

THE ABCs OF I/As: A GUIDE TO UNDERSTANDING INNOVATIVE ALTERNATIVE TECHNOLOGIES

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SEPTEMBER 21, 2023



STANDARD DISCLAIMER

Any proprietary technology mentioned in this presentation is used purely as an example and its inclusion does not constitute a comment upon or endorsement of the technology by the presenter or by MassDEP.





PERSONAL DISCLAIMER

My goal is to keep the terminology that I used in this presentation as generic and universal as possible so as to be applicable and understandable to all states who are represented here. I am concerned that I may fall back into old habits. If I do, please call me out on it. No one is perfect!

Thank you for your patience in this regard!

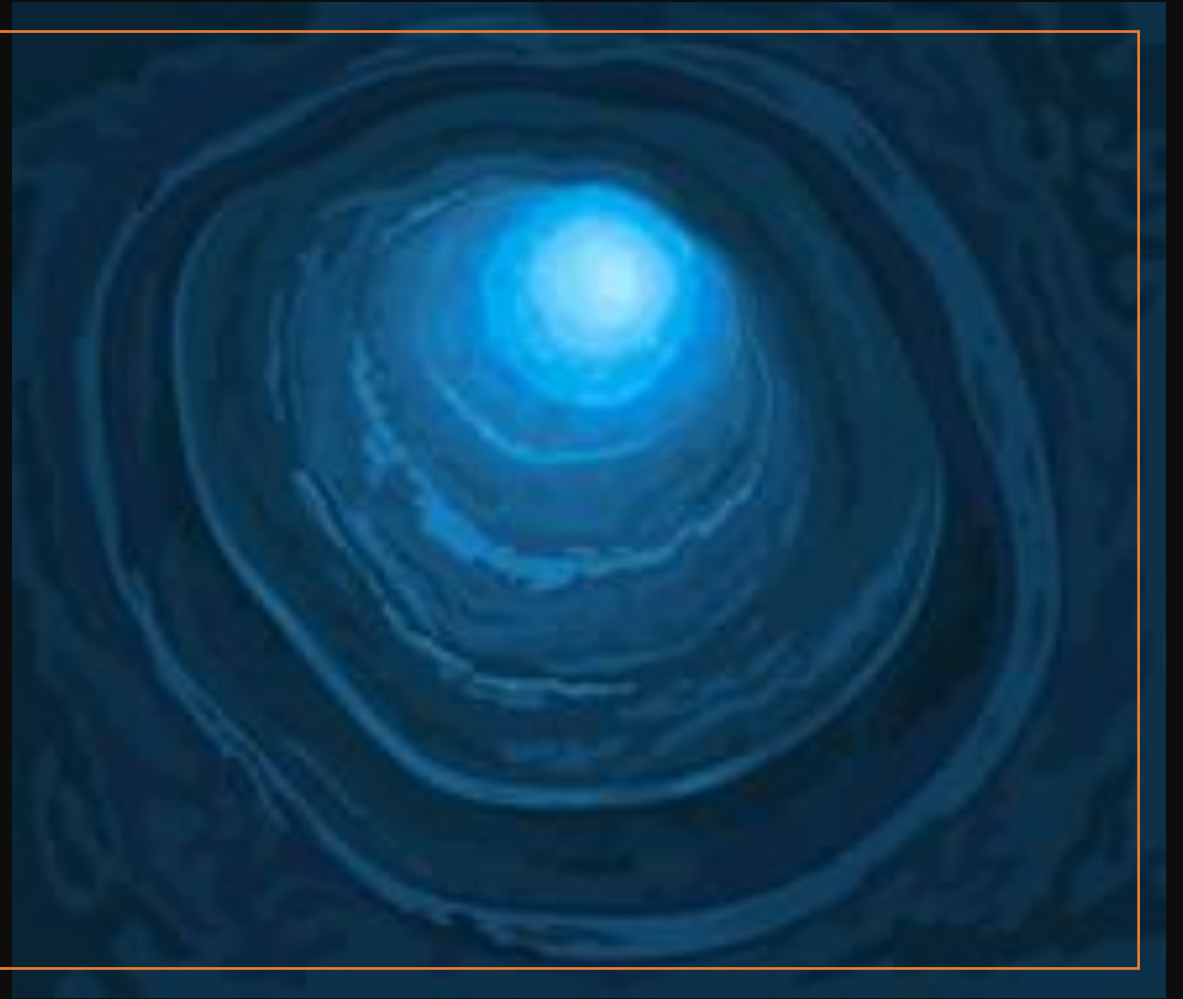
MINI QUIZ TO START THE PRESENTATION:

Where did most of the original alternative technologies we know get their start?

Naval and cruise ships



It's good to set some ground rules so we don't find ourselves going down the infamous rabbit hole.



TERMINOLOGY

- Septic system
- Subsurface disposal system
- On-site system
- Any on-site disposal system without monthly reporting requirements that resemble a DMR for municipal WWTP

- Approving authority
- Whoever approves septic systems in your state
 - State agency/ies; and/or
 - County; and/or
 - City/town

Innovative Alternative Technology

What exactly does that mean?

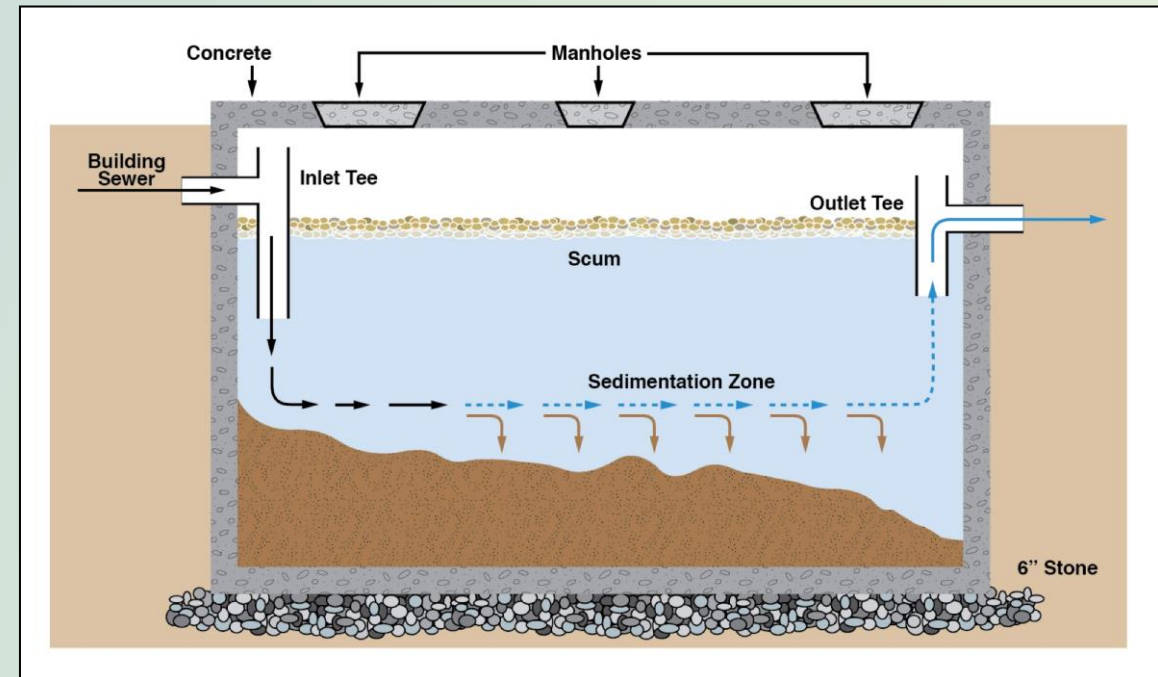
Innovative Alternative Technology

Any proposed component of a subsurface disposal system (aka septic system) that is not expressly permitted by the applicable regulations governing subsurface systems; or

Any proposed septic system component that is expressly required to be approved by the applicable regulations governing subsurface systems. This can either be of the technology itself or its use at a particular location.

It is good to think of a septic system as a miniature wastewater treatment plant.....

The septic tank provides primary treatment. Heavy solids are removed and other solids are given quiescent conditions and allowed to settle out. Scum is retained and, if there is an effluent tee filter additional particles are captured.



So Let's Talk about Septic Tanks....

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- Here in Massachusetts, septic tanks must be:
 - Be constructed of concrete; fiberglass reinforced plastic; or polyethylene;
 - Have three accesses; and
 - Be a minimum of 4 feet deep.
 - This poses a problem for some plastic tanks: the three accesses makes them structurally unstable.
 - But sometimes you need plastic tanks because of site constraints, etc.
 - MassDEP has approved as alternative technologies plastic tanks that have only two accesses and in some access are “low boys”.

LET'S CONTINUE WITH THE WWTP SCENARIO

- The major solids have been removed.
- Now for some reason, additional treatment is required or desired prior to discharge to the ground.
- There are different types of treatment depending on what you require or want:
 - Maybe this is a repair of an existing system and site conditions may prevent full compliance with design criteria.
 - Maybe regulations permit design concessions for new construction with the use of alternative technologies
 - Perhaps this facility is located in an area that requires treatment to remove nutrients (nitrogen or phosphorus).
 - Perhaps local non-septic regulations are pushing for additional treatment.

Site Constraints

Nitrogen
Loading Issues

REASONS FOR AN ALTERNATIVE TECHNOLOGY

Smaller
Leaching Area

Local Matter
or Good Will

STOP BEFORE
PROCEEDING

ALTERNATIVE TECHNOLOGY SELECTION RELIES ON TWO THINGS

REASON FOR TECHNOLOGY USE:

- Site conditions
- Nitrogen loading
- Smaller leaching area
- Local matter or good will

NATURE OF THE DISCHARGE:

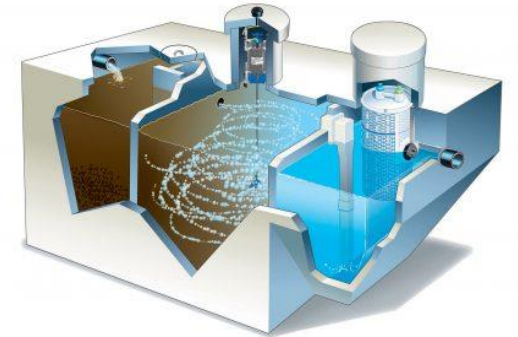
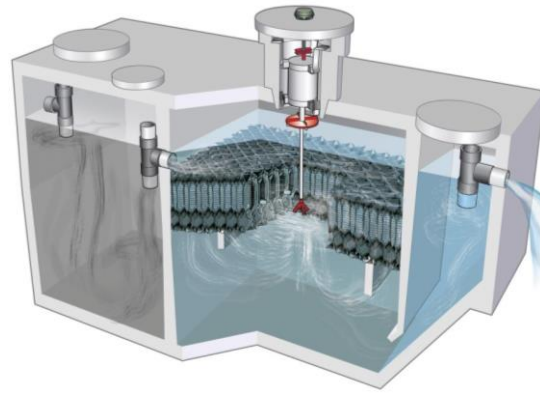
- Strength
- Frequency
- Flow rate

AEROBIC TREATMENT UNITS

- BIO-MICROBICS HIGH STRENGTH FAST
- BIO-MICROBICS MICROFAST*
- CLEAN SOLUTION
- FUJI CLEAN*
- HOOT AEROBIC SYSTEMS
- JET BAT MEDIA
- NITRIFAST*
- S&L MODULAR FAST*
- SINGULAIR BIO-KINETIC*

* In addition to secondary treatment demonstrates ability to achieve some nitrogen reduction.

EXAMPLES OF AEROBIC TREATMENT UNITS



Can you name these?

SAND FILTERS

- BOTTOMLESS SAND FILTER*
- INTERMITTENT SAND FILTER
- RECIRCULATING SAND FILTER
- RUCK

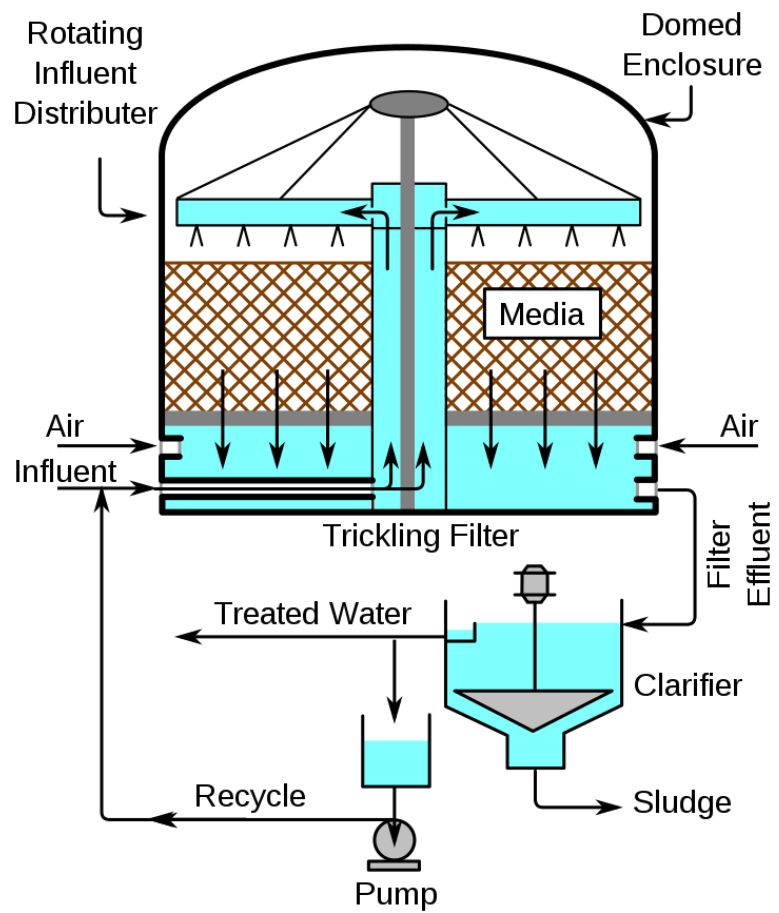
EXAMPLE OF A SAND FILTER





TRICKLING FILTERS

- BIOCLERE
- SEPTITECH
- WATERLOO BIOFILTER



Credit: Wikipedia





EXAMPLES OF TRICKLING FILTERS

NITRIFYING TECHNOLOGIES*

- NITREX
- NitROE WWTS

* Not the only nitrifying technologies.

LEACHING AREA AERATION WITH BACTERIAL AUGMENTATION

- PIRANA
- SLUDGEHAMMER
- SOILAIR

EXAMPLES



SOME ONE- OF-A-KINDS

- TEXTILE FILTER WITH AEROBIC TREATMENT
 - ADVANTEX
- SEQUENCING BATCH REACTOR
 - AMPHIDROME
- ACTIVATED SLUDGE W/BIOLOGICAL FILTRATION(MEMBRANE)
 - BUSSE -MF





ALTERNATIVE LEACHING AREA: TREATMENT WITH DISPOSAL

- Eljen GSF
- Infiltrator ATL
- Presby Enviro-Septic
- Presby Advanced Enviro-Septic
- Presby Simple Septic



ALTERNATIVE LEACHING AREAS: DISPOSAL ONLY

ARC Chambers

Biodiffuser

Cultec Chambers

Cur-Tech CTL

Eljen Mantis

GeoMat Leaching

Infiltrator Chambers



THINGS TO REMEMBER WITH I/As AND TO ASK YOURSELF

- DON'T GET INTIMIDATED BY THE TECHNOLOGY: BREAK IT DOWN TO ITS BASIC OPERATIONAL TYPE
- DETERMINE WHAT THEY ARE LOOKING TO TREAT
- WHAT ARE THEY APPROVED TO TREAT IN YOUR STATE?
- ARE THEY PROPOSED FOR USE AS APPROVED OR IS THIS SOMETHING ENTIRELY NEW?
- DON'T BE AFRAID TO ASK QUESTIONS OF THE MANUFACTURERE, DESIGNER OR OTHER TOWNS OR STATES WHERE THE TECHNOLOGY MAY BE MORE COMMONLY USED. WE'RE ALL IN THIS TOGETHER.

Thank you for your
attention today.

If you have any questions or require any
additional information, please contact me
directly at:

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