AdvanTex Treatment Systems

Operation, Maintenance, Repair

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PSMA Conference 2023

TRI-COUNTY

WATER SERVICES

Advantex System Overview

I. Technology Description

The AdvanTex treatment system configuration consists of either a single dual-compartment processing tank or a combination of separate septic and recirculating tanks with each configuration recirculating wastewater through an AdvanTex packed bed filters, and a final discharge of the effluent to an onlot absorption area or spray field.

PADEP Alternate System Listing

In accordance with Title 25, Chapter 73, Section 73.72, DEP classifies the Orenco AdvanTex (AdvanTex) Treatment System for use as an alternate onlot sewage treatment system. This classification permits the use of AdvanTex as a treatment system used for the specific purpose of reducing $CBOD_5$, TSS and total nitrogen in the sewage effluent prior to discharge.

Advanced treatment means the system has demonstrated that it can produce an effluent which shall not exceed,
10 mg/L $CBOD_5$ and
10 mg/L TSS as monthly averages.

Advantex Components

PARTS OF THE SYSTEM

- **Components of the treatment system:**

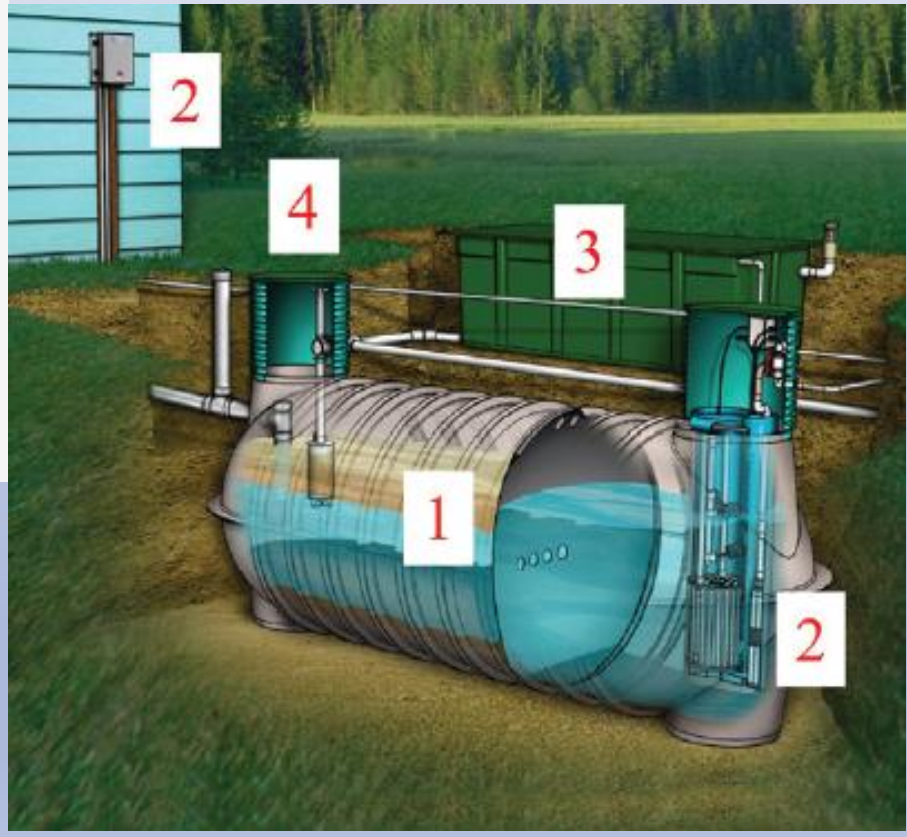
  1- A single, dual-compartment tank or multiple tanks for septic and recirculation processes

  2- Pumping and control system

  3- Textile filter treatment pod

  4- Recirculating splitter valve

- **Followed by an absorption area or a spray field**



AdvanTex Treatment System models

AdvanTex AX20N and AX20RTN treats up to 500 gallons per day per pod

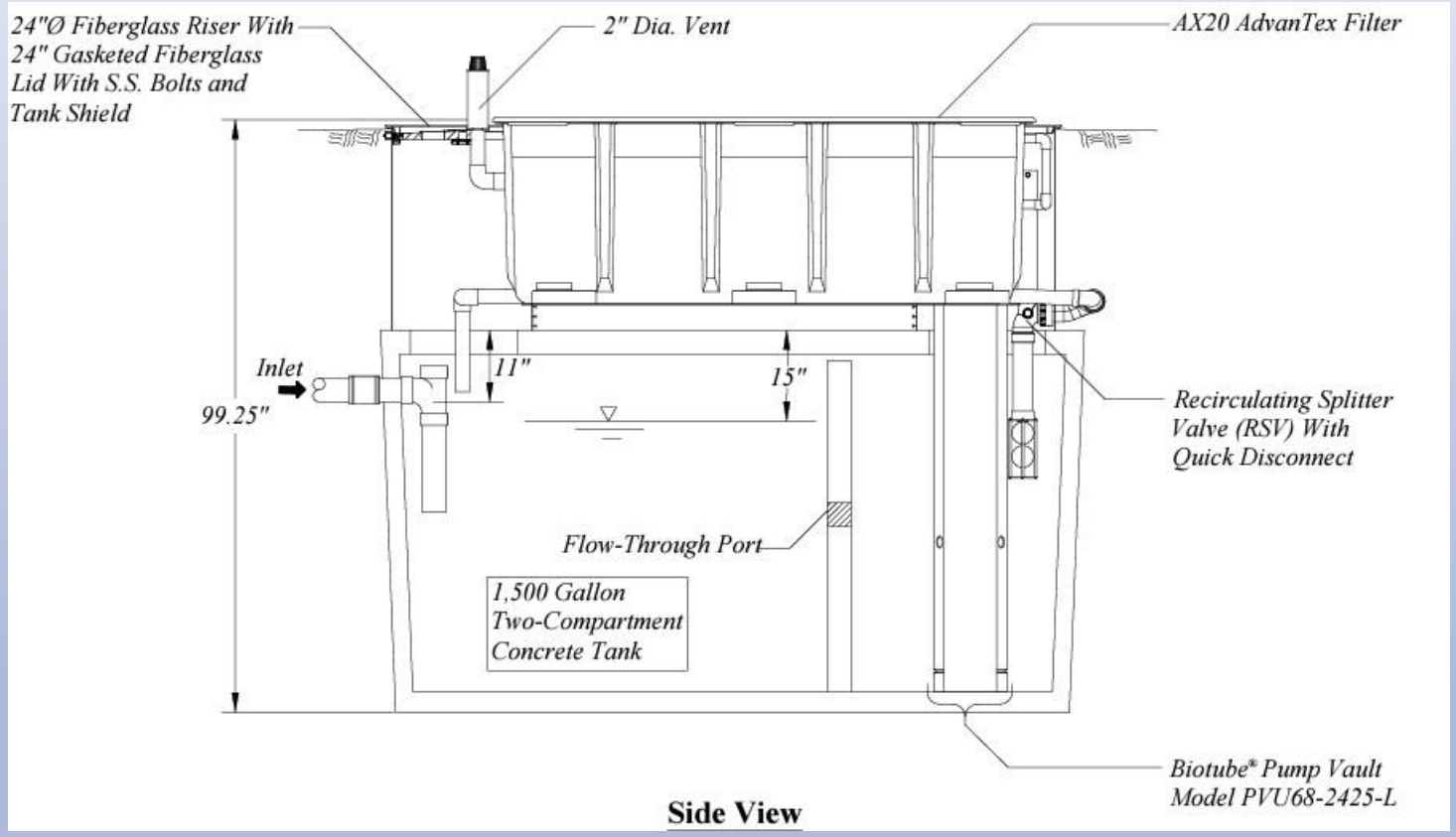
AdvanTex AX100 treats up to 2500 gallons per day per pod

AdvanTex AX20N pod

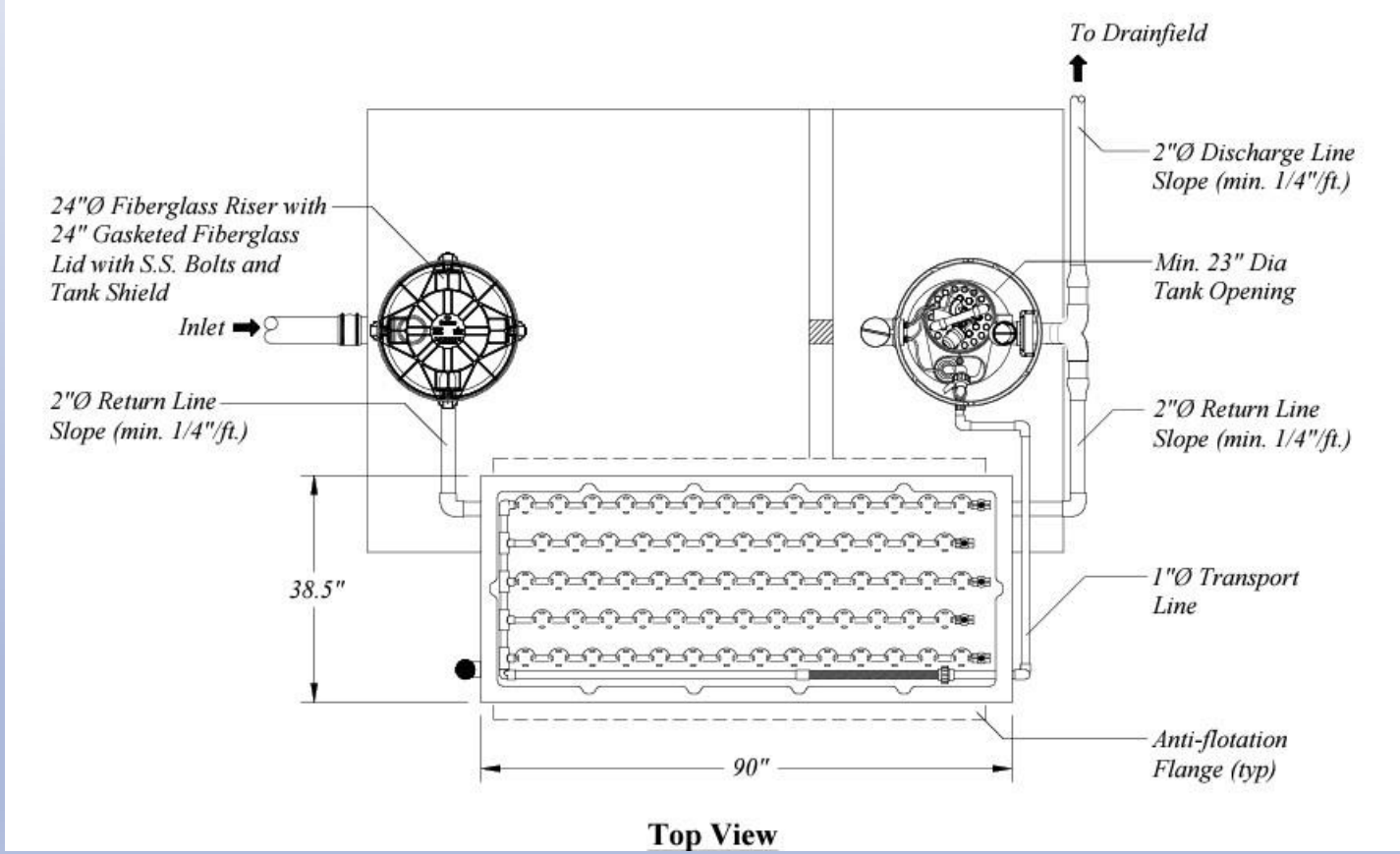
AdvanTex AX20RTN pod

AdvanTex AX100 pod

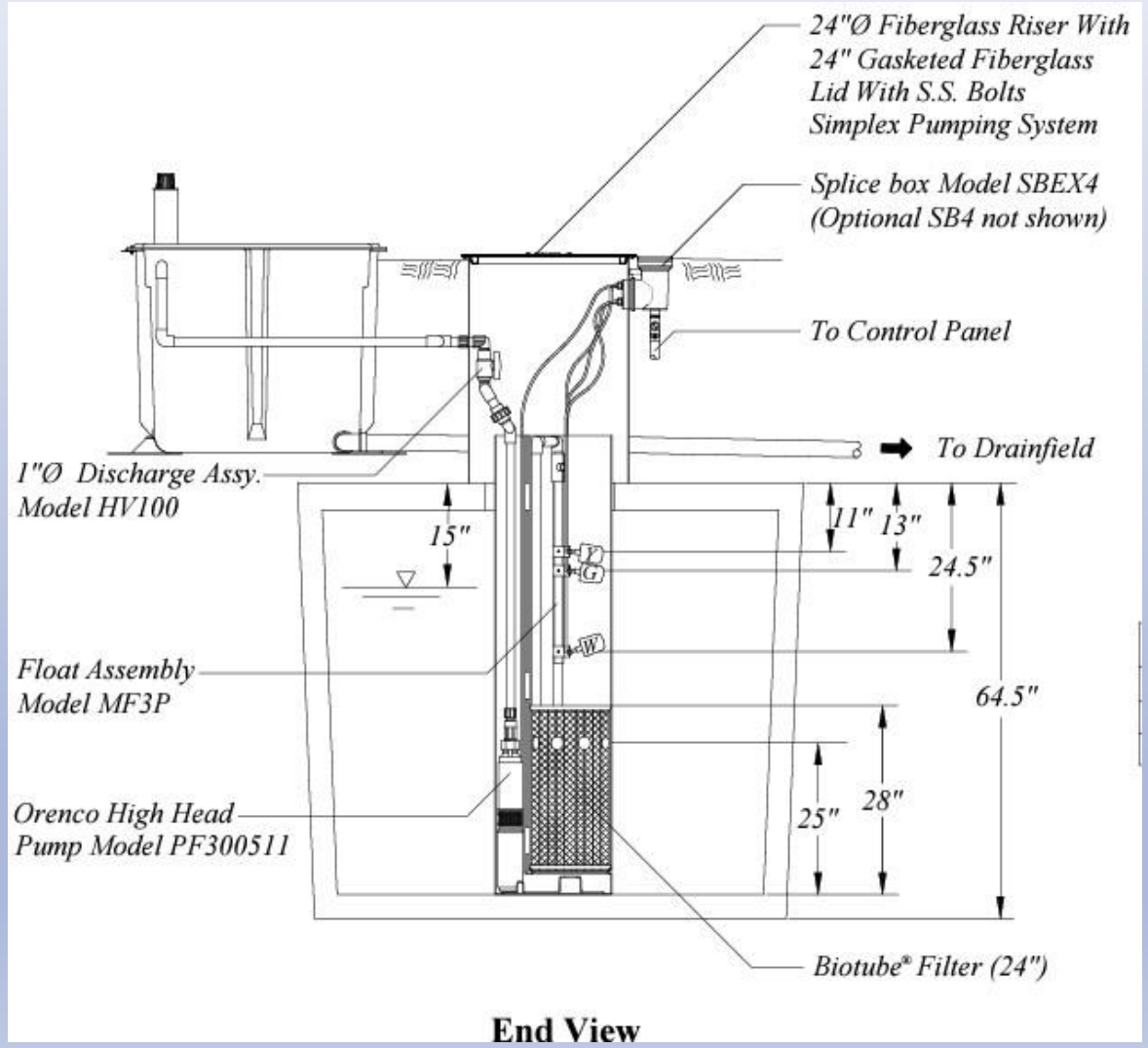
Component Side View



Component Top View

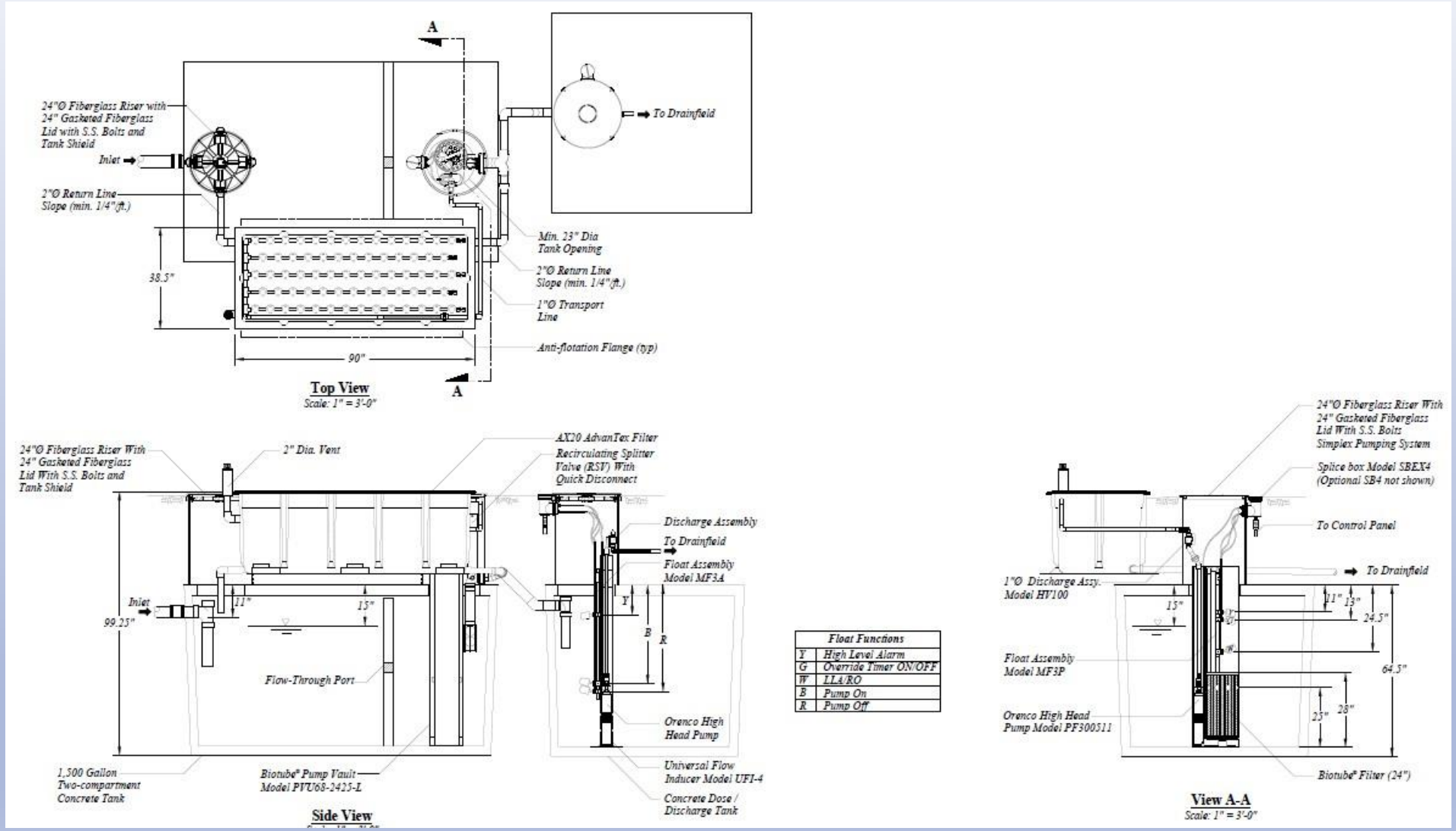


Component End View

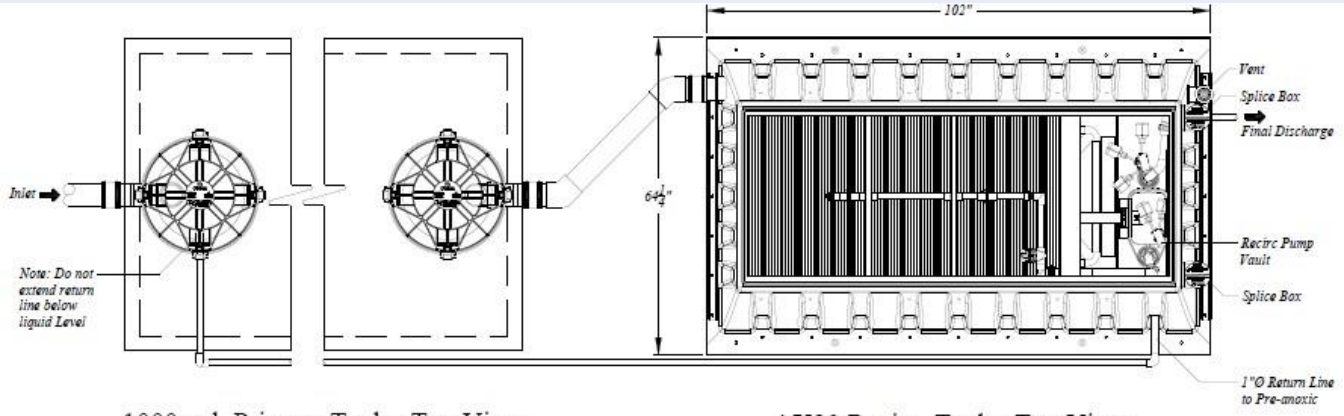


End View

AX20 Pod with a Pump Discharge Tank



AX20RT with a Pump Discharge



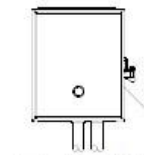
1000 gal. Primary Tank - Top View

AX20 Recirc. Tank - Top View

bedrooms.

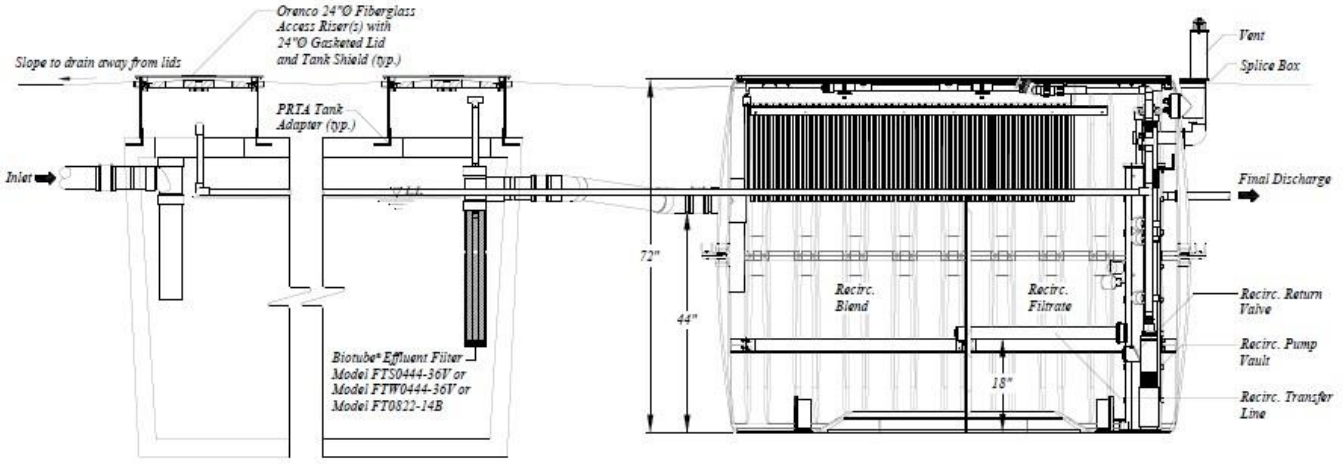
Installation to be performed by an AdvanT Authorized Installer only.

Start-up and service to be performed by an AdvanTex Authorized Service Provider onl



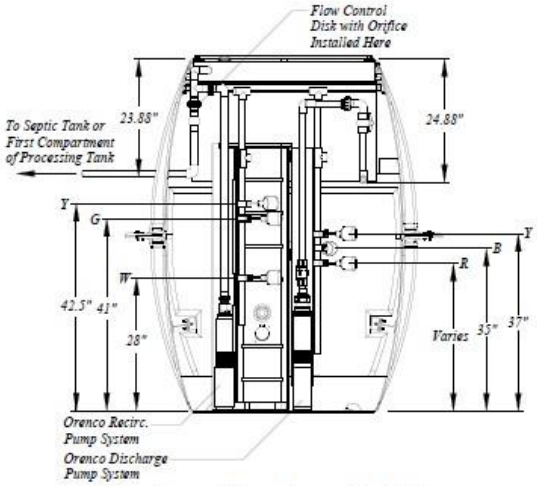
Control Panel Detail
Not To Scale

Float Functions	
Y	High Level Alarm
B	Pump On
G	Override Timer ON/OFF
R	Pump Off
W	LLA/RO



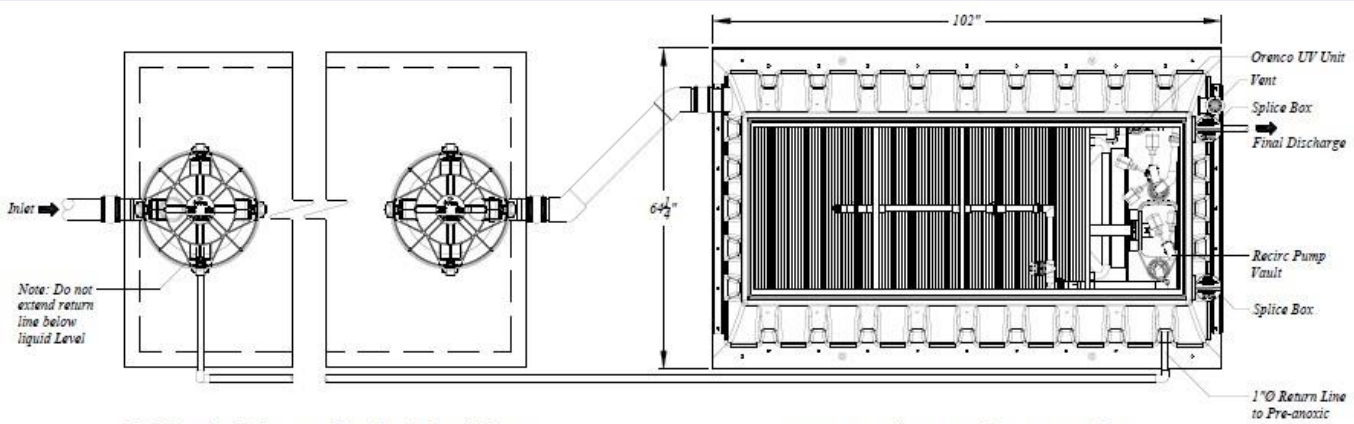
1000 gal. Primary Tank - Side View

AX20 Recirc. Tank - Side View



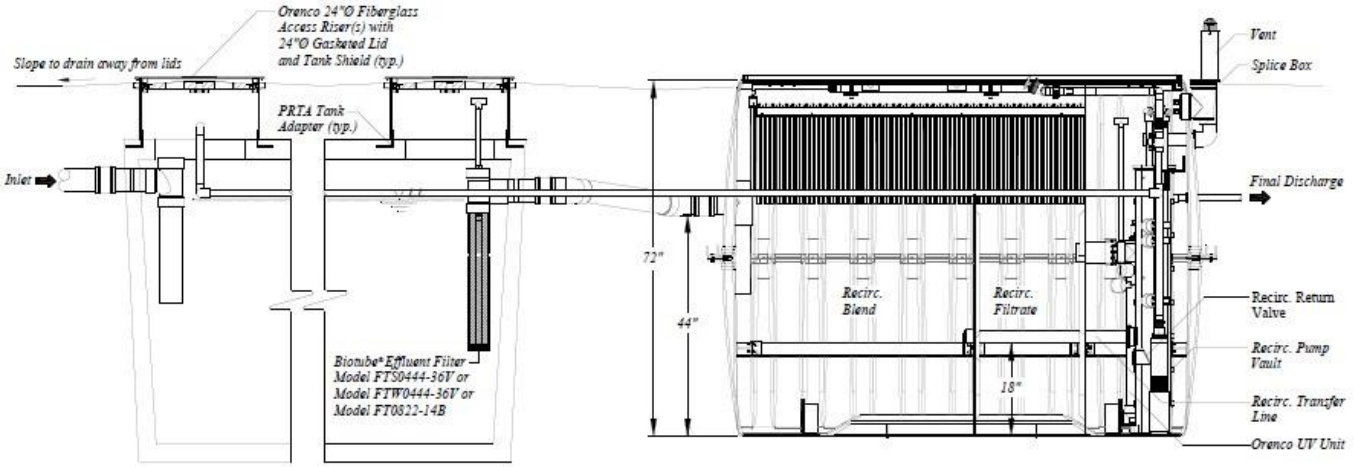
Discharge Chamber - End View

AX20RTUV with a Pump Discharge



1000 gal. Primary Tank - Top View

AX20 Recirc. Tank - Top View



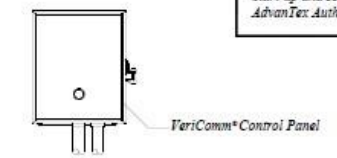
1000 gal. Primary Tank - Side View

AX20 Recirc. Tank - Side View

For residential strength waste up to 4 bedrooms.

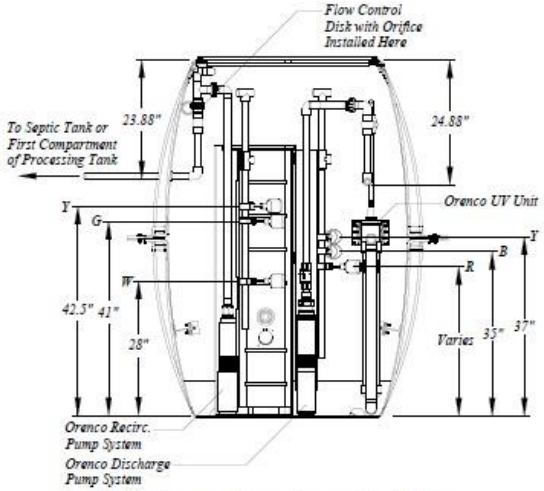
Installation to be performed by an Adv Authorized Installer only.

Start-up and service to be performed by AdvanTex Authorized Service Provider



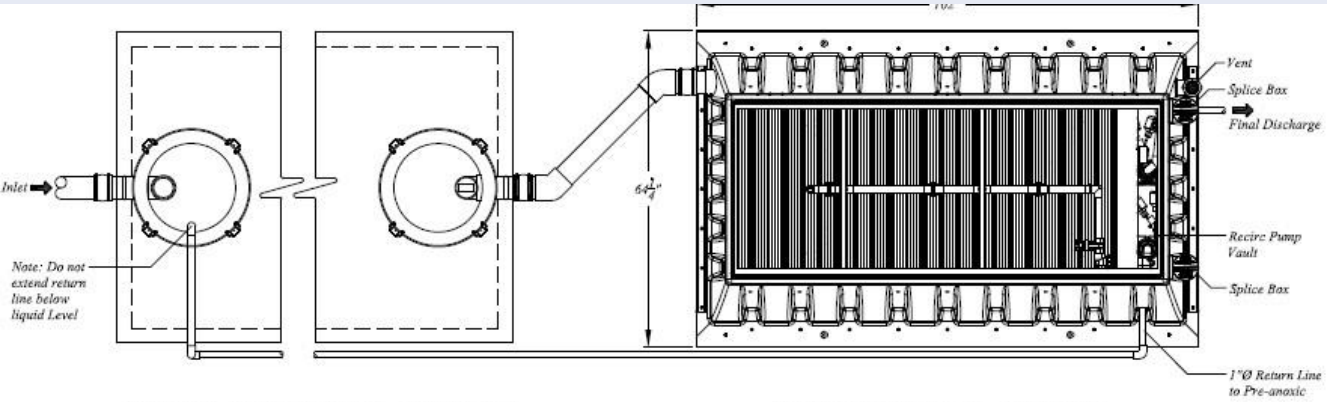
Control Panel Detail
Not To Scale

Float Functions	
Y	High Level Alarm
B	Pump On
G	Override Timer ON/OFF
R	Pump Off
W	LLA/RO



Discharge Chamber - End View

AX25RT with a Pump Discharge



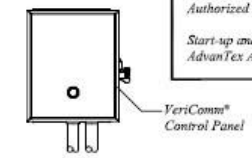
1000 gal. Primary Tank - Top View

AX25 Recirc. Tank - Top View

bedrooms.

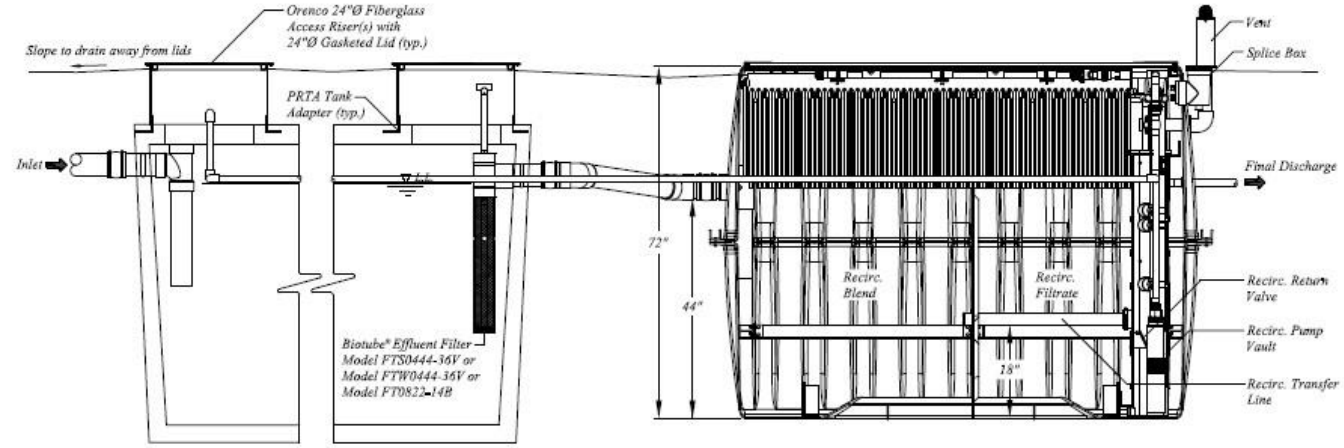
Installation to be performed by an AdvanTex Authorized Installer only.

Start-up and service to be performed by an AdvanTex Authorized Service Provider only.



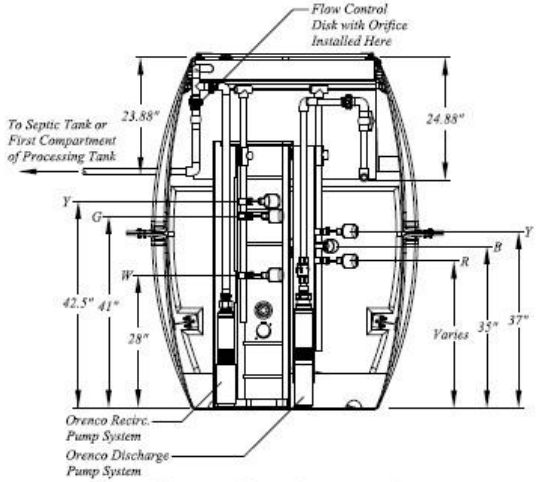
Control Panel Detail
Not To Scale

Float Functions	
Y	High Level Alarm
B	Pump On
G	Override Timer ON/OFF
R	Pump Off
W	LLA/RO



* Primary Tank - Side View

AX25 Recirc. Tank - Side View



Discharge Chamber - End View

What's Required in PA for Maintenance

III. Minimum Maintenance Standards

a. Service Contract: A service contract with a Service Provider qualified to maintain the AdvanTex Treatment System is required. The service contract will require a minimum of two site visits annually. When the AdvanTex is used for the specific purposes of reducing total nitrogen, the telemetry monitoring system is required unless the subject site does not have telemetry capabilities.

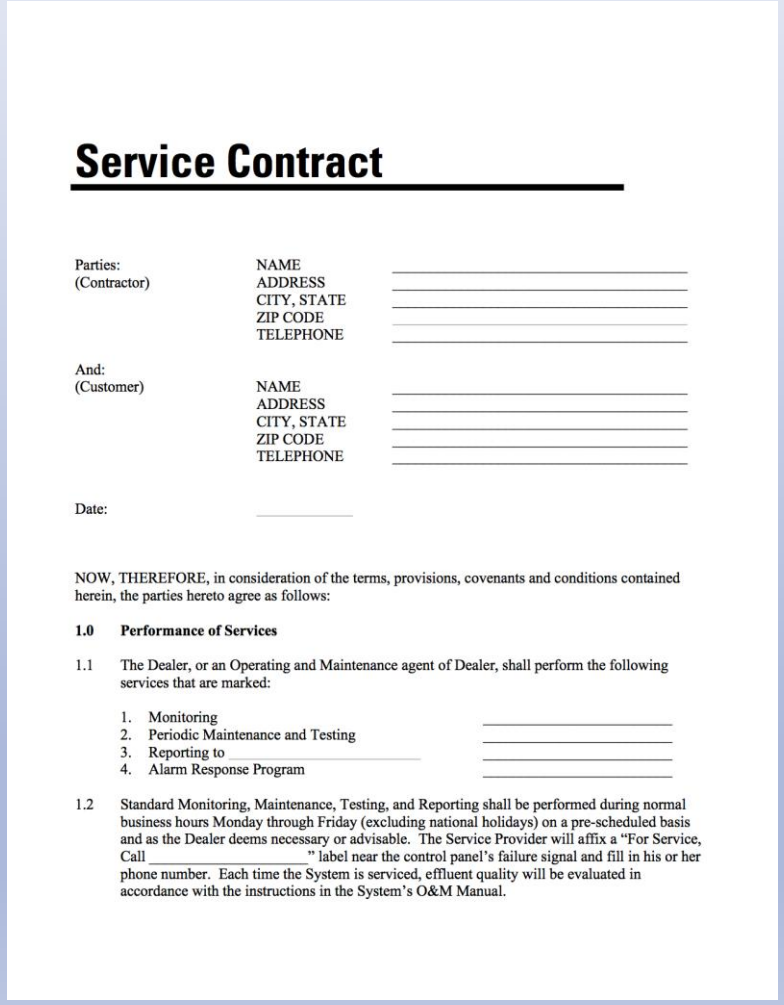
b. Inspection:

(1) Inspection of the area around the outside of the media filter and soil absorption area every 6 months by the homeowner and annually by the Service Provider to ensure that there is no ponding of effluent or downgradient seepage.

(2) Septic tanks, dosing tanks, and lift pump tanks shall be inspected every 6 months for structural integrity of the tank, inlet and outlet baffles, solids retainer, pumps, siphons, and electrical connections. Aerobic tanks shall be inspected every 6 months for structural integrity of the tank, inlets, and outlet baffles, buoyed solids retainer, pumps, siphons, and electrical connections. The inspection and concurrent pumping of excess solids shall be conducted in accordance with the manufacturer's requirements.

O&M Service Contract

- An initial service contract should be signed by the system owner with an authorized service provider
- The SEO / Designer should make sure a contract is in place prior to a completion statement.



Service Contract

Parties:
(Contractor)

NAME _____
ADDRESS _____
CITY, STATE _____
ZIP CODE _____
TELEPHONE _____

And:
(Customer)

NAME _____
ADDRESS _____
CITY, STATE _____
ZIP CODE _____
TELEPHONE _____

Date: _____

NOW, THEREFORE, in consideration of the terms, provisions, covenants and conditions contained herein, the parties hereto agree as follows:

1.0 Performance of Services

1.1 The Dealer, or an Operating and Maintenance agent of Dealer, shall perform the following services that are marked:

1. Monitoring _____
2. Periodic Maintenance and Testing _____
3. Reporting to _____ _____
4. Alarm Response Program _____

1.2 Standard Monitoring, Maintenance, Testing, and Reporting shall be performed during normal business hours Monday through Friday (excluding national holidays) on a pre-scheduled basis and as the Dealer deems necessary or advisable. The Service Provider will affix a "For Service, Call _____" label near the control panel's failure signal and fill in his or her phone number. Each time the System is serviced, effluent quality will be evaluated in accordance with the instructions in the System's O&M Manual.

Before Going to the Site

Review Site Information

- Review Control Panel Telemetry
- vericomm.net
- advantexservice.com
- Hard files (Township, pumping, etc)
- Print all appropriate maintenance forms
- Understand the site design and each component

Tools Required for Effective O&M

- PPE
- Sludge Judge
- Hoses (plenty of them)
- Spray nozzle
- Pressure washer
- Pipe brushes
- Test kits
- Sample bags
- Paperwork
- Camera Snake
- Mirror
- Flashlight
- Basic Hand tools (measuring tape, screw drivers, pliers)
- OHM tester

At the Site

Getting Started

- Walk around the site
- Visually inspect
  - Equipment for damage
  - Tank liquid levels
- Unbolt pod lids
- Check pods for odors
- Look at media for even dispersal

Getting Started

- Open all lids on the system
- PA utilizes a combo pod meaning the pod is split into two parts.

AdvanTex® Textile Filter
Characteristics of Biomat

- Color — Light to dark brown, not yellow
- Texture — Gelatinous, not lard-like
- Odor — Musty, not pungent
- Moisture — Moist, not ponding*

**If ponding or nuisance odors occur, refer to the troubleshooting section of the Residential AdvanTex® O&M manual.*

AdvanTex® Textile Filter

Oily Film

- There should be no signs of grease and oil on the textile or in the tank

Excessive G&O is typically a design and management concern with commercial applications.

Oily Film: Commercial

- There should be no signs of oil or grease on the textile or in the tank
  - Excessive grease and oil is typically not a problem when commercial systems are properly designed and managed

Spin Nozzles

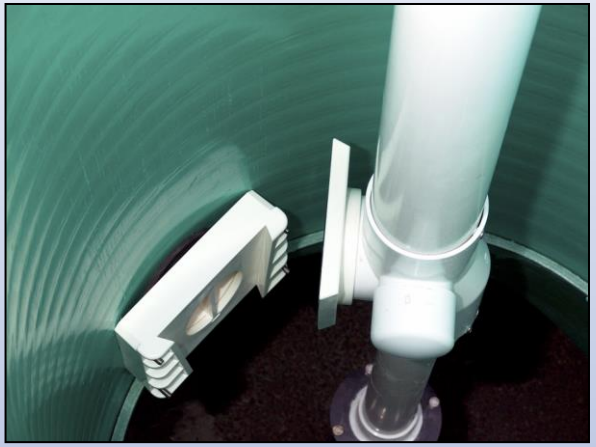
- AX-RT units utilizes the spin nozzle. AX utilizes lateral dispersal.
- Each is:
  - Easy to clean
  - Easy to remove
  - Splash Guards

Spin Nozzles

- Have a uniform spray

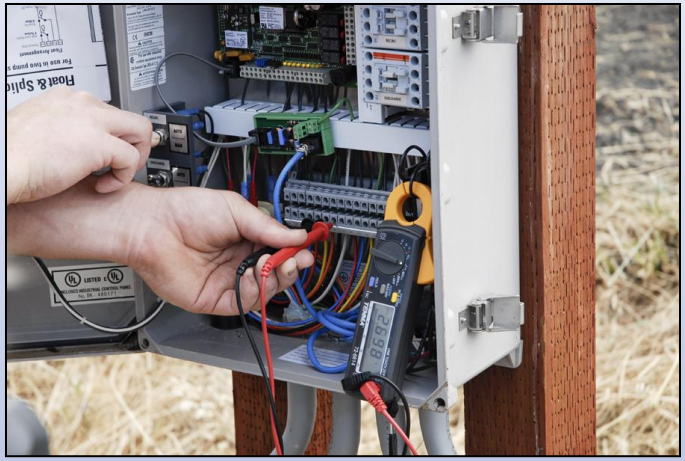
Sampling Filtrate

- AX20 Systems
  - Pull RSV out of its quick disconnect holster and lay it on the riser lid
  - Collect a filtrate sample from the RSV inlet
- AX-RT Systems
  - Discharge Compartment (UV and non-UV)
  - External Sample Basin or Discharge Tank
- Refer to the “Field Sampling/Observations” in the Residential AdvanTex® O&M manual



Checking Pump Operation

- Put the panel in test mode
  - Hold the “push to silence” button for ~15 seconds until panel chirps
- Measure the incoming voltage at the panel
- Hold spring-loaded switch in the “manual” position
  - Measure voltage and amperage of the pump(s) while running
- Verify pump operation



Checking Controls Operation

- Release spring-loaded switch to the “automatic” position
- Confirm the operation of the audible and visual alarm by lifting and lowering the alarm floats

Cleaning the Biotube® Filter Cartridge

- Switch and circuit breakers to “off”
- Remove float assembly
- Remove and hold cartridge over inlet of tank
- Carefully spray buildup into tank
- Reinsert cartridge **completely** into pump vault
- Reattach float stem

Cleaning the Pump

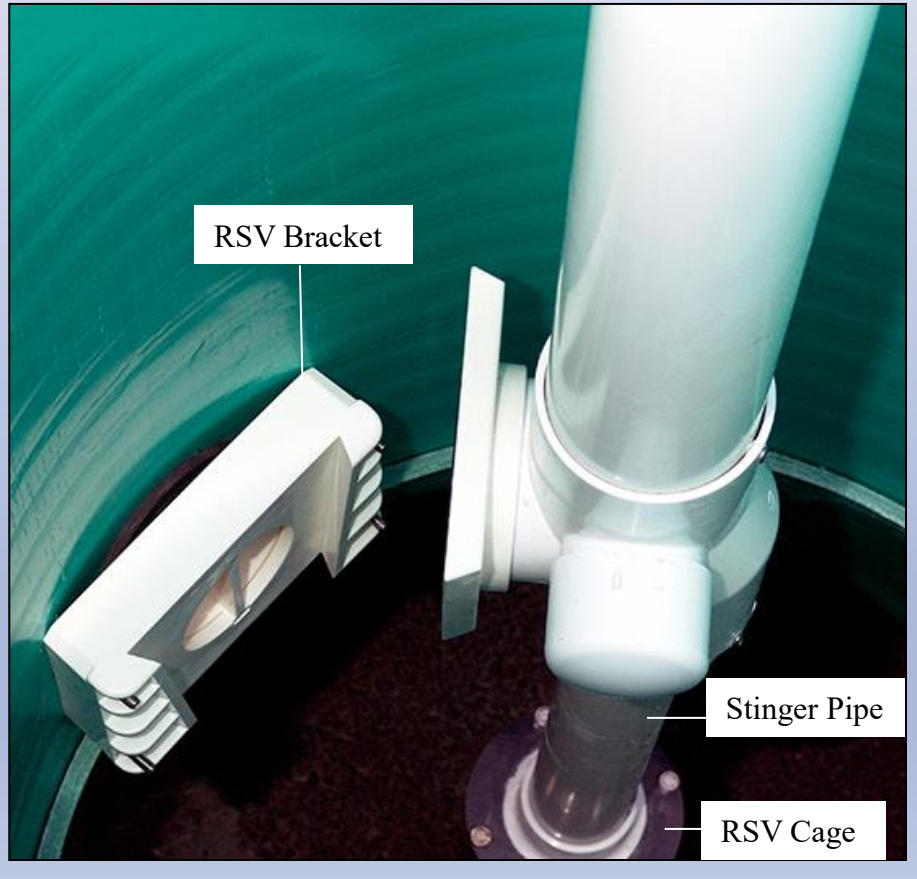
- Close ball valve
- Disconnect discharge assemblies
- Remove pump

Cleaning the Pump

- Wash off particles, as necessary
- Report abnormal particles on the Field Maintenance Report Form
- Inspect cord for nicks or swelling
- Reinstall pump
- Reconnect discharge assemblies
- Repeat the above process for each pump in the system
- OHM draw and record

Cleaning Recirculating Splitter Valve:
Residential

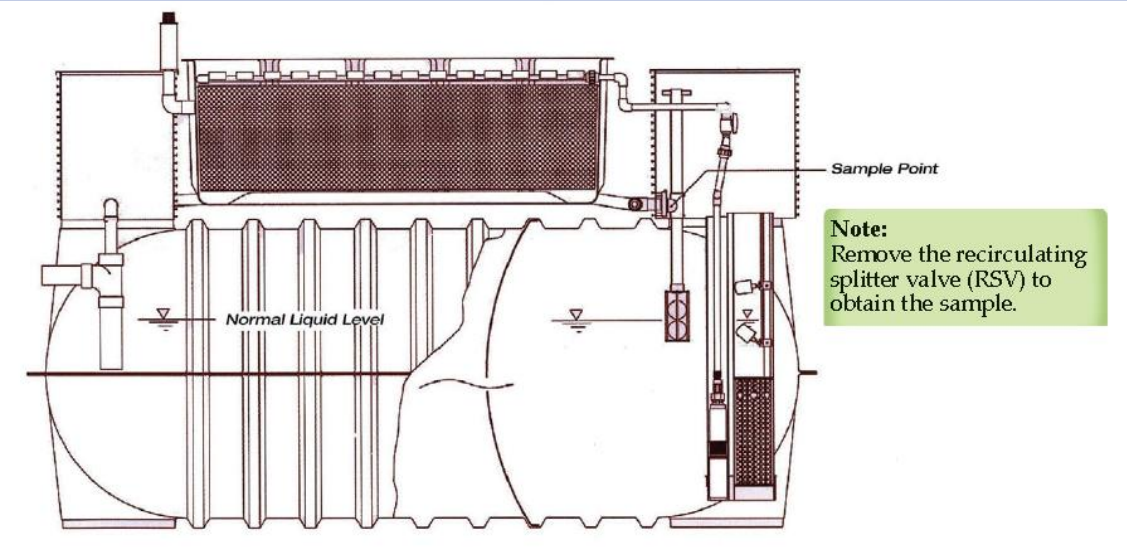
- Clean RSV of any debris



Risers, Splice Box, Floats, and RSV

- Reinstall splitter valve

- Verify tank liquid level is in normal range (refer to drawings)
  - If low, the ball mechanism could be jammed in the seated position; remove, disassemble, and inspect
  - If high, the RSV may require cleaning because it is not making a tight seal when seated; remove, disassemble, and inspect

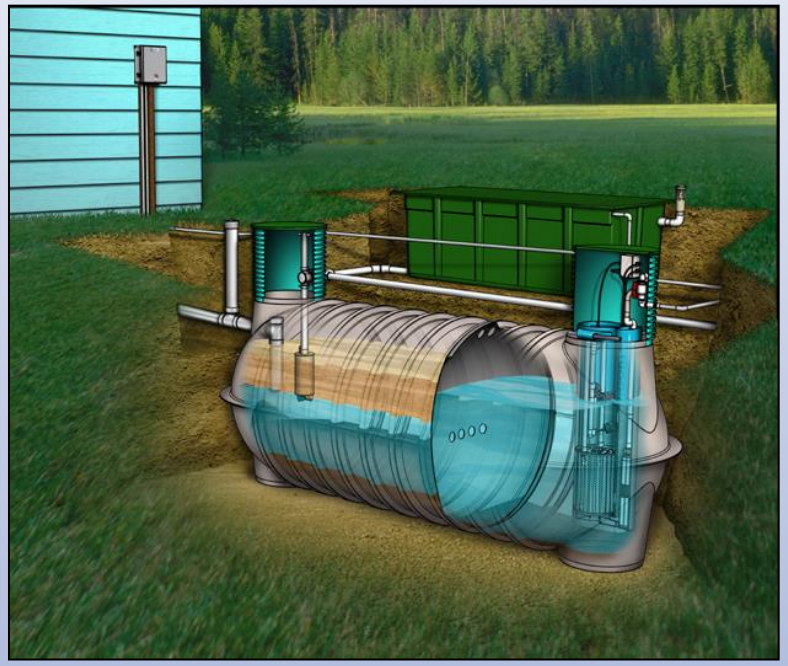


Risers, Splice Box, Floats, and RSV (cont)

- Verify no holes or leaks in riser/riser connection
- Inspect splice box for secure, watertight connections. Remove any water present.
- Verify float condition and neat wrap of float cords

Inspecting the Processing Tank

- Verify there is no continuous flow at inlet (could indicate faulty fixtures or leaking plumbing)



Inspecting the Processing Tank

Secondary Compartment

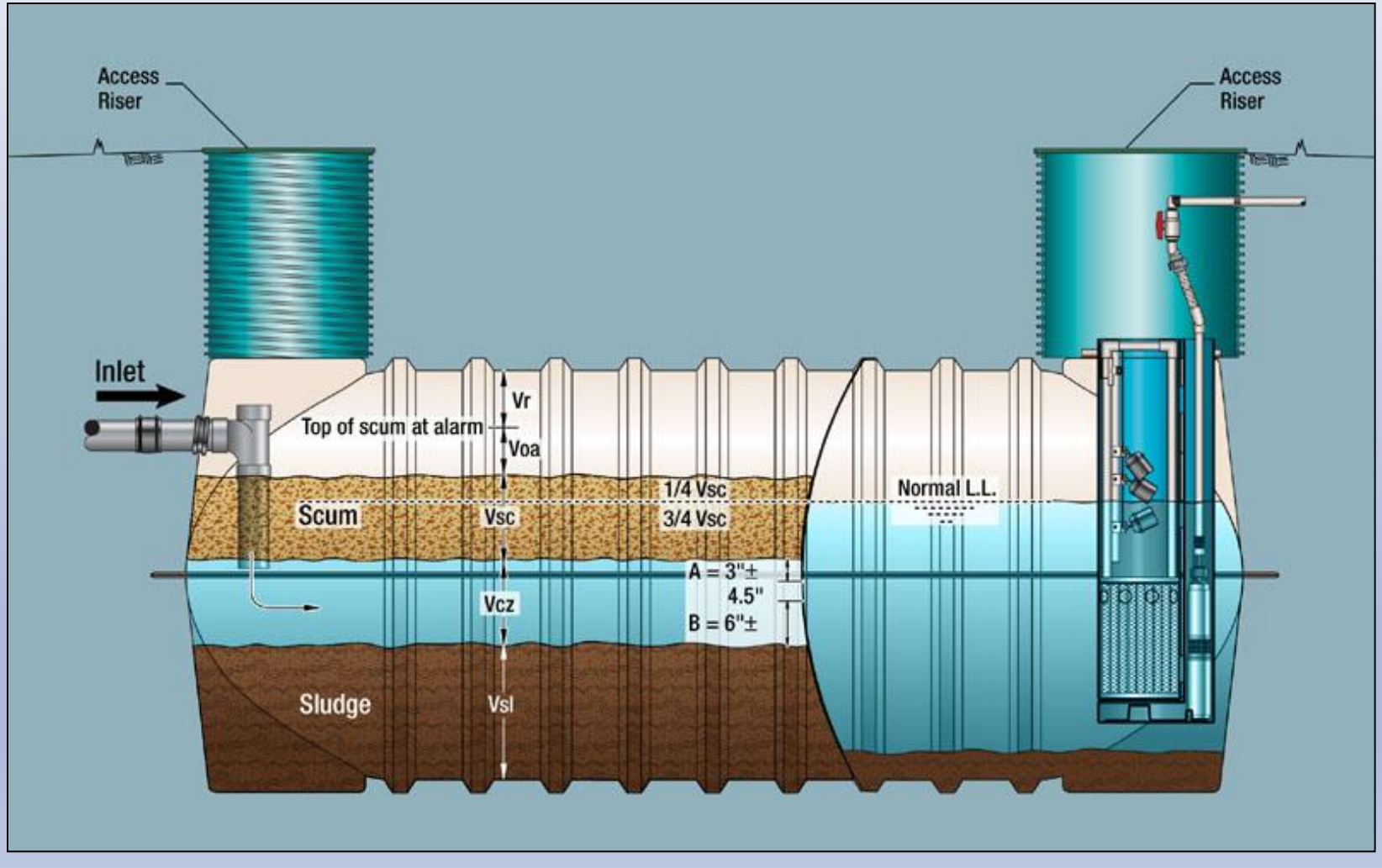
- Little scum will be present in the secondary compartment

Inspecting the Tank

Measuring Sludge/Scum Thickness

- Measure sludge/scum accumulation annually
- Recommend pumping when ...
  - Scum is about 3" above flow-through ports, or
  - Sludge is about 6" below flow-through ports

Measuring Sludge/Scum Thickness



Two Main Ways to Clean Laterals

- Use pump or jet hose
- Use a bottle brush

Flushing AdvanTex® Laterals

Flush

Check squirt

Miscellaneous O&M Procedures

- If system has a UV device, perform maintenance on UV disinfection unit per manufacturer’s instructions.
- Inspect, clean, and report on all components within the treatment system including additional tanks, pumps, floats, and alarms
- Complete and report any additional treatment system maintenance documentation

Before Leaving the Site

Before Leaving the Site

- Verify that valves are back to proper operating positions
- Panel in auto
- RSV is seated
- AX pod valves in proper position
- Floats are operational
- Biotube Secured

Before Leaving the Site

- Make sure all lids are securely bolted
- At your first visit, it’s helpful to take photos of the system layout for future reference
- Fill in checklists/forms
- Field Maintenance Reports
- County/State required forms

Before Leaving the Site

- Discuss with the owner any needed repairs
- Discuss with the owner any pump and haul requirements/timelines
- Provide estimates to repair, pump, or provide additional testing
- Discuss preventive maintenance

Homeowner Preventive Maintenance

- Septic additives
- Flammable or toxic products
- Excessive use of cleaners
- Pool or spa products
- Pharmaceuticals
- RV waste
- Storm water
- Excessive FOG
- Food byproducts
- Cigarette butts
- Disposable wipes
- Water softener backwash from salt-type softeners

Operation, Maintenance, and Repair Recap

- Understanding the configuration at the site
- Understanding the permit and its objective
- Clean, inspect, report
- Educating the owner with solutions if needed
- Documenting your work and planning for the next year
- You get what you pay for:
  - Fuel
  - Labor Cost
  - Equipment repairs and eventual replacement
  - Drive time
  - Education time
  - Office time
  - Lab fees
  - And more…

Field and Office Support

TRI-COUNTY
WATER SERVICES

Phone Contact:

610 857 1740

Email:
Andrew@tricowater.com
Brent@tricowater.com