

Texas A&M AgriLife Extension OSSF Programs & Resources

**Houston-Galveston Area Council Clean Water Initiative
On-Site Sewage Facilities Seminar**

August 22, 2024

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Presentation Outline

- Introduction of TAMU OSSF Team
- TAMU's OSSF Extension and Research Programs
- TAMU's OSSF Resources
- Future of the OSSF Research Programs
- Questions/Discussion...

Our Team...



Dr. June Wolfe, III
Research Scientist
BREC-Research



Dr. Gabriele Bonaiti
Extension Program Specialist
BAEN-Extension



Lisa Prcin
Senior Research Associate
BREC-Research



Joshua Segura
Extension Assistant
BAEN-Extension

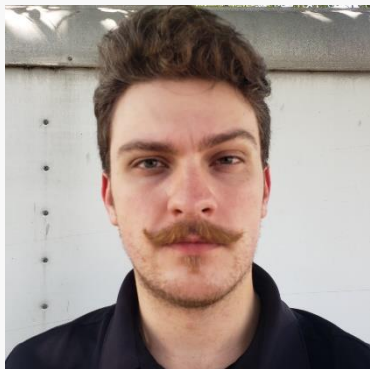
Our Team...



Tanya Mitchell
Extension Assistant
BAEN-Extension



William (Bill) Hyder
Program Coordinator I
BAEN-Extension



Jakob Davis
Research Assistant
BAEN-Extension

For contact information visit our Websites:

<https://ossf.tamu.edu/>

<https://baen.tamu.edu/>

<https://blackland.tamu.edu/>

OSSF Extension and Research Programs

Overview

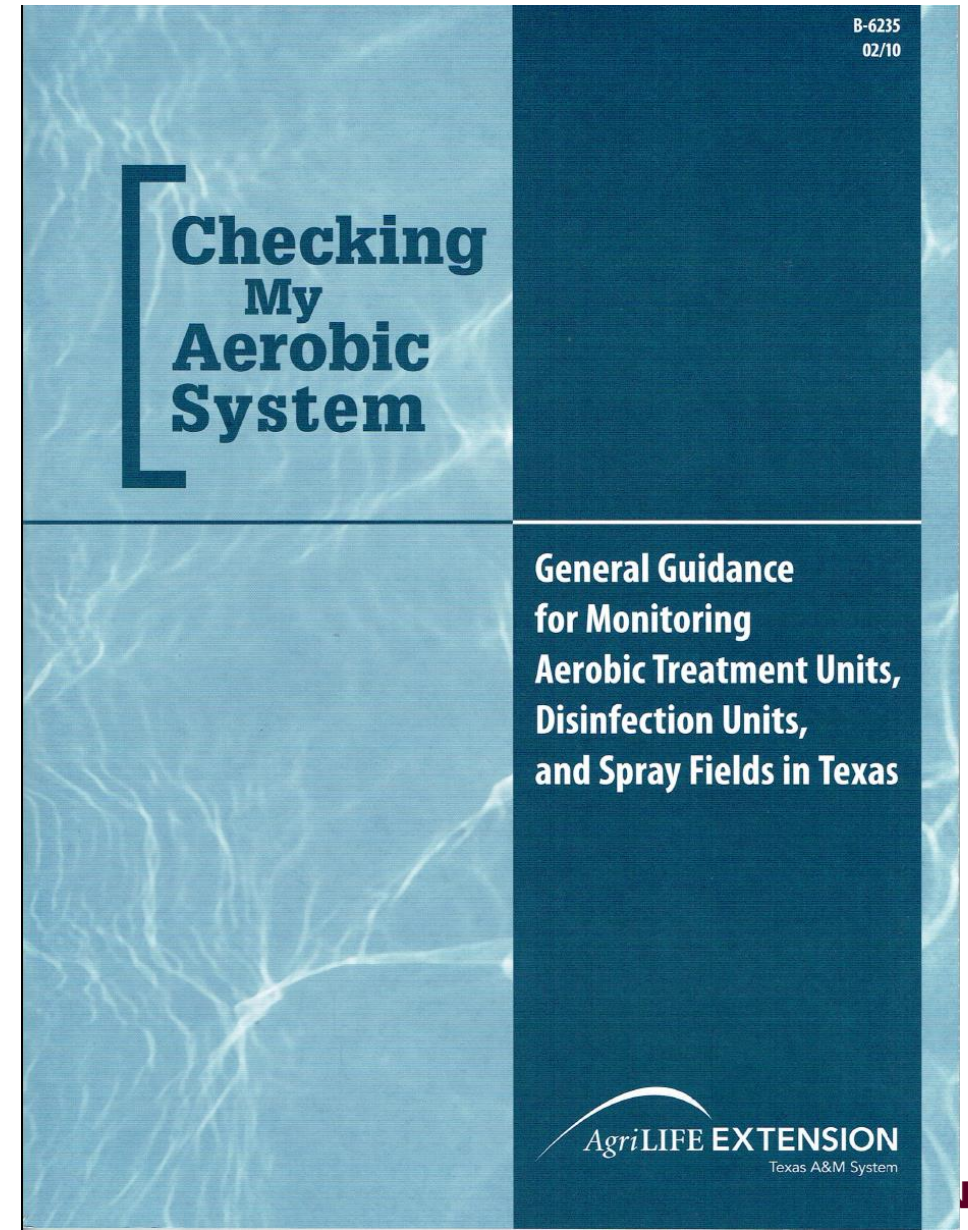
- Extension programs
 - Homeowner education in-person, virtual (Zoom and Teams), and online/on-demand (no CEUs)
 - Professional education in-person only for now, **but online planned starting Summer this year (CEUs)**
 - Mapping and Inventory focused on coastal zone of Texas, also expanding in other watersheds
 - Repair and Replacement projects in Lampasas Watershed
 - Publications (<https://ossf.tamu.edu/educational-materials-2/>)
 - Presentations at local, state, national, and international events.

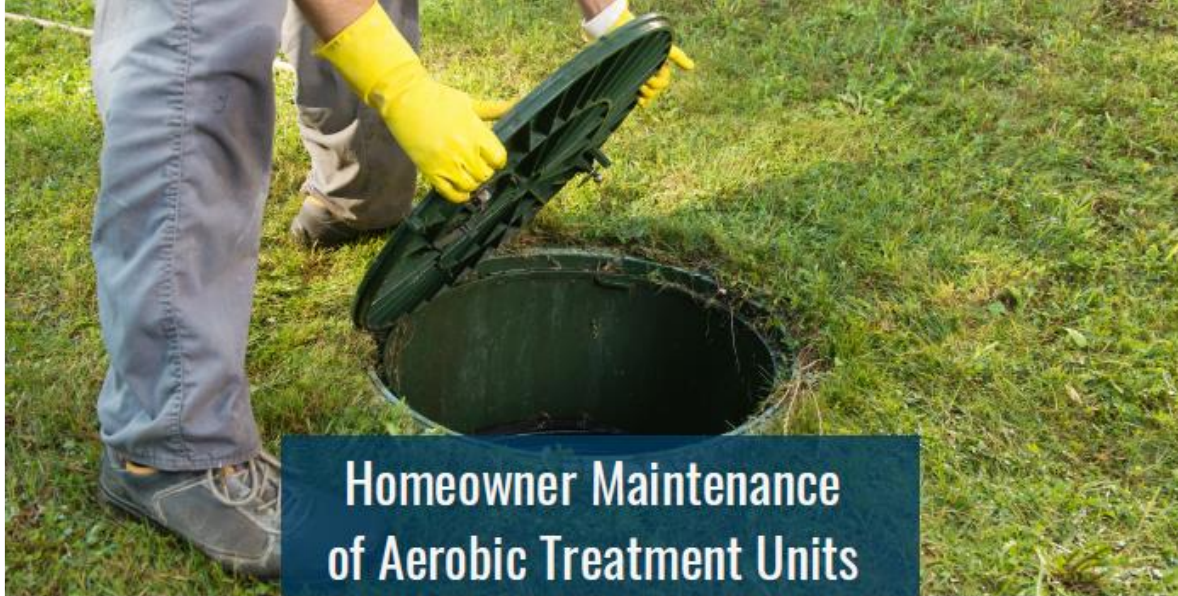
Homeowner's Education

- Half day Septic System Education, about 1.5 to 2 hours of PowerPoint Presentation + Question/Discussion time as needed;
- Offered throughout the state via various Watershed Protection Programs, funded primarily through 319 funding;
- *Planning to develop an online/on demand module for homeowners on a fee-based delivery method!*

Aerobic system maintenance course – 6 Hour Program....

1. Introduction
2. Avoiding illness and accidents
3. Understanding how aerobic systems work
4. Testing wastewater and reporting results
5. Feeding the system
6. Checking the O&M of your aerobic system
7. Tools, parts, and supplies
8. Aerobic system operation checklist.





Homeowner Maintenance of Aerobic Treatment Units

COURSE INFORMATION

An aerobic septic system, or aerobic treatment unit (ATU), uses oxygen to breakdown both dissolved and solid constituents into gases, cell mass, and non-degradable material contained in wastewater. This online course will teach you how to properly maintain and operate your ATU.

Topics

- Understand the basic operation and maintenance activities for an ATU
- Be a better consumer in the onsite wastewater treatment industry
- Have the knowledge needed to understand and communicate with maintenance providers



Course Details

Cost: \$150

Duration: 30 days from sign-up date

To register, go to tx.ag/HMATU and click 'Enroll Now'.



Visit tx.ag/HomeAerobicTreatmentSystems for more information.



Contact

Dr. Anish Jantrania

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OSSF Licensed Professional Education

- 2-Days 16-CEU in-person class “Analyzing Wastewater Systems for High Strength and Hydraulic Loading”; offered during the TOWA Annual Conference;
- 1-Day 7-CEU in-person class “Fast Track High Strength” offered with TOWA’s Annual Conference Approval
- *High-Strength Classes will be offered Online/On-Demand starting this Fall!*

OSSF Extension and Research Programs Overview

- Research projects

- TCEQ funded TOGP Phase-I, II, and III projects

- ATU, LPD, and Reuse (Phase-1), completed
- RV-ATU, DRIP, and E-FLOW (Phase-2), completed
- RVR, RtR, and FLOW-EQ (Phase-3), on-going

<https://ossf.tamu.edu/togp-research/>

- TGLO sub-contracts for coastal zone projects

- Integrative Assessment of Bacterial Pollution (TAMU only)

Galveston web mapping application: <https://arcg.is/184OuH0>

https://benkleinapps.shinyapps.io/gm_exceedance_app/

- Identify potential BMP tools to reduce bacteria loading in Neches River (Lamar and TAMU)

OSSF Extension and Research Programs Overview

- Research projects

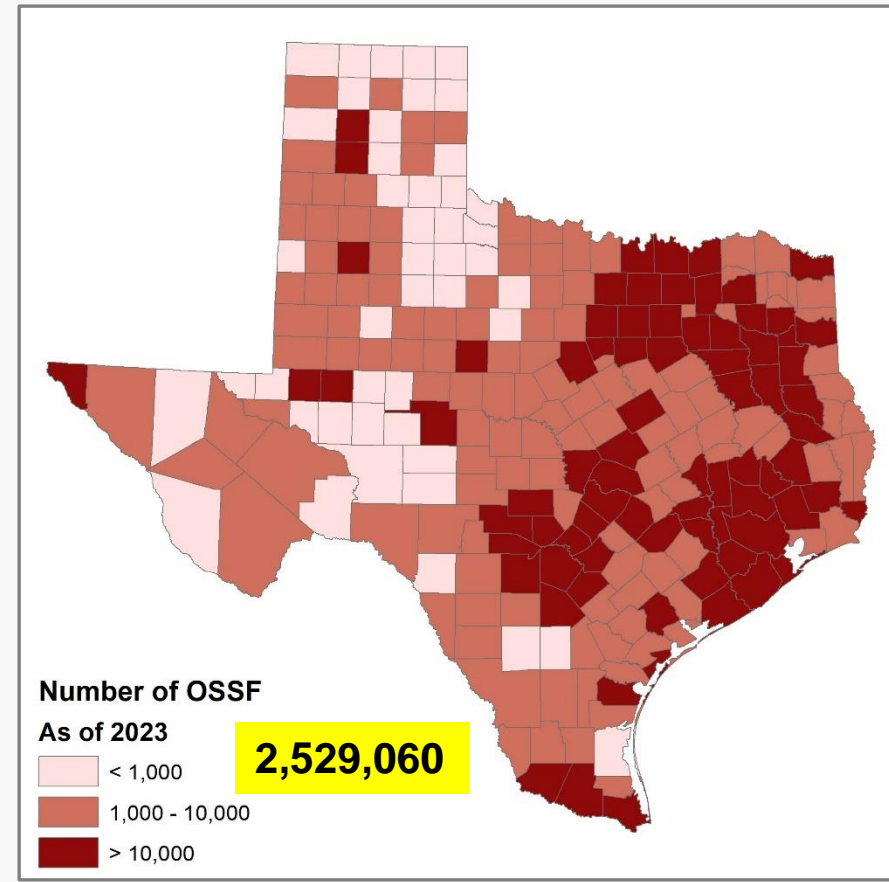
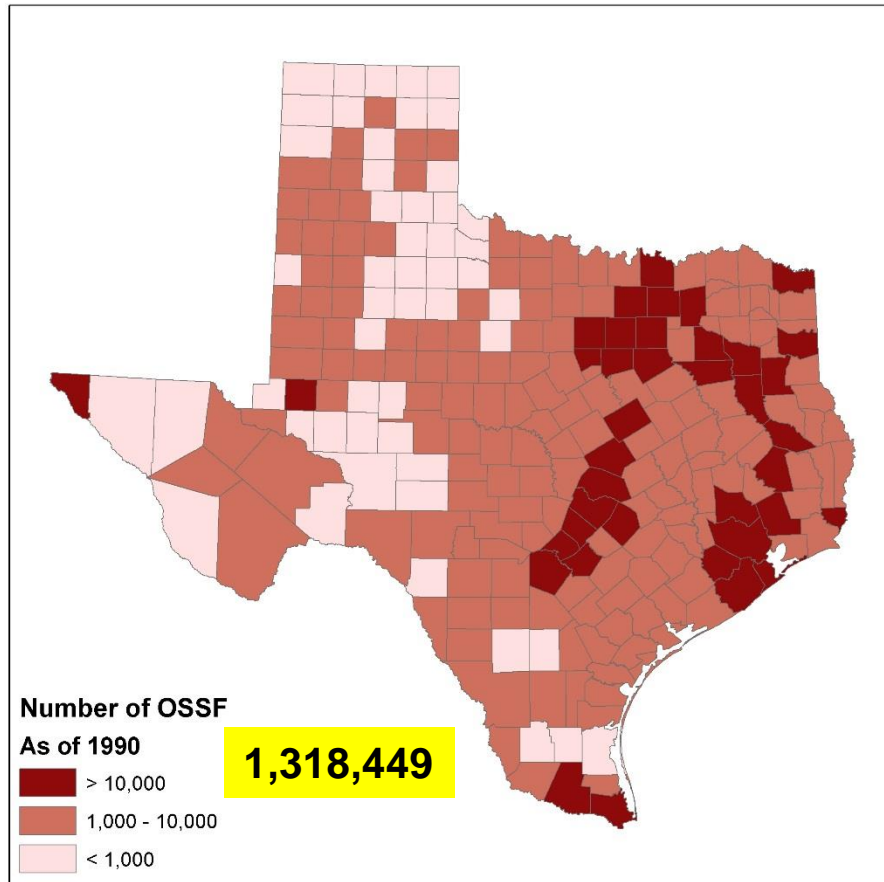
- USDA/NIFA funded Projects

- REEU (Research & Extension Experience for Undergraduates), seven-year program ended last year (<https://reeu.baen.tamu.edu/>)
 - Working on securing other similar funding opportunity to attract ‘young professionals’ to Water related field

- US EPA, NSF, NOAA funded Projects

- No luck securing funding as of this year!
 - NSF grant application underway, “*Advanced Technological Education*” for One-Water Education Program at TAMU!

Number of OSSFs in TX then and now... Inventory and Mapping Program...



This information was compiled from 1990 Census data and OARS data from TCEQ.

About 927,000 new permits issued since 1990... of which about 500,000 (~47%) were for ATU Spray... (# of permits/year v. year)



Owts Progress during the 20th Century

- Septic tank drain-field



- Primary treatment by a septic tank (~20%), rest (~80%) by soil.

- Aerobic tank spray-field



- Secondary treatment by ATU or Media filter (~80%), rest (~20%) by soil

TAMU's OSSF Research Center



2-Acre facility on RELLIS with access to water and sewer lines, wastewater treatment and reuse technologies, POU drinking water treatment technologies, and a field laboratory!

Background on State Funding for OSSF Research....

- In 1987 H.B. 32, 70th Legislative Session, created a fee of \$10 for each permit processed to support OSSF research program;
- 1991 onwards TCEQ collected \$10 fee from local permitting entity and the “Research Council” working with TCEQ funded research programs;
- Research Council sunset in 2011, stopping the research funding but not the \$10 fee collection;
- House Bill 2771 was proposed and passed in 2017, restarting the research funding without the Research Council, under a new program called **TOGP**;
- In 2019 and in 2021, TCEQ issued two RFGAs specifying four “Research Topics” in each RFGA;
- Our OSSF Team developed a strategy that has been successful in securing FULL FUNDING for three times, totaling ~ \$1M;
- Again in 2023, AgriLife was the ONLY agency to respond to TOGP RFGA!

NOWRA's OSJ's Article...

Highlights of TOGP-I (completed) and TOGP-II (completed)

TOGP-I (2019-2021)

1. ATU performance, effects of high-strength and time-dosing (JW);
2. LPD design configuration, by the rules and new concepts (GB);
3. Reuse wastewater for toilet flushing, treatment-train performance (AJ).

Final reports and conference papers on [OSSF Website...](#)

TOGP-II (2021-2023)

1. RV Parks and ATU performance in real-world (JW);
2. Drip challenges and recommendations for improvement (GW);
3. Effluent flow reduction to minimize need for disposal area (AJ).

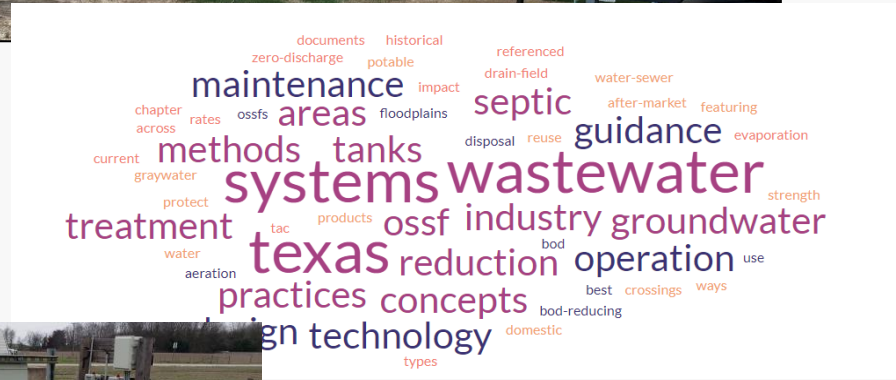
Projects completed and Draft Reports submitted in November 2023...

Highlights of TOGP-III 2023-2025 (in-progress)

1. **RVR** Recreational Vehicle Research, to collect and analyze real-world RV park OSSF data (AJ);



2. **RtR** Research the Research, to create a database with a high-volume content of literature relating to OSSFs (GB);

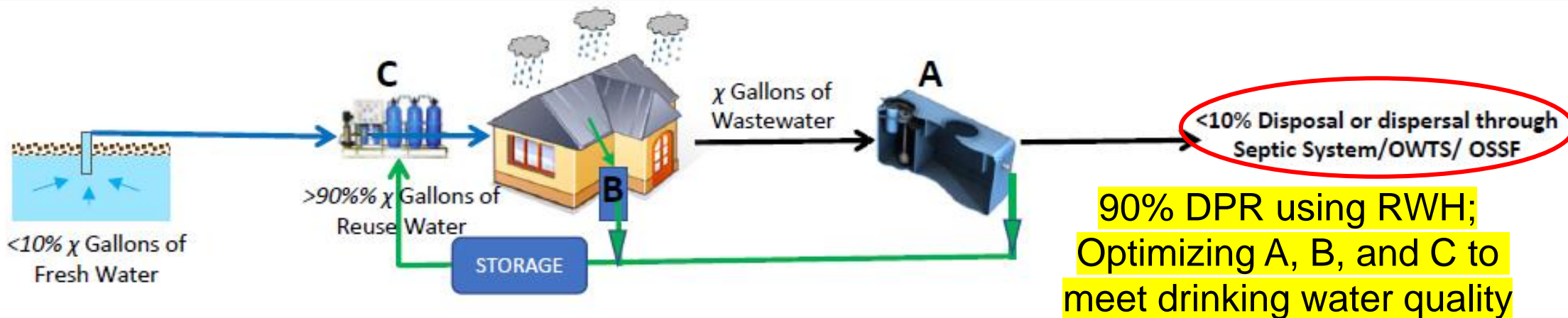


3. **FLOW-EQ**, Flow Equalization or Dosing Refinement determine an optimal dosing period for ATUs (RG).



[OSSF Website...](#)

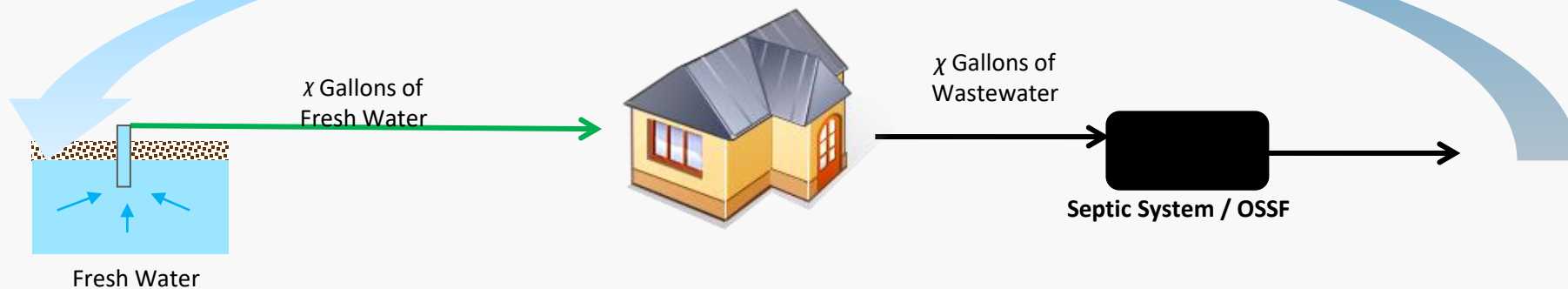
Future of OSSF research in Texas from OSSF to OWRF



90% DPR using RWH;
Optimizing A, B, and C to
meet drinking water quality
& Reduced Discharge

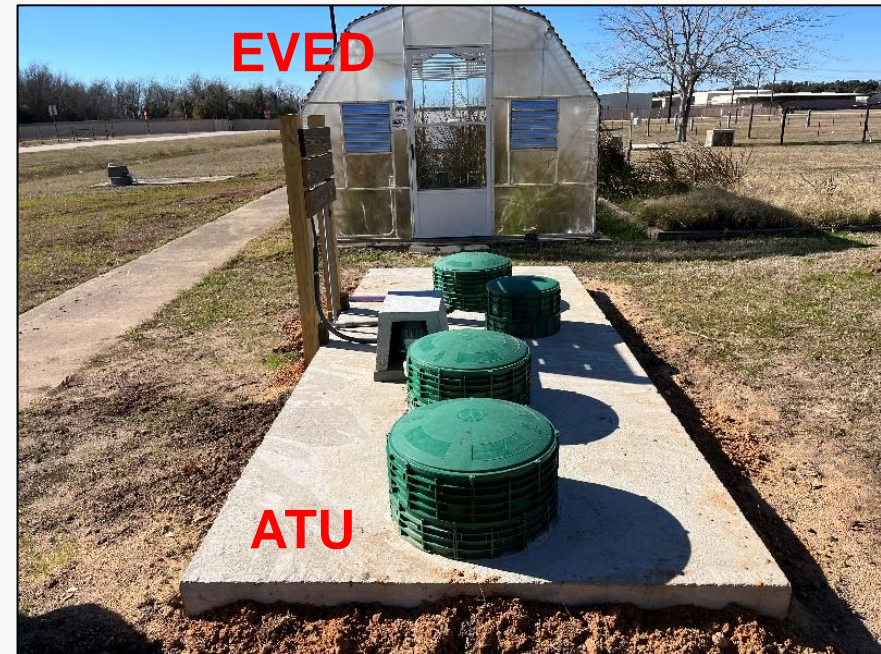
Future of OSSF research in Texas from OSSF to One Water!

Time period in years and unpredictable



Time period in days and predictable

RELLIS Experimental Reuse Facility



**New OSSF Design
EVED + Reuse**

Data collection to start soon.....

Sustained Funding Needed to Support our Research Center....

- There is still need for improvements at the Center, which requires sustainable financial support ~\$350K/year...
- TAMU-OSSF Team has been selected for the first three rounds of TOGP funding, can it be the “sole-source”?...
- TOGP funding process needs tweaking, including revisions to the \$10 fee that was set >30 years ago by the legislators.

On-Site Wastewater Training Center (before)

Year 2013-2015

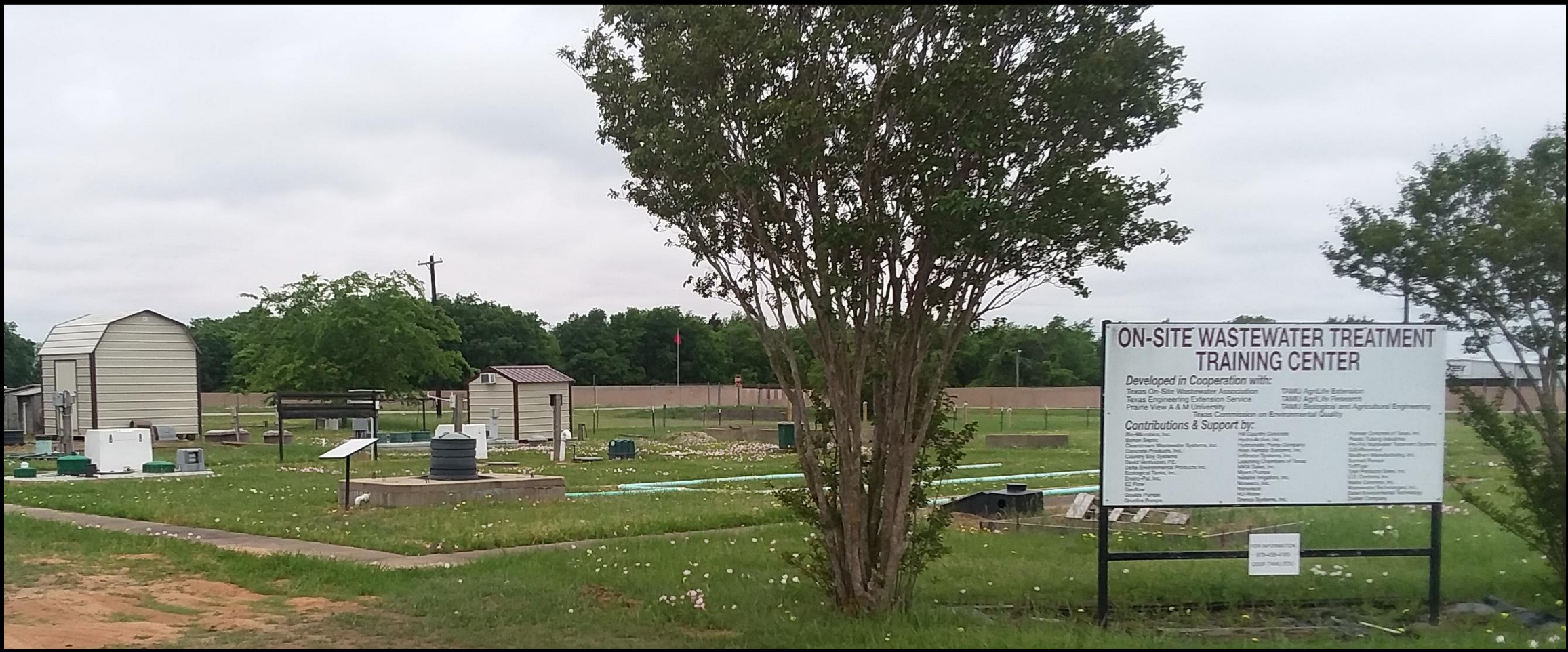
ON-SITE WASTEWATER TREATMENT TRAINING CENTER

Developed in Cooperation with:
Texas On-Site Wastewater Association Texas Engineering Extension Service
Texas Cooperative Extension Texas On-Site Wastewater Treatment Research Council
Texas Commission on Environmental Quality

Contributions & Support by:

John Deere Champion Performance Genetics Inc. Cottonseed Products Co. Cottonseed Products Co. Cottonseed Products Co. Cottonseed Products Co. Cottonseed Products Co. Cottonseed Products Co. Cottonseed Products Co. Cottonseed Products Co. Cottonseed Products Co.	Quilley Farms The Quilley Group LLC New America, Columbia, MO New America, Columbia, MO New America, Columbia, MO New America, Columbia, MO New America, Columbia, MO New America, Columbia, MO New America, Columbia, MO New America, Columbia, MO New America, Columbia, MO	WORMS Worms Worms Worms Worms Worms Worms Worms Worms Worms
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On-Site Wastewater Training Center (now)



ON-SITE WASTEWATER TREATMENT TRAINING CENTER

Developed in Cooperation with:
Texas On-Site Wastewater Association
Texas Engineering Extension Service
Prairie View A & M University
Texas Commission on Environmental Quality

Contributions & Support by:

AMCO Systems Company	Hydro-Action, Inc.	Peters Concrete of Texas, Inc.
Baker Supply	Hydromech, Pumps Company	Plastic Tubing Industries
Chattahoochee Wastewater Systems, Inc.	Hydro-Action Systems, Inc.	Pro-Crete Industries
Chattahoochee Products, Inc.	Industrial Systems, Inc.	San Antonio Wastewater Treatment System
Daniel Johnson, P.E.	Industrial Systems, Inc.	San Antonio Wastewater Treatment System
Davis Environmental Products Inc.	Industrial Systems of Texas	San Antonio Wastewater Treatment System
Ecological Systems, Inc.	INDI Systems, Inc.	San Antonio Wastewater Treatment System
Energy Plus, Inc.	Moore Pump	San Antonio Wastewater Treatment System
EQ Flow	Rescue Innovations, Inc.	San Antonio Wastewater Treatment System
Equipe	Rescue, Inc.	San Antonio Wastewater Treatment System
Quality Pump	Rescue, Inc.	San Antonio Wastewater Treatment System
Quincy Products	Rescue, Inc.	San Antonio Wastewater Treatment System
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In Summary...

- AgriLife BAEN/BREC OSSF team is actively engaged in meeting the current needs for research and extension programs in Texas;
- We are also developing new programs and exploring new funding resources at local, state, and federal levels;
- Onsite/Decentralized as well as Offsite/Centralized water industry is moving towards One-Water Infrastructure Industry, and Texas has an opportunity to lead that industry;
- Our Center on RELLIS Campus has potential to become a workforce development center along with the research and education center, for the One-Water Industry, with a sustainable funding support!

Thank you...

Questions / Discussion...

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