Presented at NOWRA 2025 Mega-Conference, October 19-22, 2025.

Disclaimer

The opinions presented in this presentation are the Presenter's and do not reflect NOWRA's

Unit Types in Ohio

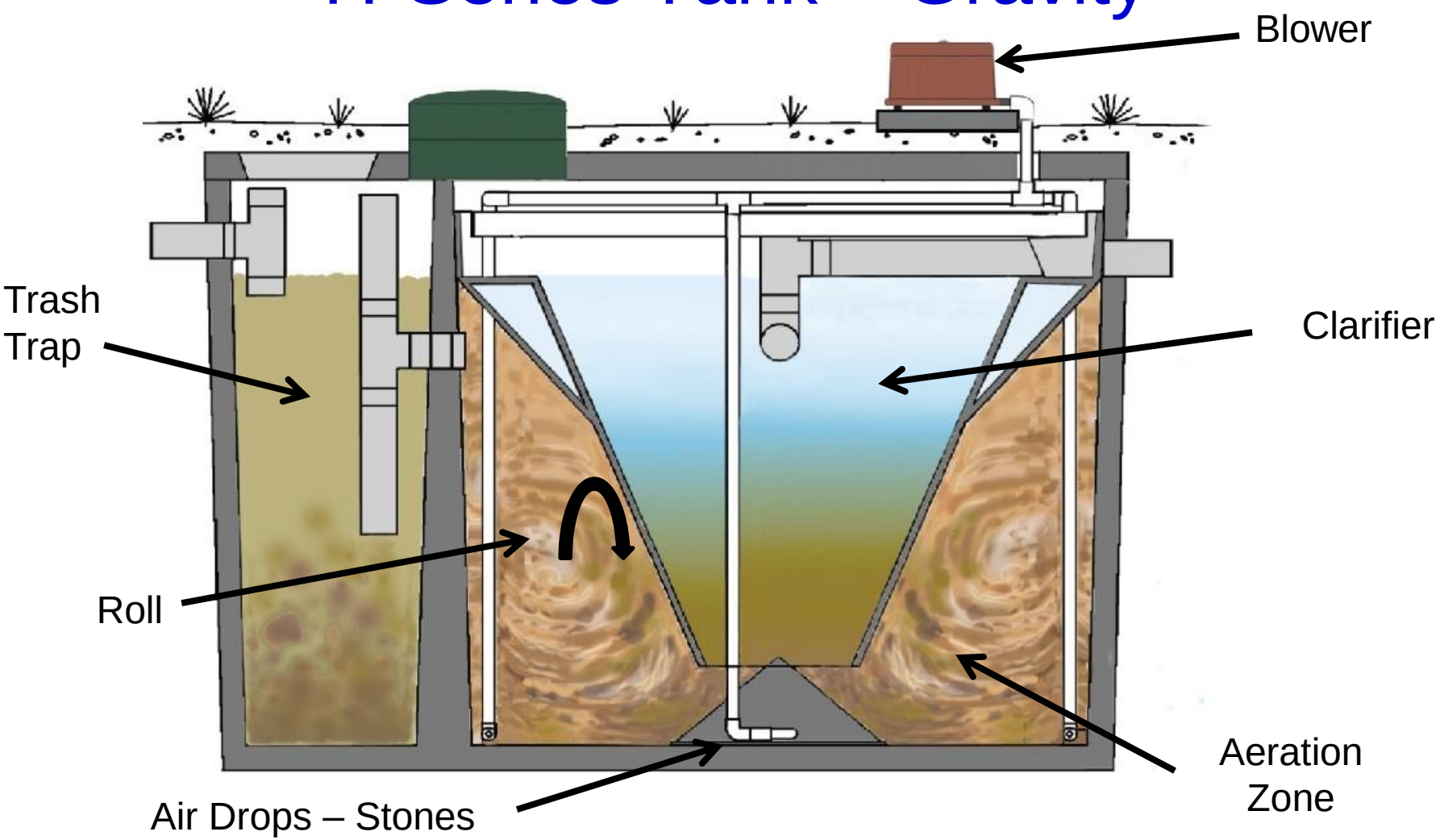
- H-Series Gravity System

  Soil Based System
- H-Series with Pumped Tank

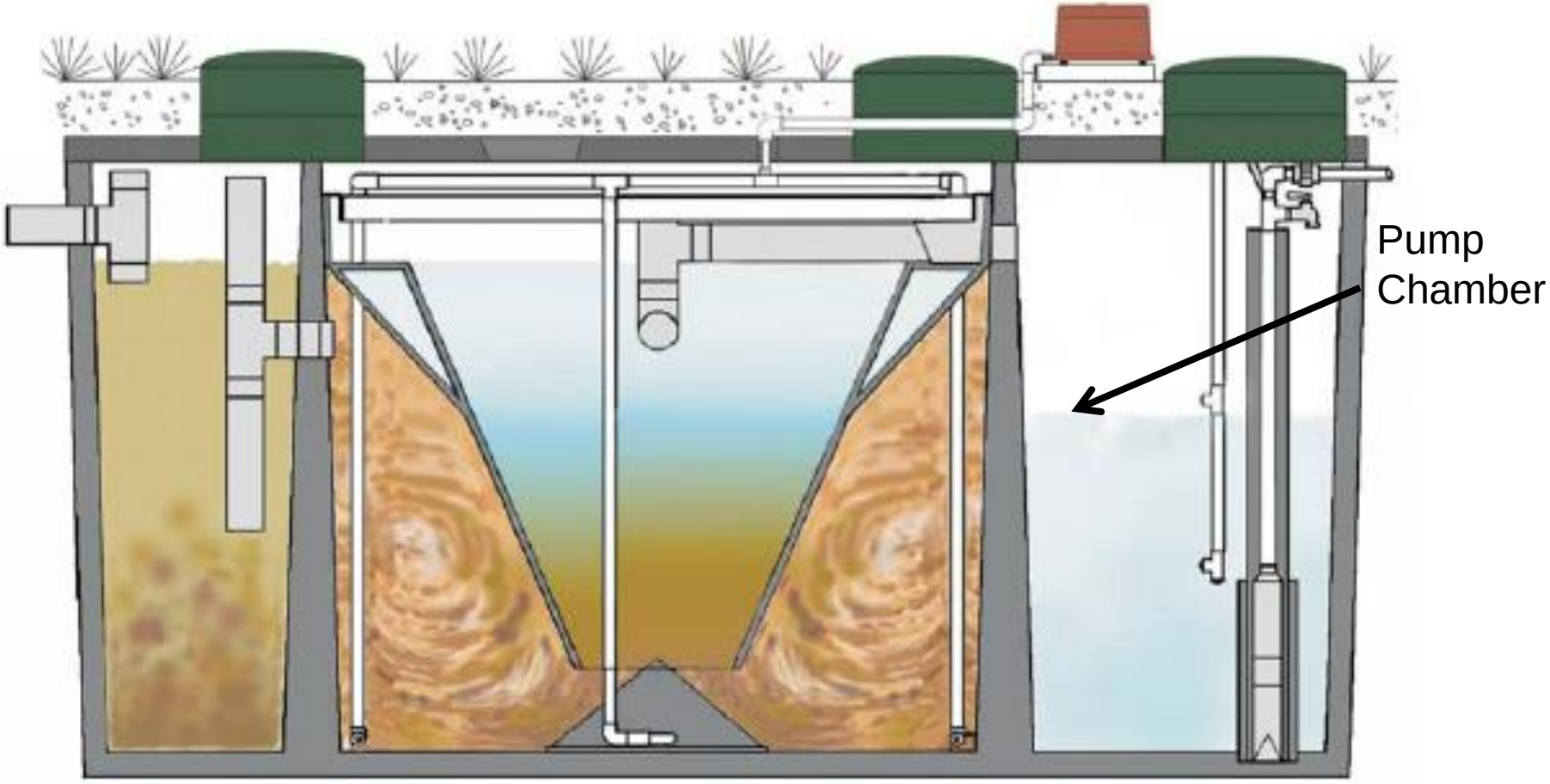
  Soil Based System
- H-Series with UV – 1 Foot Depth Credit
- H-Series NPDES

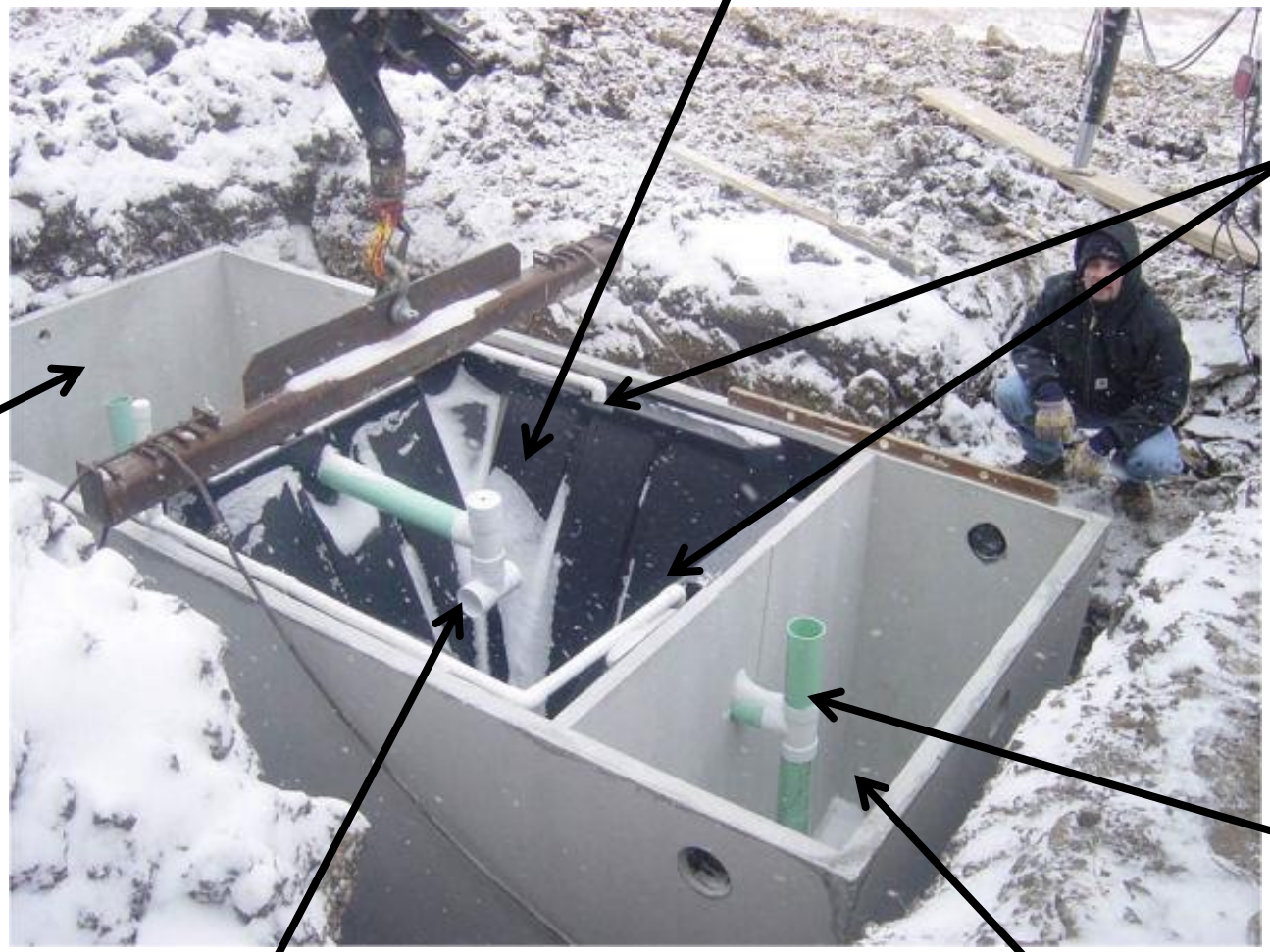
  Off-lot Discharge System – in progress

H-Series Tank – Gravity



H-Series Tank – Pumped




Hopper
Air Lines
Optional attached Pump Tank
Outlet – Trash Trap
Outlet Skimmer
Trash Trap


LINDSAY CONCRE
PRODUCTS CO., I

Maintenance

- Inspections are required every 6 months
  - First Two Years are included in price
  - This is an NSF Requirement (and the State follows this).
- Service Call Requires Simple Tools
  - 15 - 30 Minutes on site
  - Clean Air Filter
  - Solids observations in Pre-Treat, Aeration Chamber and Pump Tank
  - Ensure everything is operational

Focus Areas

- Onsite Observations
  - Location of Equipment
  - Type of System
  - Install Practices
  - Operational
- Internal Observations
  - Floatables
  - Aerobic Activity
  - Excessive Floc
  - Operating Water Level
  - Sludge Levels
- System Operations
  - Blower Area Clean
  - Panel Functioning
  - Internal Corrosion
  - Pump Operational
- Maintenance
  - Rebuild Blower
  - Rebuild Effluent Pump
  - Stone Flushing
  - Sampling

Outside of Tank Observations


HOOT
AEROBIC TREATMENT
SYSTEM CONTROLLER
SYSTEM CONTROL CENTER
SILENCE ALARM

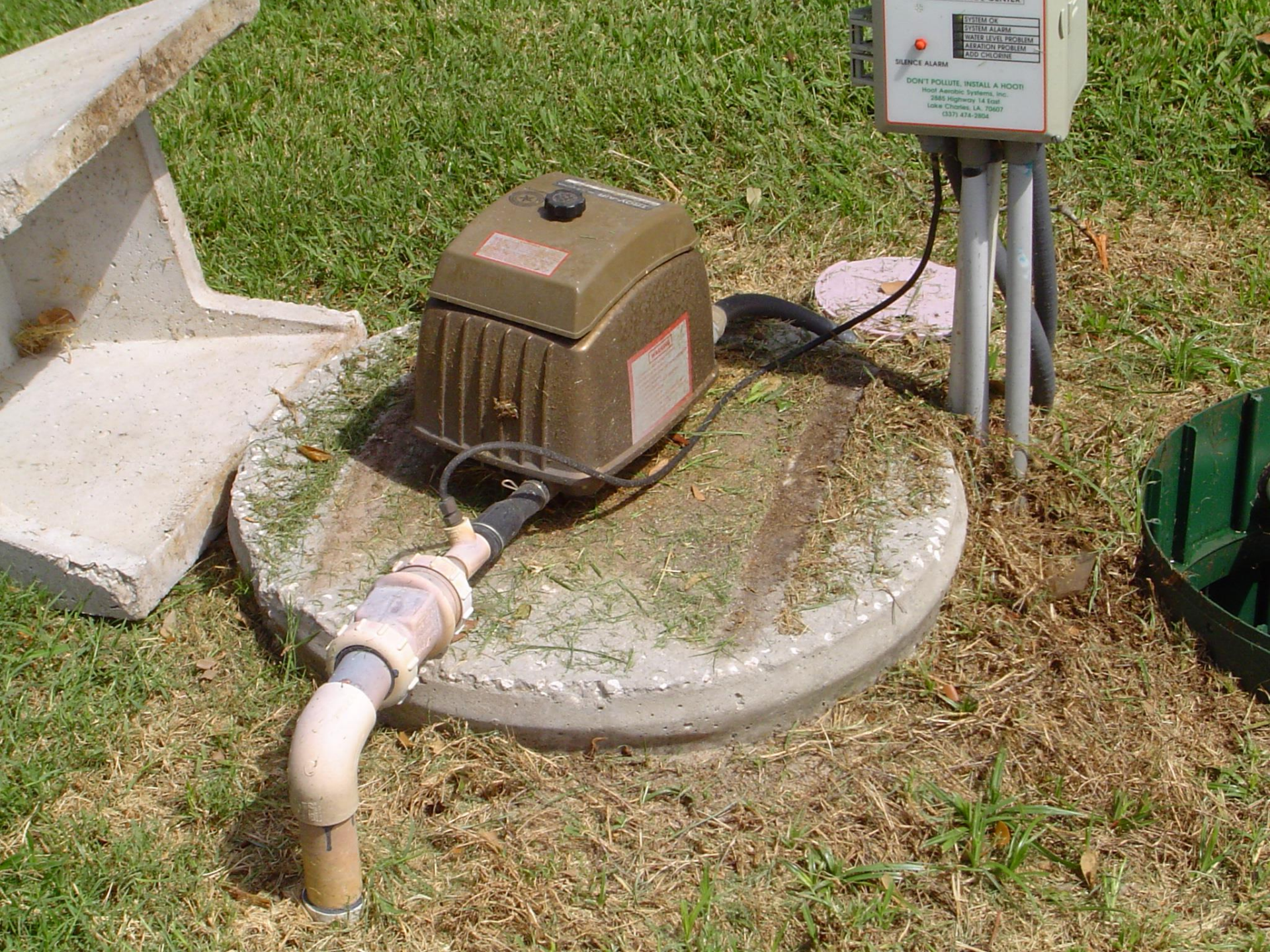
Check the blower pad for elevation and proper ventilation.

Air must flow underneath the blower and should not be in the direct path of irrigation or areas that flood.

- Walk the soil dispersal area and look for leaks
- Check discharge lines for leaks

- Check for debris around pad and dog house.
- Remove the dog house and clean the blower filter and pad.
- Use water to clean dirt, clippings, mulch, etc.
- This helps with airflow and keeps the blower cool in the summer as possible.

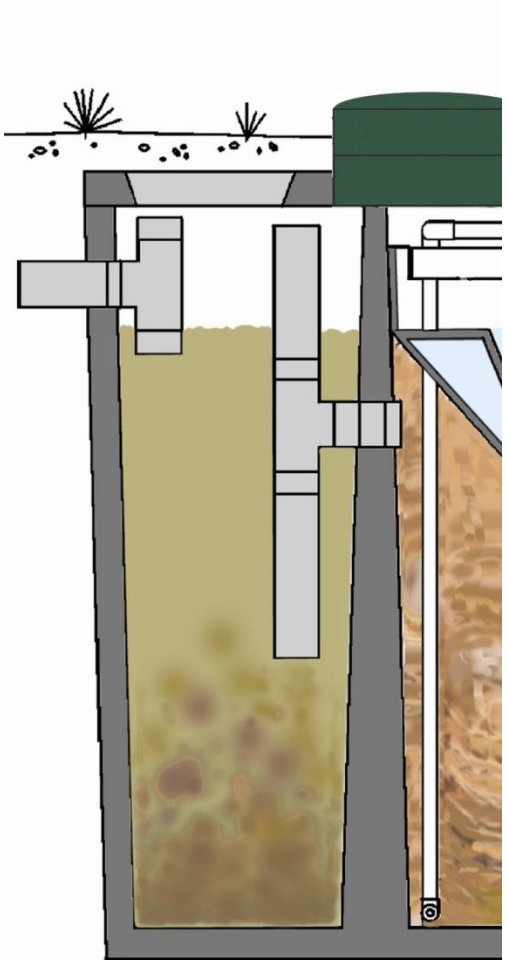

CLEAN AIR FILTER
EVERY SIX MONTHS
REPLACE FILTER
EVERY YEAR
TROY - AIR
MODEL
SERIAL
NSF


SYSTEM OK
SYSTEM ALARM
WATER LEVEL PROBLEM
AERATION PROBLEM
ADD CHLORINE
SILENCE ALARM
DON'T POLLUTE, INSTALL A HOOT!
Hoot Aerobic Systems, Inc.
2885 Highway 14 East
Lake Charles, LA. 70607
(337) 474-2804

Inside of Tank Observations

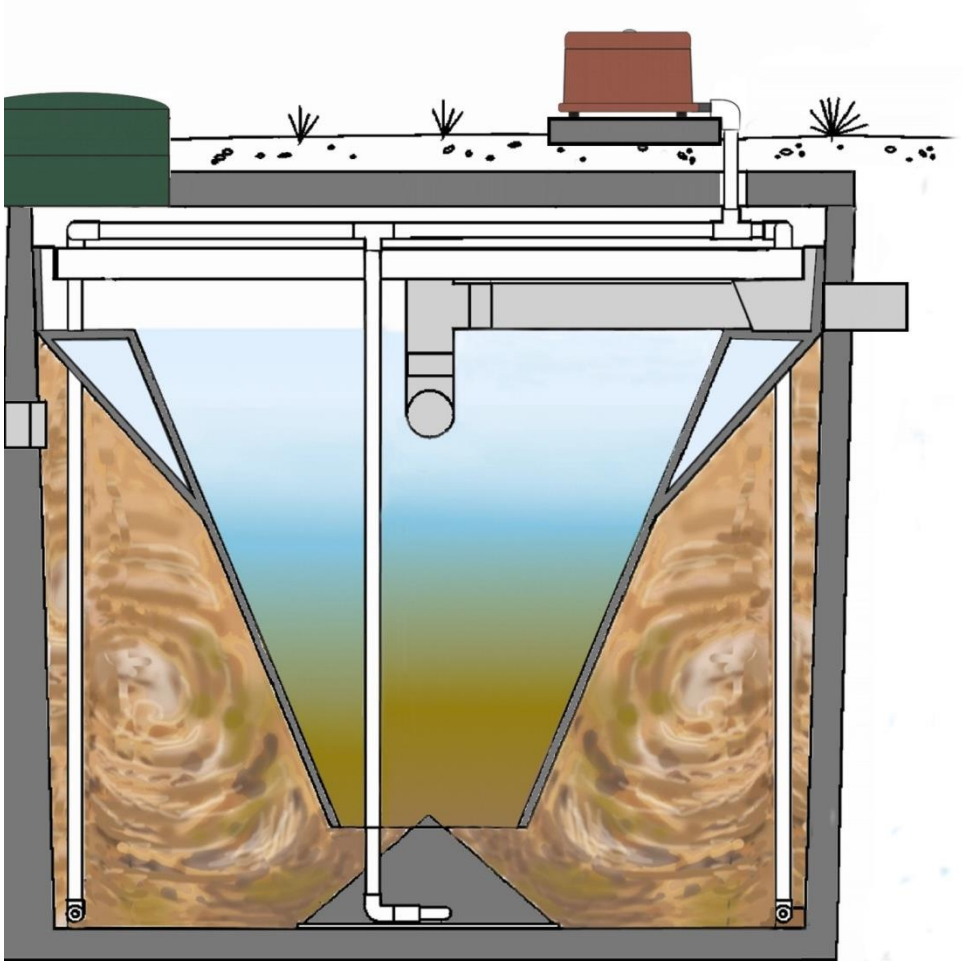
Trash Trap/Pre-Treatment

- Floatables should be no more than 6” thick
- Solids on bottom of tank should be no greater than 12”
- If either is greater, pumping is required.



Clarifier Observation

- Visual inspection is all that is necessary.
- Transfer takes place 6” below the water level so some scum is ok.
- Make sure it is not oily, or thicker than 1-2”



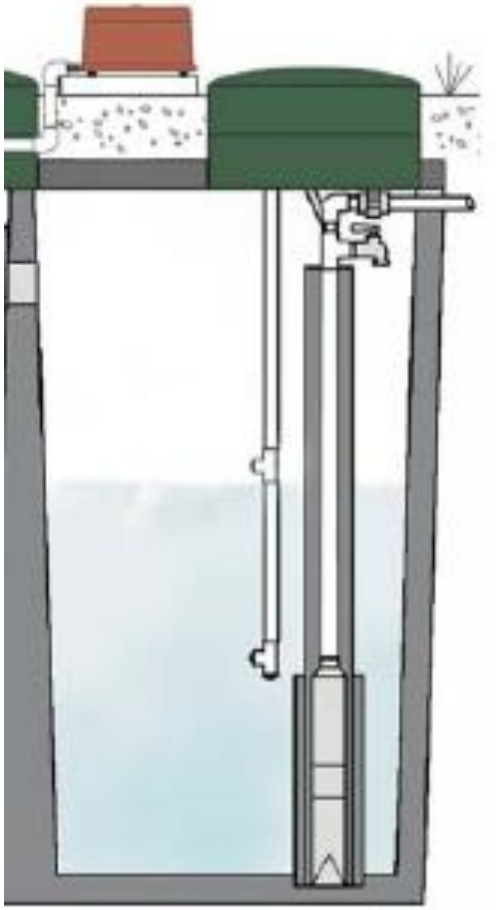
Clear Clarifier

Clear Clarifier

Dirty Clarifier with Floc

Pump Tank Observation

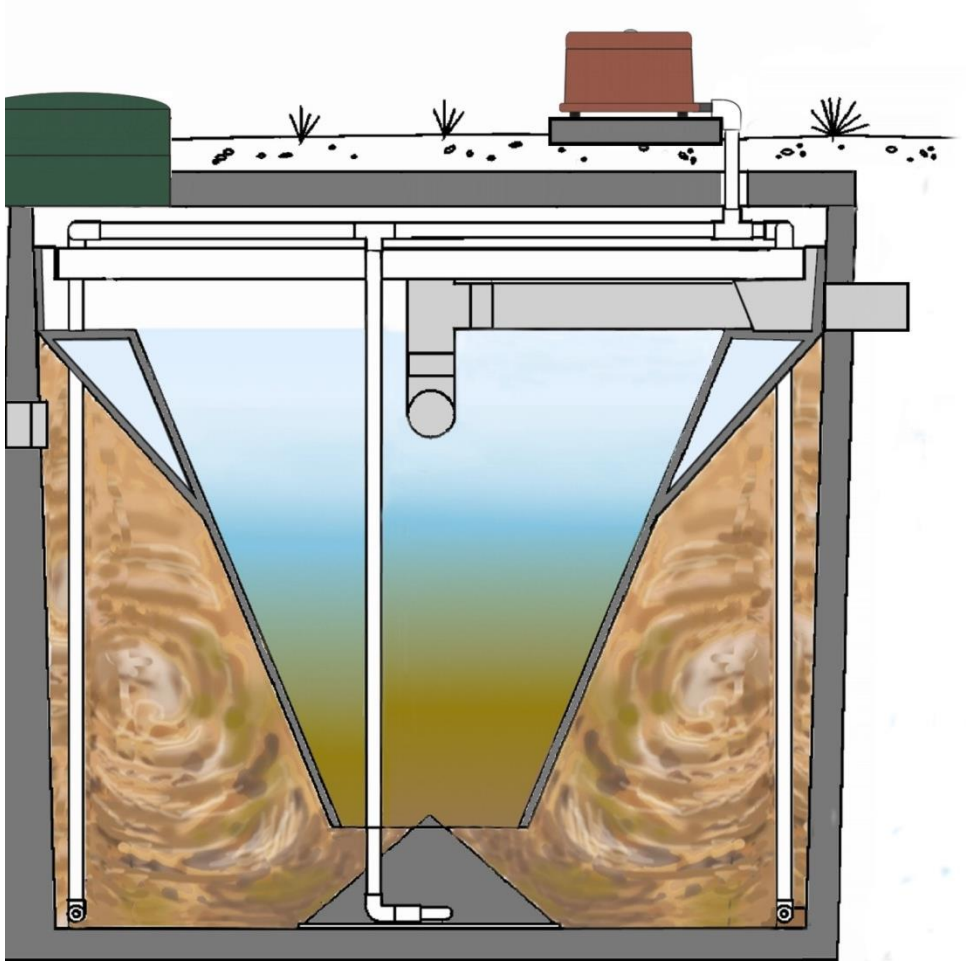
- Visual inspection to see that there are no floating solids
- Sludge judge to make sure no greater the a few inches of solids on bottom
- If solids greater than 6”, pump out is required
- Verify water level over low level contact.



Clarifier Sampling

Aeration Grab/Settleable Solids

- Sample can be taken with a bottle or sludge judge.
- 15 minute test to make sure settling occurs
- >50% recommend pumping
- >70% requires pumping




4 5:29PM


4 5:29PM


4 5:35PM

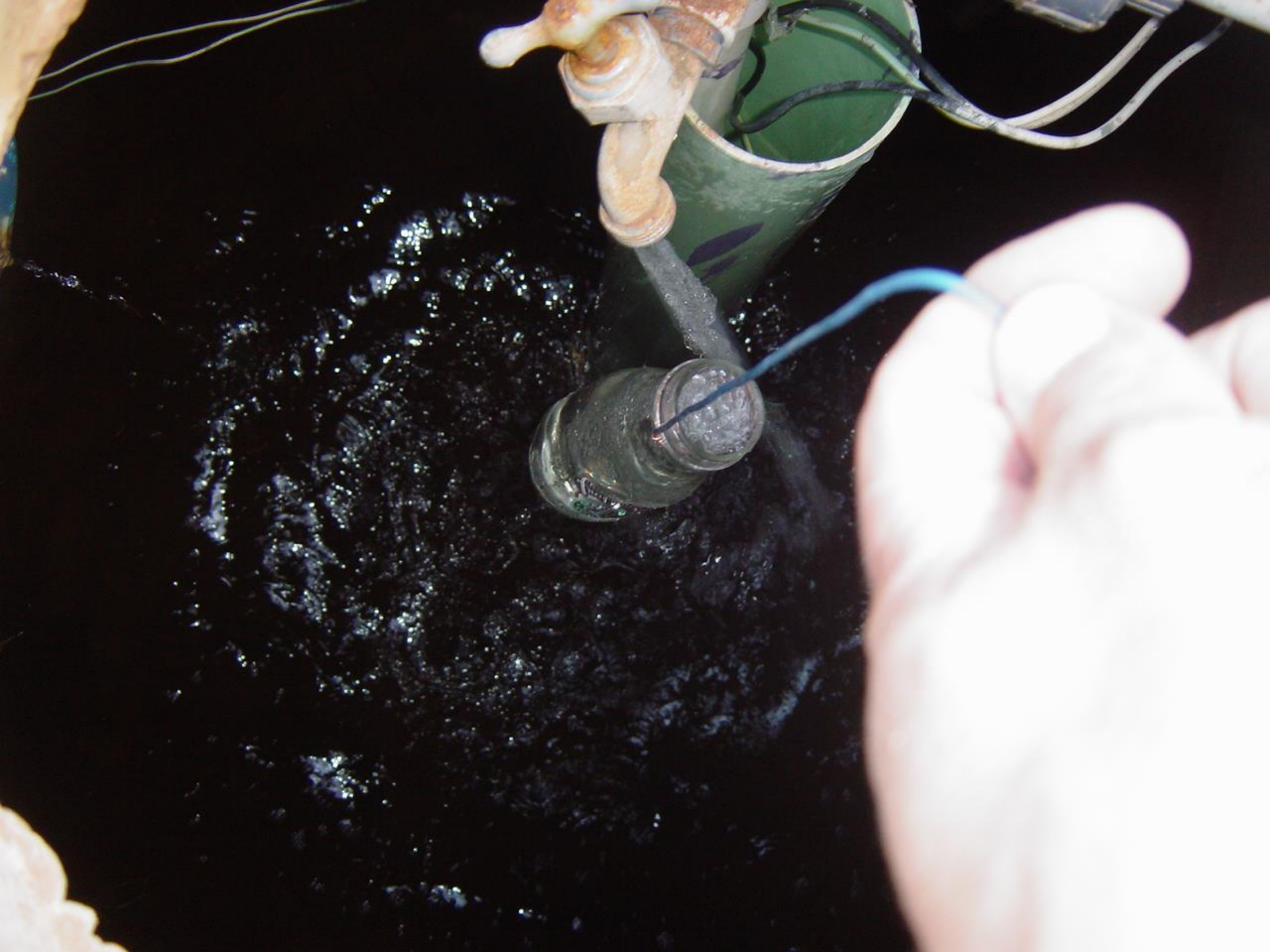

4 5:46PM

Pump Tank Sampling

Enter mode 2 to force the pump on to run the pump and obtain a sample.

Hold button down until you hear a double beep (16 sec) then release.

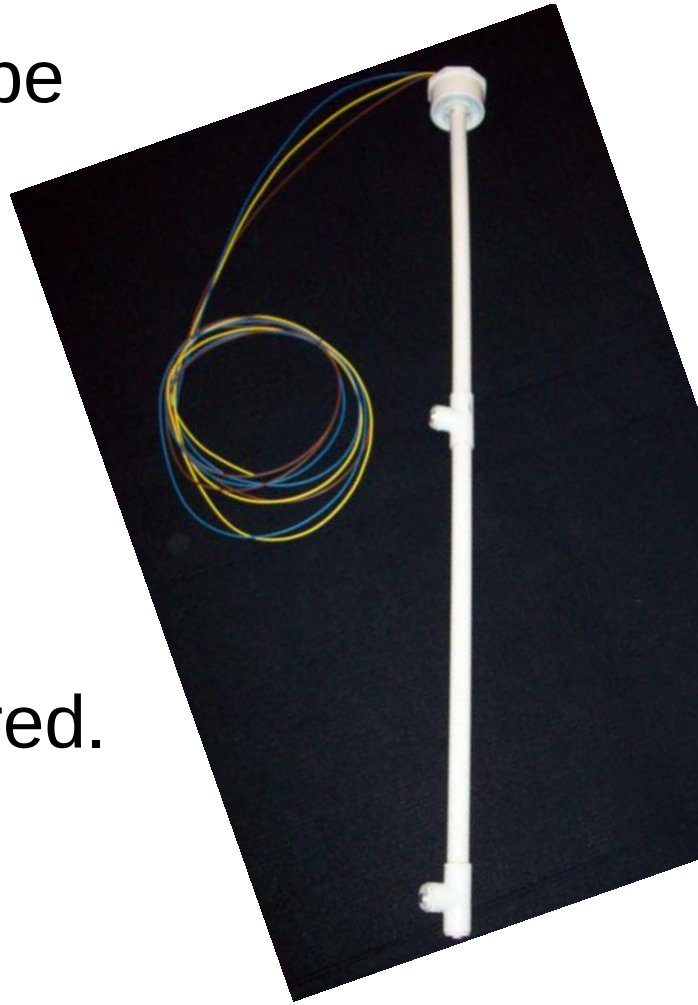
Hold back down for 10 seconds, you will hear a single beep, a double beep, release the switch and the pump will run.



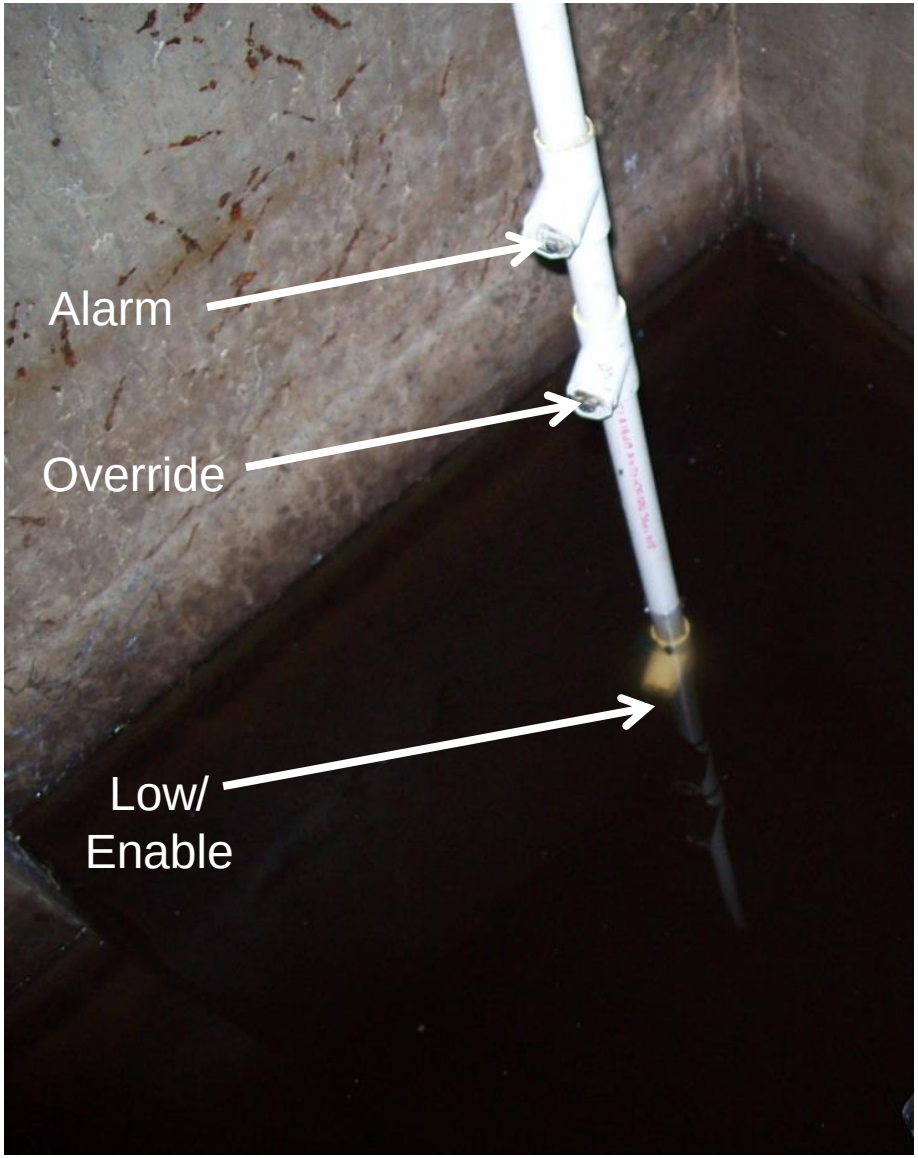
Use your bottle to dip into the pump tank to get a grab sample and look for clarity and odor.

Float Less Pump Control

- Low Current Contacts in PVC Pipe
- No Floats
  - No Mercury
  - No Mechanical Failures
  - No tangled or “Sliding” floats
- Integrated with our Controller
- Pre-Set, no field assembly required.



- Normal water level in the pump tank.
- Water only over the low probe.



Check for debris on Pump

- Note the oily film on the pump.
- Could be grease or oils

- This pump has lots of solids (leaves, grass clippings) on pump.
- Riser lid was not secured to tank.
- Clean off pump, reinstall and test.
- Secure lid properly.

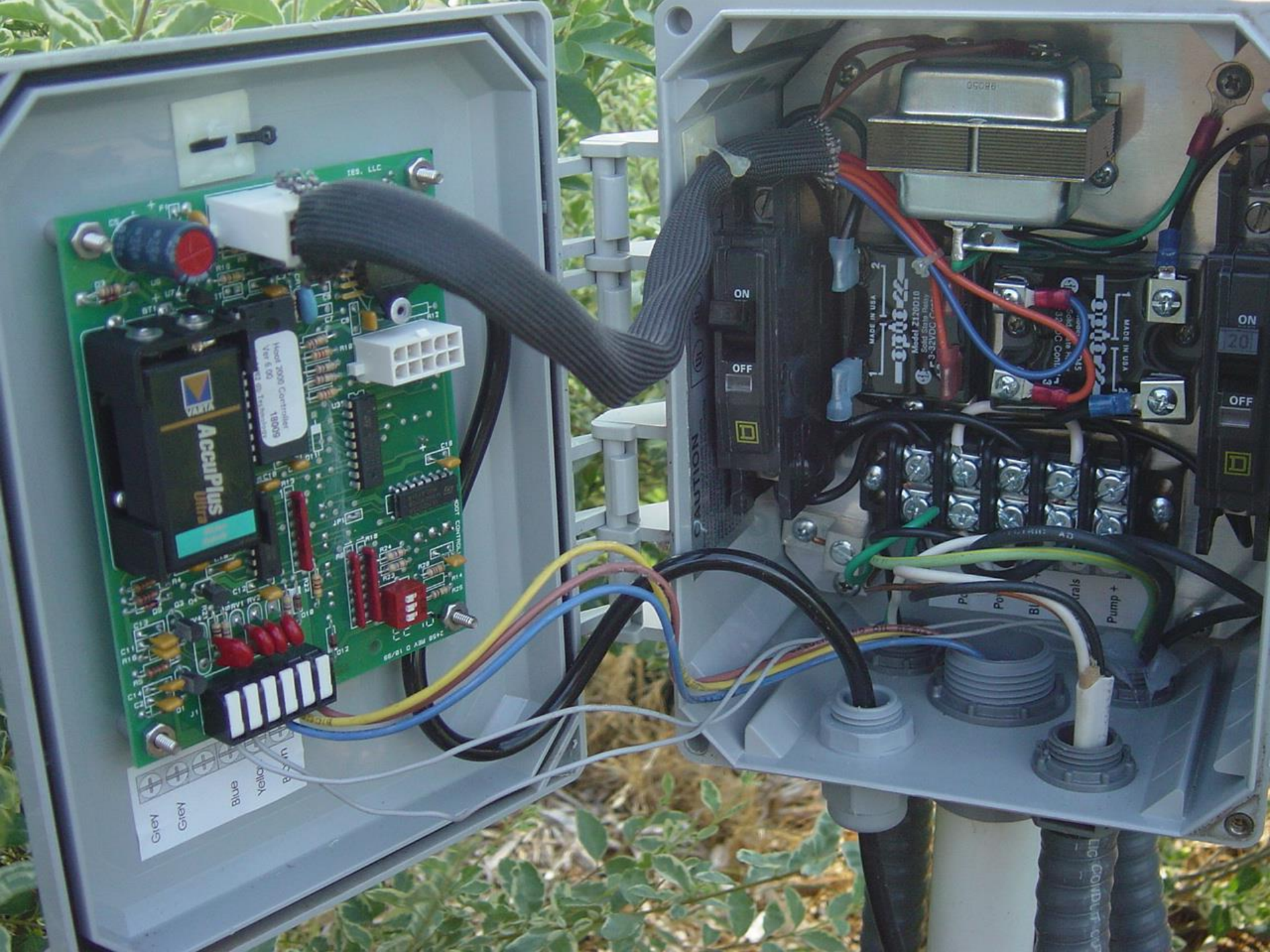
Controls Check


HOOT
AEROBIC TREATMENT SYSTEM CONTROLLER
This product has been tested in accordance with the criteria as set forth in the ANSI/NSF Standard 40 and is hereby certified as conforming with requirements for classification as a CLASS 1 Waste Water Treatment Plant.
BAYLOR UNIVERSITY
TM
SYSTEM CONTROL CENTER
SYSTEM OK
SYSTEM ALARM
WATER LEVEL PROBLEM
AERATION PROBLEM
ADD CHLORINE
SILENCE ALARM
DON'T POLLUTE, INSTALL A HOOT!
Hoot Aerobic Systems, Inc.
2885 Highway 14 East
Lake Charles, LA. 70607
(337) 474-2804

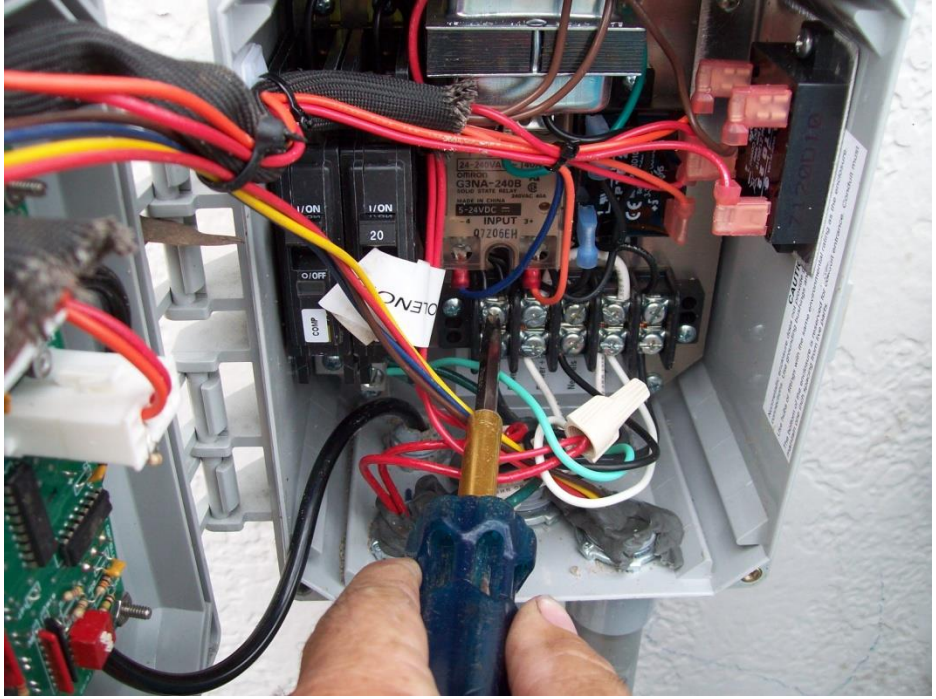
Gravity System should be on a 20 amp breaker.

Pumped system should be supplied with a 30 amp. dedicated 110 Volt breaker, or A/C style disconnect near system.

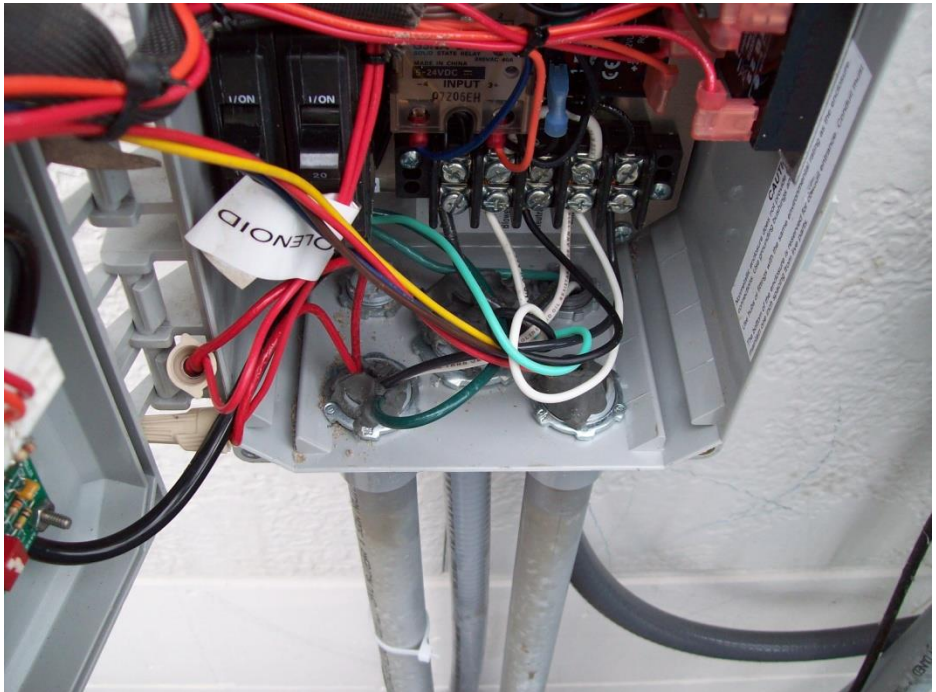
Before opening controller, disconnect power.


ON
OFF
CAUTION
AccuPlus
Ultra
Grey
Grey
Blue
Yellow
Pump +
ON
OFF

Open panel box and check all connections, for proper placement and tightness.

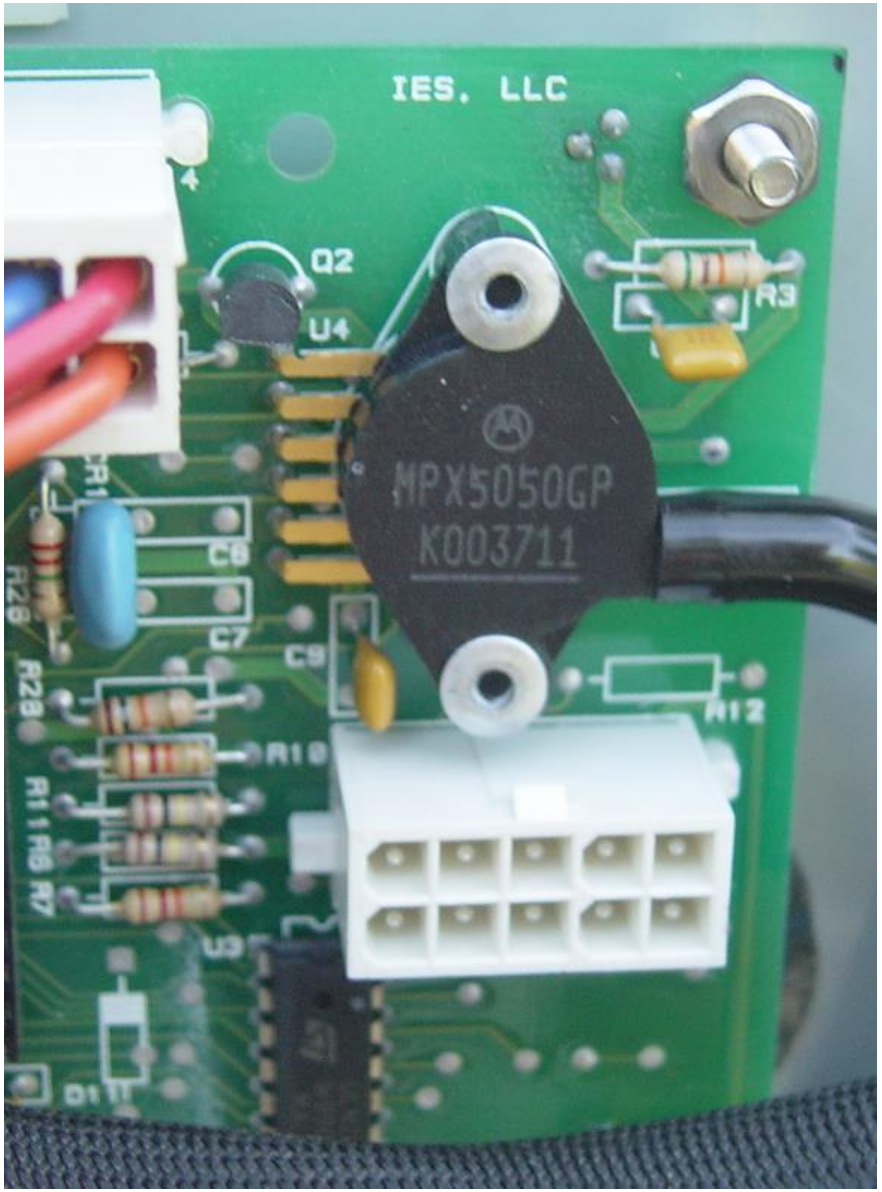


Make sure panel gasket is properly sealed, and duct seal is in place.



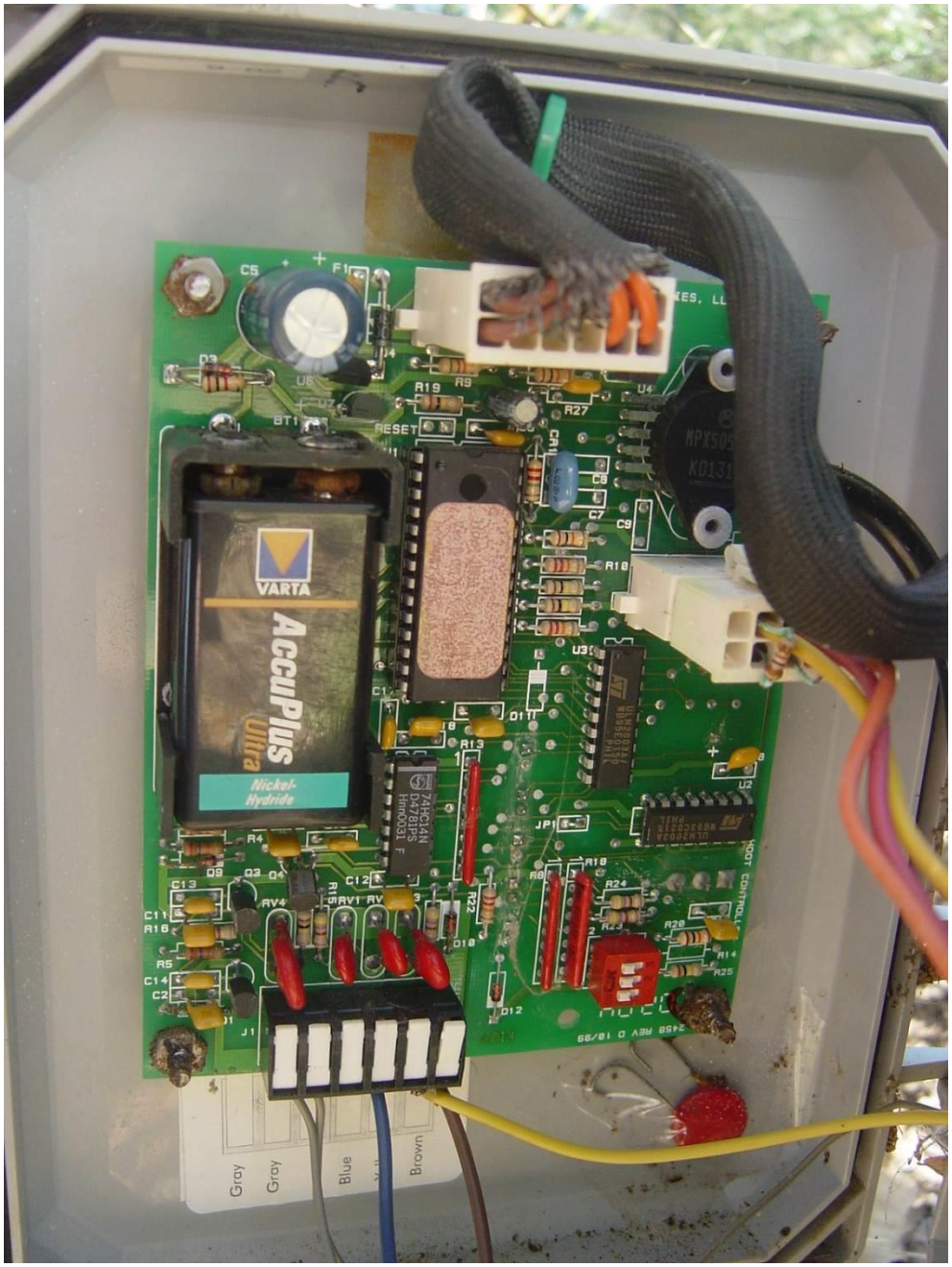
Check components on board for evidence of water stains or corrosion.

If panel is fully sealed, the leads on the pressure switch should be gold in color.



Check components on board for evidence of water stains or corrosion.

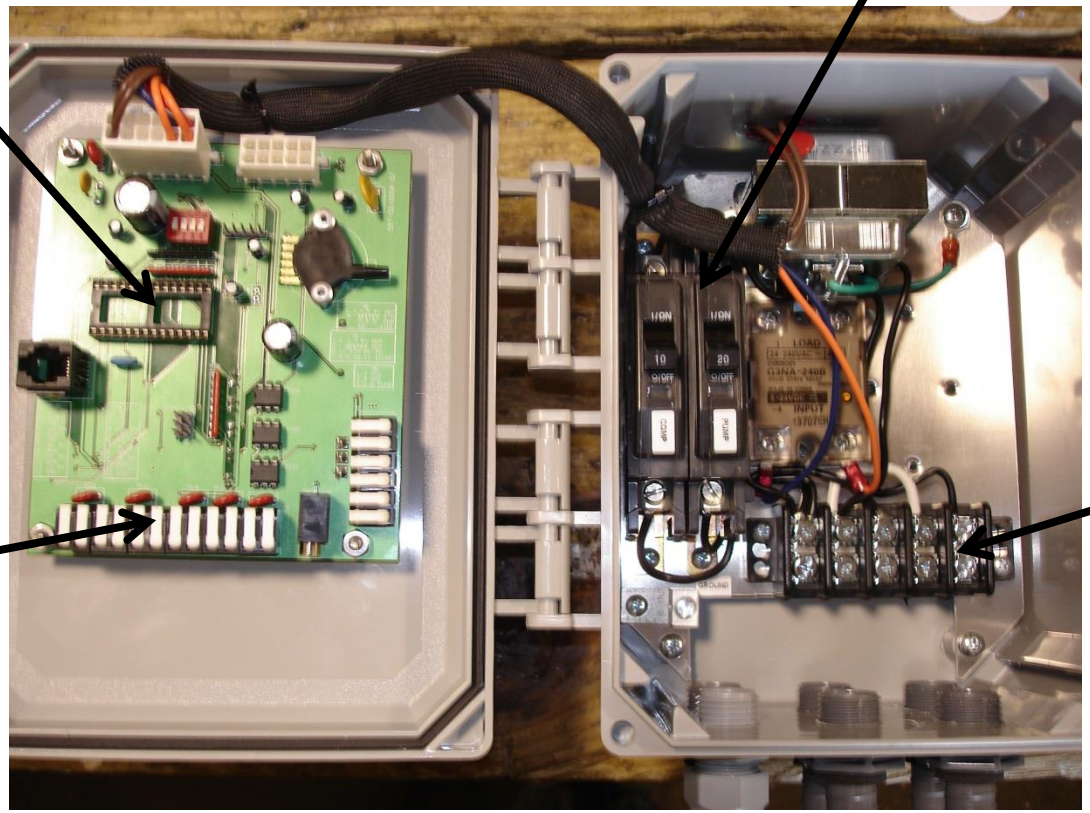
Rust, corrosion, water damage are all obvious in this panel, and the performance will be erratic.



Diagnostic Control Panels

Controller Chip

Breakers – Aeration Blower and Effluent Pump



Probe Leads

Power Leads

Universal Control Panel

- Demand and Time Dose Pump Control
  - between 1 and 20 minutes in 1 min increments
  - Up to 6, 12,18, 24 & 36 times per day
  - Can adjust dosing to meet each job site
- Flash Memory Back-up of Alarms

System Diagnostics and Troubleshooting

The System Contains a series of operations for Diagnostics & Troubleshooting, all accessed through a single button located outside of the control panel.

- **Mode 1** Indicates Water Level in Tank, displays the active probe/float
- **Mode 2** Forces on all pump to confirm their operation
- **Mode 3** Indicates Backpressure on Aeration System
- **Mode 4** Displays the last 4 Alarms the system has had
- **Mode 5** Clears the Alarm Memory Storage
- **Mode 6** Sets the Pump Run time (In timed/drip dosing)

Mode 3

- When you hear one chirp, then two chirps, then three chirps release the switch.
- This mode Indicates the Air Pressure in Water Column Inches.
- The controller will turn on the aeration problem lamp to indicate the air pressure mode and chirp/flash the air pressure in Water Column Inches (WCI).
- A Chirp indicates a number, a beep (longer) indicates a zero (0).
- For example 65in/water 6 chirps pause 5 chirps long pause repeat.
- For example 102in/water chirp pause beep pause 2 chirps long pause repeat.

Mode 3 Continued

- Normal air pressure for a:
- 500/600GPD Hoot System is about 65 WCI
- Pressure must be between 40 and 100 for the system to operate without an alarm
- To exit this mode, press and hold the switch which will flash (the red light) &chirp the software version number.
- Release the switch to restart the controller.

Back to top

»Alarm Codes

1=no error

2=excess water usage (greater than 1 hr in spray)

3=extra alarm input

4=could not pump below high probe (spray mode)

5=Demand mode or in spray mode>60 minutes

6=photocell error

7=water over alarm probe

8=low air pressure

9=high air pressure

10=low line voltage

12=connected to 220 volts

Resetting Controller

- You can restart the controller by either powering down and then back up at the house breaker, or holding the silence alarm switch for 16 seconds.
- This works when the green light is on.
- You cannot reset the controller with the silence alarm switch if the effluent pump is running.
- If the controller will not restart after sixteen continuous seconds of holding, you must power off the controller to restart.
- After the sixteen seconds timeout, you will hear two quick chirps, at that time release the switch to restart the controller.

Enter Modes

- After Reset, To enter one of the troubleshooting modes press and hold the switch again before the lights go out on the lamp test and the system sounds the startup beep.
- Restarting the controller this way will not clear the error memory.
- If there are error codes in memory, the controller will chirp three times followed by a beep at startup.
- If there are no errors in memory, the controller will sound a single beep at startup.
- Back to Top

Blower Filter Cleaning

STEP 1

To remove the filter cover, put your fingers on one side of the cover and pull it up.


WARNING

STEP 2

Remove the filter from the upper housing, replace it new one or clean it.

- *At this time, remove any dust or foreign matter from the inlet of the filter cover, and the filter mounting surface and the inlet of the filter.*
- *If the filter is dirty, dust it off well. If it is heavily soiled, use a neutral detergent to wash it, rinse it with water, and dry it well out of direct sunlight before reinstalling.*

STEP 3

According to the photo, replace the filter, put the filter cover back on the upper housing, align the fitting boss of the upper housing with its counterpart of the filter cover, then press the filter cover downwards from above to fit it in.

- *Take care not to press the filter cover in its improper position as it may be damaged.*
- *Do this work after every other works have done.*
- *This pump is of a totally oil-less type. Therefore, never put oil or other liquids into the pump inlet.*

Stone
Flush

Stone Flush

- When back pressure exceeds 90 wci a stone flush is indicated.
- Add 1 cup of Muriatic Acid or powdered pH Down to 2 gallons of water (NEVER ADD water to Acid)
- Pour into piping network

- All systems should have a Check Valve

- Detach Union

- Free from Check Valve

- Add 90 Elbow
  - Funnel

- Pour in 2 Gallons of Solution

- Reconnect Check Valve
- Start Blower Operation

  2-3 minutes roughly
- Enter back into Mode 3 Operation

  Check WCI for better reading.

New Configuration

Remove Plug

Pour in 2 Gallons of Solution

Speak to the customer regarding the system.

Make sure they have your numbers and know to call you if the system alarms.

Ask them is there have been any issues since your last visit.

Blower Rebuild (Aeration Alarm)

Before opening blower, be sure to disconnect power at the house.

STEP 1

Remove all the bolts from the four corners.

STEP 2

If it is difficult to remove it due to the heavily stuck internal seal packing, pry it open by inserting the tip of a flat-head screwdriver into the clearance between the exhaust nozzle and the upper housing.

STEP 3

According to the photo, if the stick is too heavy, raise up the pump body and hit the exhaust nozzle lightly with a hammer.

- *Do not use a metal hammer.*

STEP 1

REMOVAL OF THE CHAMBER BLOCKS

Remove the Upper Housing.
(See page18 "REMOVING UPPER HOUSING")

STEP 2

Remove the sound absorber.
Pull out the L-tube from the casing nozzle.
Remove the four screws hold the chamber block and the casing block on both side.
(4screws on each side)

STEP 3

Remove one of the U-lock nuts hold the diaphragm mounting block to the rod.

- *Use the box driver to loosen (or tighten) the U-lock nut.*

STEP 4

Remove one of the diaphragm mounting blocks from the actuating rod and pull out the other diaphragm mounting block with the rod and finally, separate the diaphragm mounting block and rod.

This completes the chamber block removal procedure.

- *When pull out the rod, take care not to allow the rod projection to accidentally hit the lever of the SP switch. If the pump stops automatically, the safety screw must be broken to prevent any further damage to the pump. Be sure all debris is removed from unit. (See Step8)*

STEP 5

FITTING THE CHAMBER BLOCKS

Install the new diaphragm mounting block on the actuating rod.

- *Use new U-lock and washer only that come as replacement parts to prevent loosening and causing failure of the pump.*

STEP 6

Insert the actuating rod in accordance with the gap of the frame.

Secure the diaphragm mounting block on the other side and tighten the U-lock nut with the box driver.

Make sure the gaps between the actuating rod and the electromagnet are even.

STEP 7

Connect L-tube to the casing block and secure the casing with the screws.
(4screws on each side)
Install the other casing block at the same way.

STEP 8

REPLACEMENT OF SAFETY SCREW

Dispose of broken screw.

- *Be sure all debris is removed from unit as it can result in damage to the permanent magnets and or even in a failure of the pump.*

STEP 9

Draw a new safety screw through a hole in the different direction of the terminal.
(Threading order : The L-shaped lever–the spring electrode)

STEP 10

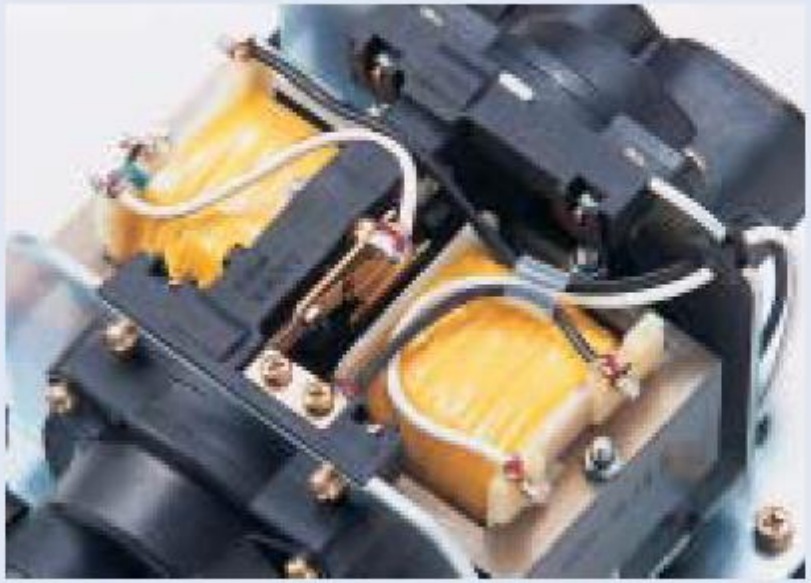
Fasten the screw with a nut.
The screw is designed so that the nut will turn freely when it is properly fastened, stop tightening when this happens.

STEP 11

This completes the replacement of the safety screw procedure.

Make sure the gaps between L-shaped lever and lug of the actuating rod are even.

- *When checking the movement of the switch while the power is connected, touching the terminal will result in an electric shock.*
- *Unplug the pump immediately after the check.*



STEP 12

Install the sound absorber.

STEP 13

Place the upper housing back on body.

- *Be extremely careful not to pinch the Sound Absorber in the Upper Housing.*

Secure it with the bolts.

Then place the filter and filter cover on the upper housing. (See page17 "**FILTER CLEANING AND REPLACEMENT**")

Effluent Pump Rebuild

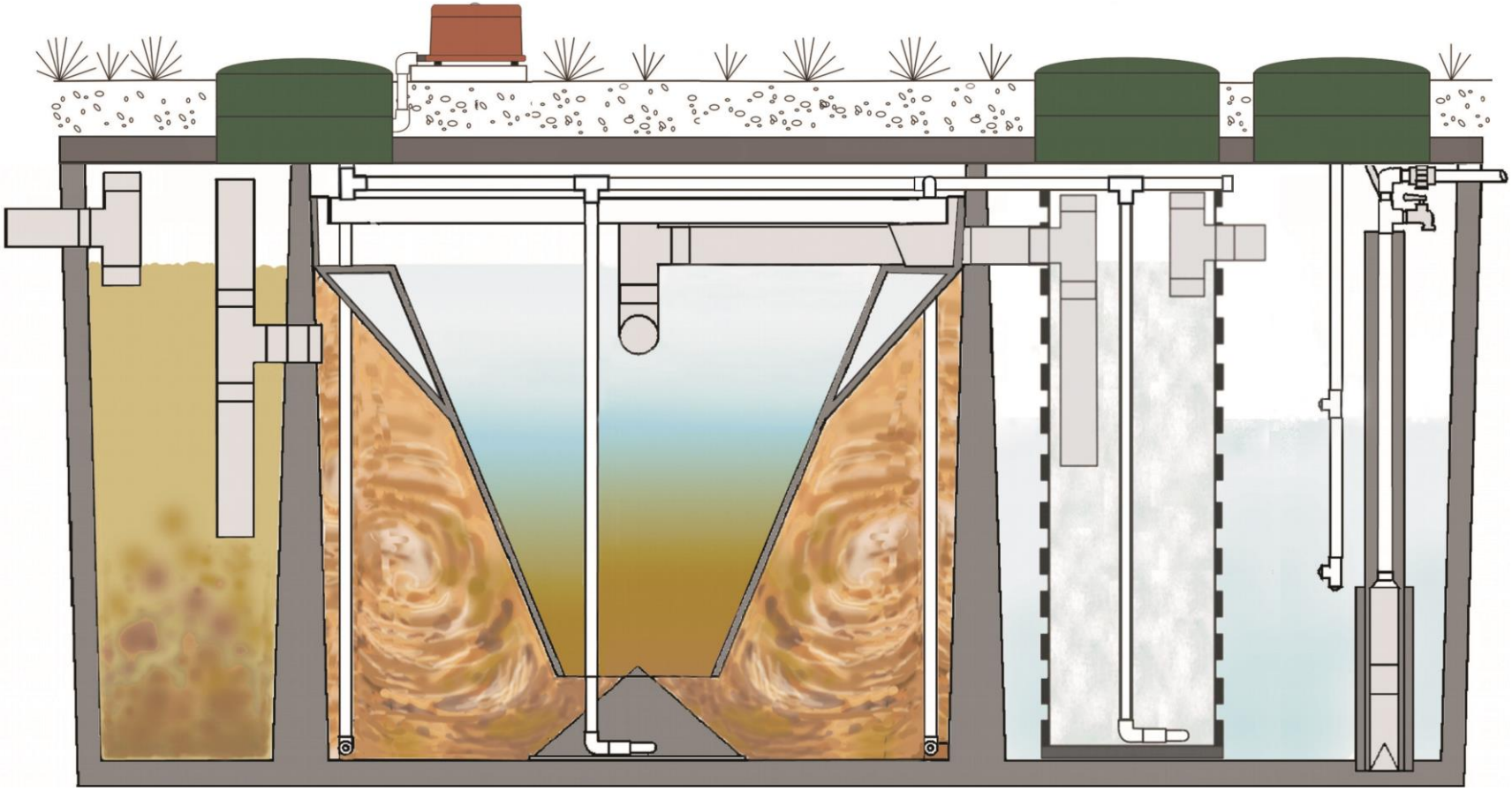

Filtered Effluent Pump
BLASIER
12EB0521H
WARNING
AVERTISSEMENT


Filtered Effluent Pump
BLASIER
12EB0521H
WARNING
AVERTISSEMENT

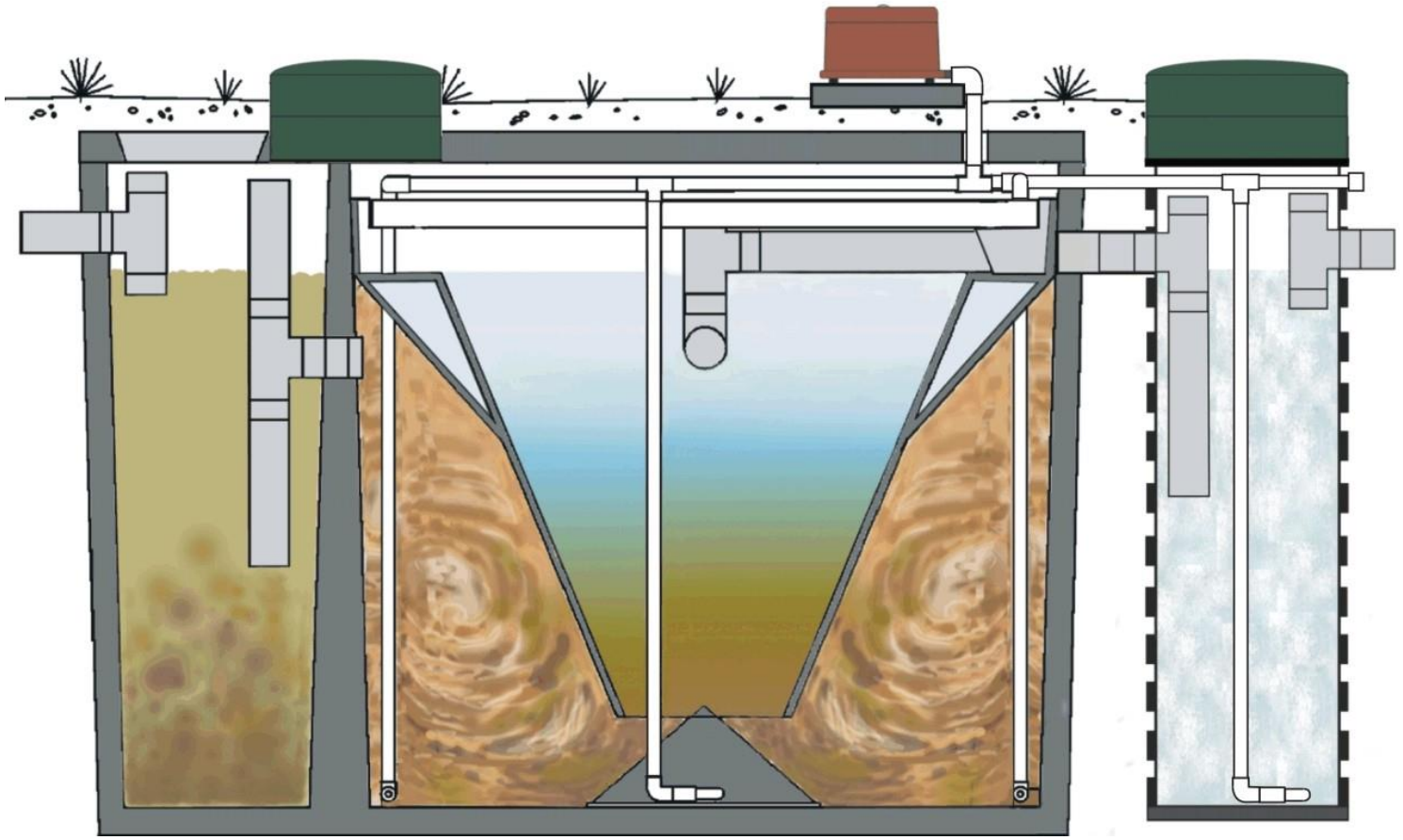
NPDES

This class is for non-NPDES systems, however the vast majority of Hoot installs in Ohio are NPDES. To help you recognize those systems, we are providing the following slides to help you identify the difference between them.

Post Aeration -Internal



Post Aeration -External

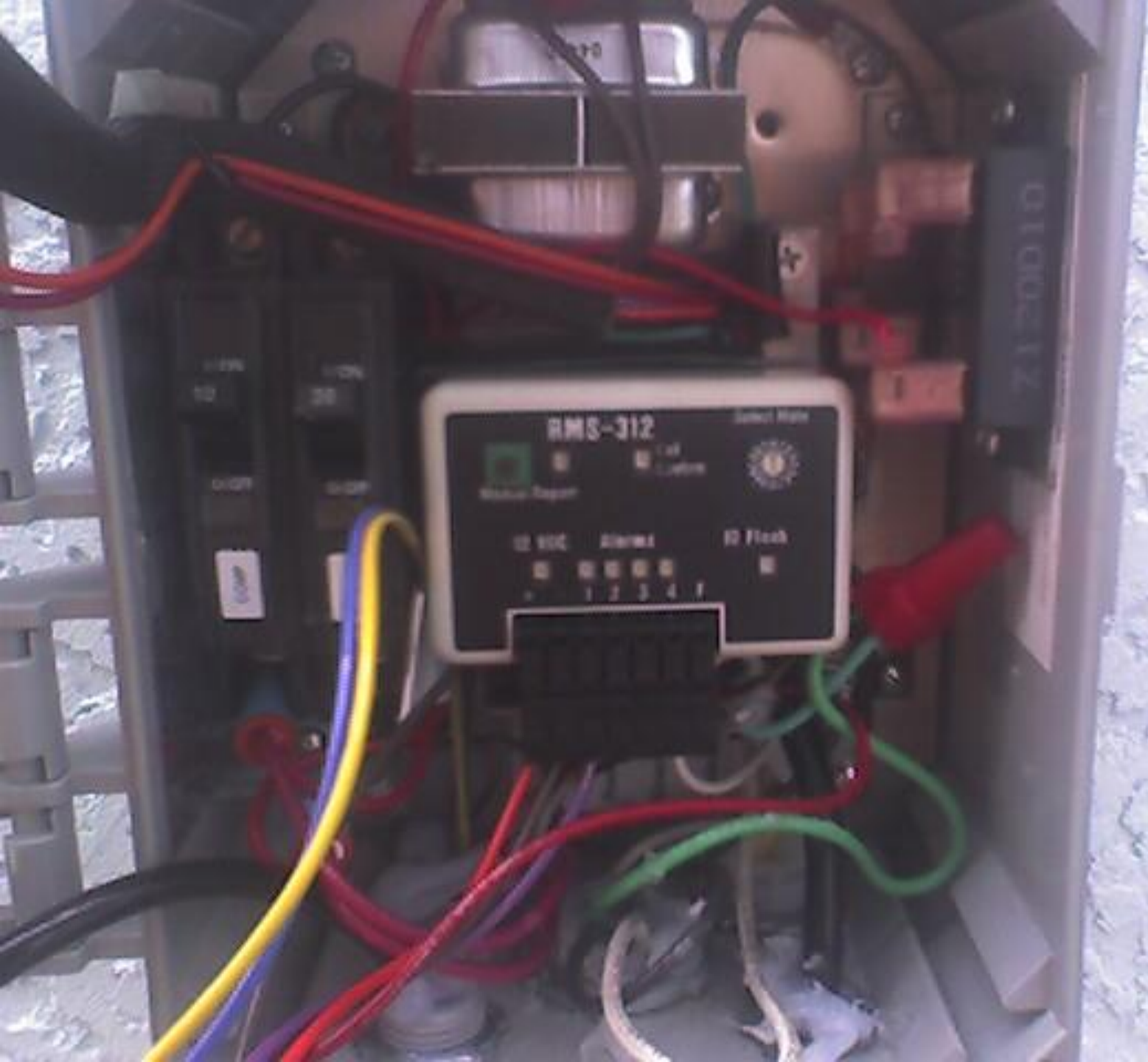


- Post Aeration Cylinder can be stand alone or inside of pump tank.
- Pipes come into and out of tank using watertight seals.

Telemetry System


WARNING:
ELECTRICAL SHOCK HAZARD
Failure to disconnect all power before servicing could result in injury or death.
HOOT
AEROBIC TREATMENT
SYSTEM CONTROLLER
SYSTEM CONTROL CENTER
NSF
This product has been tested in accordance with the criteria as set forth in the ANSI/NSF Standard 40 and is hereby certified as conforming with requirements for classification as a CLASS 1 Waste Water Treatment Plant.
SILENCE ALARM
SYSTEM OK
SYSTEM ALARM *
*FLASHING = HIGH WATER
*STEADY = AERATION PROBLEM
DON'T POLLUTE, INSTALL A HOOT!
Hoot Aerobic Systems, Inc.
2885 Highway 14 East
Lake Charles, LA. 70607
(337) 474-2804
www.hootsystems.com
REMOTE MONITORING SYSTEM
Model RMS-100
NO USER SERVICEABLE PARTS INSIDE
CONTACT INSTALLING DEALER FOR
SERVICE AND REPAIR.
NSF
This device complies with FCC Part 68 Rules.
FCC Registration Number: CNAUSA-22837-AL-E
Ringer Equivalence Number: 0.08
Patent Pending


REMOTE MONITORING SYSTEM
Model RMS-100
NO USER SERVICEABLE PARTS INSIDE
CONTACT INSTALLING DEALER FOR
SERVICE AND REPAIR.
NSF
This device complies with FCC Part 68 Rules.
FCC Registration Number: CNAUSA-22837-AL-E
Ringer Equivalence Number: 0.08
Patent Pending


RMS-312


RMS-312
Select Mute
Alarms
1 2 3 4 F

HOOT SYSTEMS, LLC.

www.hootsystems.com

Install A Hoot Don't Pollute

Any Questions?

HOOT SYSTEMS, LLC.

www.hootsystems.com

Don't Pollute, Install A Hoot

Aaron Yonts

Regional Manager

Commercial & Residential

Direct: (330) 704-0161

Toll Free: (888) 878-HOOT

E-mail: aaron@hootsystems.com

Working Today to Protect Tomorrow's Environment™