research and site assistance by:

NSF

City of Waco

Baylor university

Questions?

