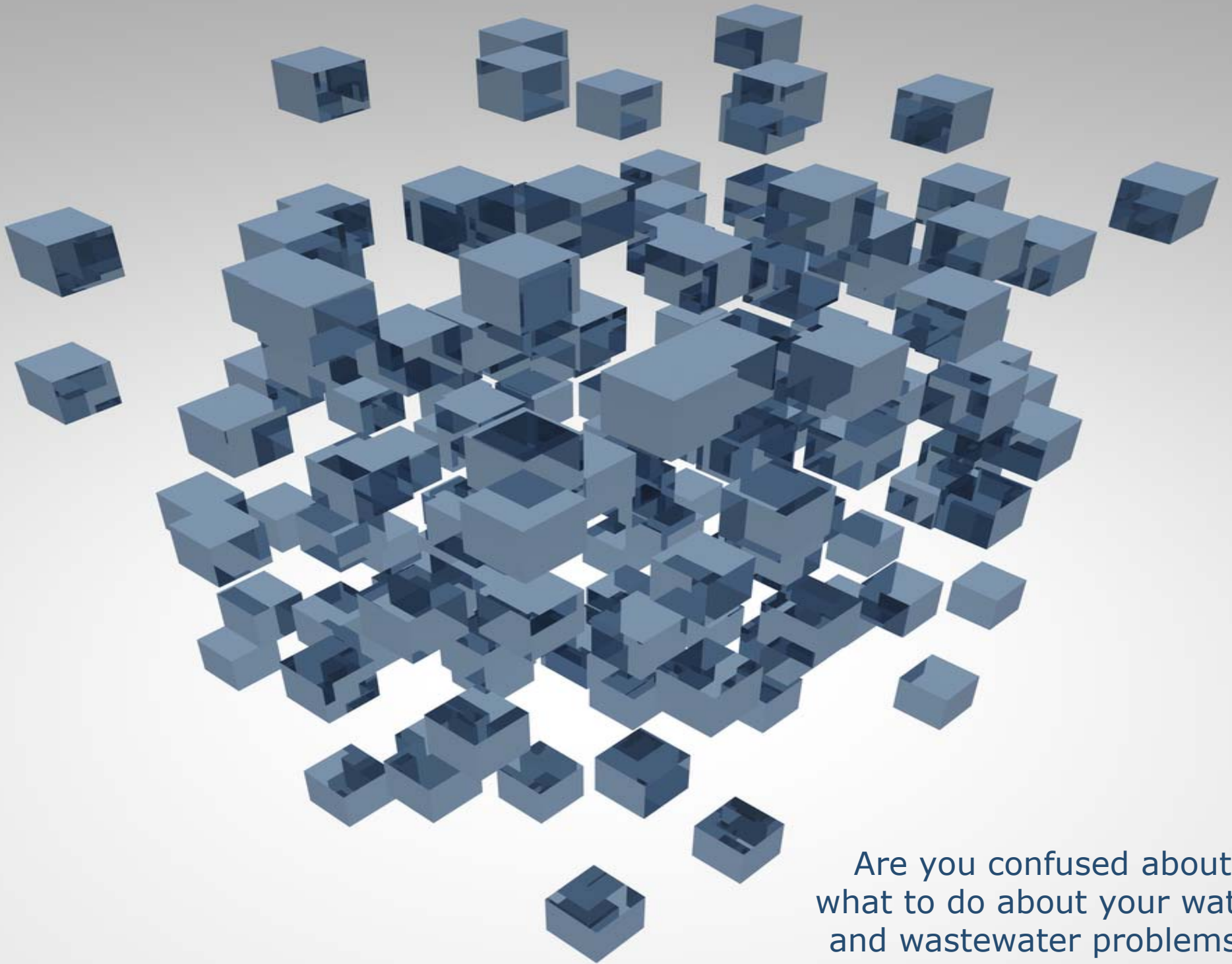


A close-up, profile view of a woman with long dark hair drinking water from a clear glass. The background is a bright, sunny sky with soft clouds. The overall tone is clean and refreshing.

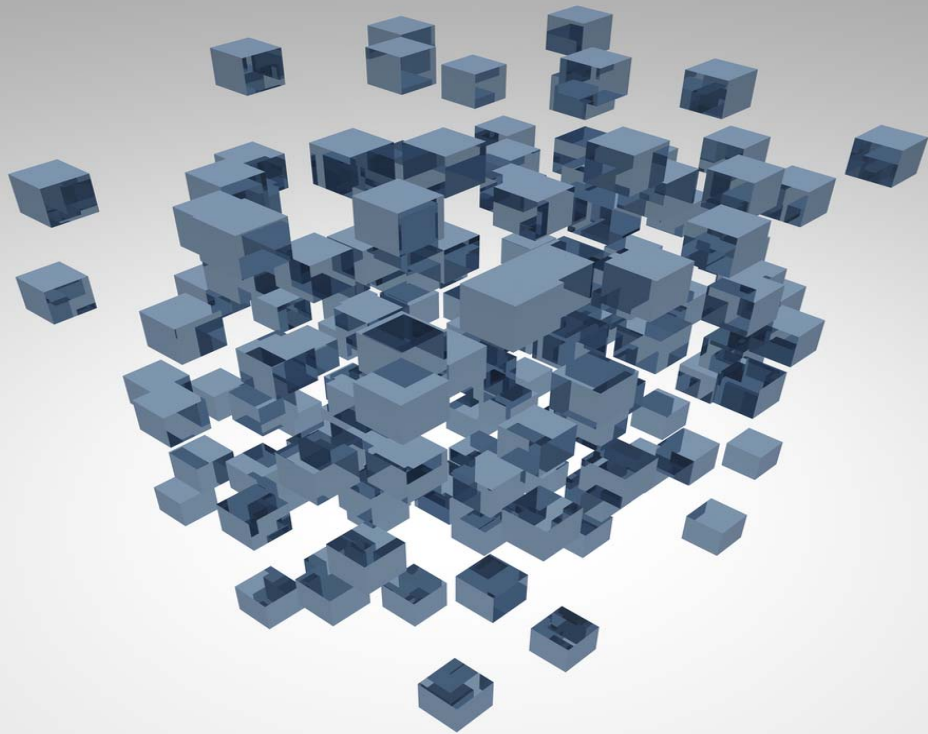
Residential and Commercial Water Purification Technology

**Converting Polluted Water
to Usable Water...**

3TM International / IWSES



Are you confused about
what to do about your water
and wastewater problems?



We bring all the technology pieces together to form an engineering solution for you...

(All products are designed and fabricated in the United States)



The technologies that we offer are state-of-the-art, high performance, and commercially available systems for treating a wide variety of water for multiple uses, including domestic use.

They are also ideal for disaster preparedness and emergency response.

In some instances, the treatment goal is safe, drinkable water. In other instances, it is “grey water” that can be used for non-potable applications such as residential or agricultural uses.

Regardless, we can do it!





PFU Series...

Treats non-saline river or lake water to drinking water

Ideal for disaster preparedness and emergency response

Ideal for small community water supplies in remote locations



Purified Water You Can Trust ...

Our purification systems rely on proven technologies to produce potable water from virtually any fresh water source. Utilizing onboard pumps or existing pressure, water is passed through multiple levels of filtration including:

- Sediment filtration for removal of dirt and debris
- Carbon block filtration for removal of taste and odor
- Virus media filtration for removal of viruses, bacteria, and cysts

Our proprietary virus filtration utilizes NASA derived technology to achieve an unprecedented level of removal of microbiological contaminants. After the mechanical filtration process, the water is passed through an ultraviolet light disinfection process. Exposure to the UV light effectively neutralizes any contaminants and provides a layer of redundancy to the filtration process.

Every water purification system we produce is independently certified to NSF protocols P231 and P248, which outline standards for microbiological water purifiers in the domestic and military market. This unique technology is deployed on each purification system. Each unit has a chassis designed to fulfill a certain operational function. The filtration components are then scaled to fit the flow demand and chassis configuration.

Each unit can be powered by:

- Batteries
- Solar power systems
- Electrical generators
- Conventional grid power





2 GPM UNIT

The PFU-120-MTM is a 120 gallon per hour water purification unit fully contained in a rugged transport case. Weighing in at 50 pounds, it is the ideal solution for facility operations, rapid response, pre-deployment and support of small teams. The on-board pump can draw water from virtually any fresh water source and provide clean water for drinking, hygiene, food service and many other tasks. The solar powered model (PFU-120-MSTM) provides additional flexibility for field operations. The unit utilizes advanced filtration technology and ultraviolet disinfection to provide exceptional drinking water in most any environment. All units are independently certified to USEPA and NSF standards for emergency drinking water (P231/P238).



5 GPM UNIT

The PFU-300-M is a versatile 300 gallon per hour system that provides high volume water purification in a field deployable package. Four tier Zeonic filtration and high power ultraviolet light disinfection allow it to out perform other units available. The unit is ideally suited for emergency response scenarios, including Victim and First Responder Support, Public Health, Mobile Medical, Shelter Support and other field deployment scenarios. The system has been proven effective against microbiology as small as 0.019 microns. The technology is effective against viruses, bacteria and cysts in fresh water sources and has been independently certified to both civilian and DoD standards for emergency water purification.



20 GPM UNIT

The PFU-1200-M is the workhorse of the PFU Series product line. With a daily production capability of 28,000 gallons, it can sustain critical operations through most any water disruption event. Multiple units can work together to increase water production and meet even the most challenging operational demands. The unit is designed to function in both fixed facility and field operations. With a rugged aluminum frame and compact size, it is lightweight and easily transported in a vehicle. It can be rapidly deployed around a hospital or campus as well as transported during emergencies to support field hospitals or base camps.



20 GPM UNIT

Originally designed to provide clean drinking water to villages and communities in the developing world, the PFU-1200-P has seen a growing popularity in hospitals across the country. It provides the same configuration and volume as the PFU-1200-M, but is configured to be mounted permanently at critical points throughout a facility. Fixed installation reduces logistics of storage and deployment, and ensures the equipment is always in position, ready to activate. If properly integrated in to facility plumbing, the unit can provide a seamless transition to water treatment in the event of a boil water advisory or other water disruption.



RO Series...

Treats saline seawater or non-saline river or lake water to drinking water

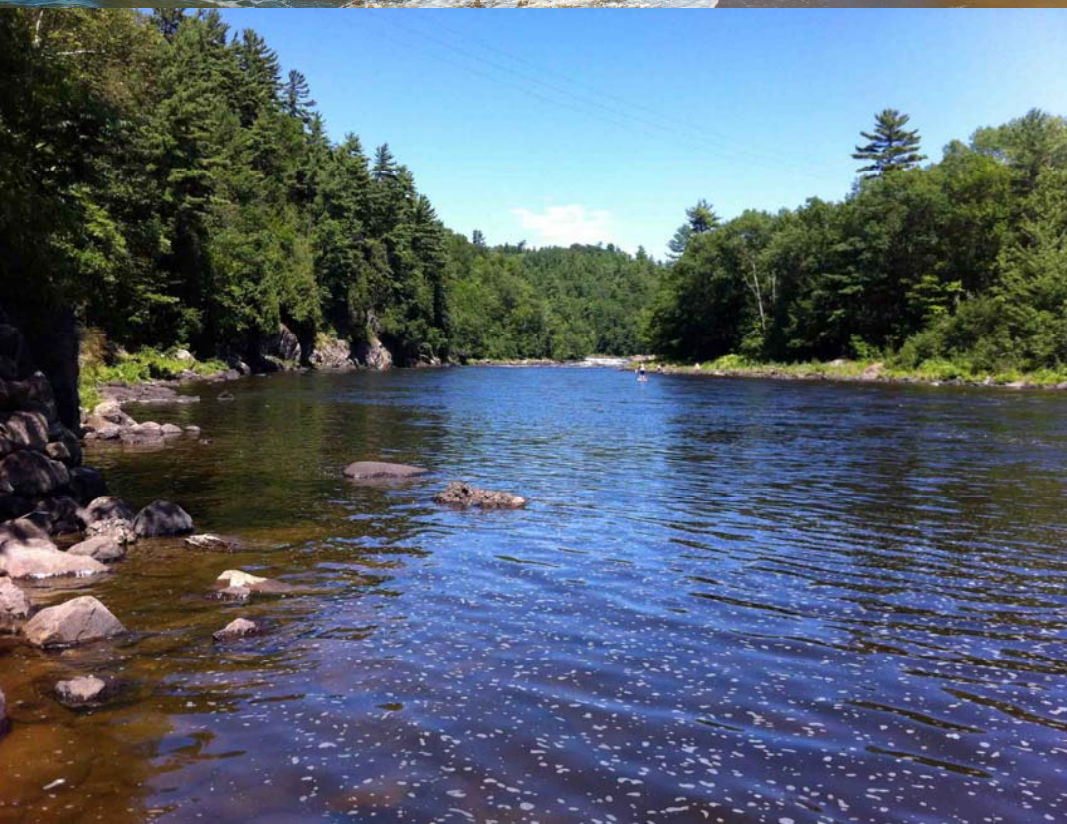
Ideal for disaster preparedness and emergency response

Ideal for small community water supplies in remote locations



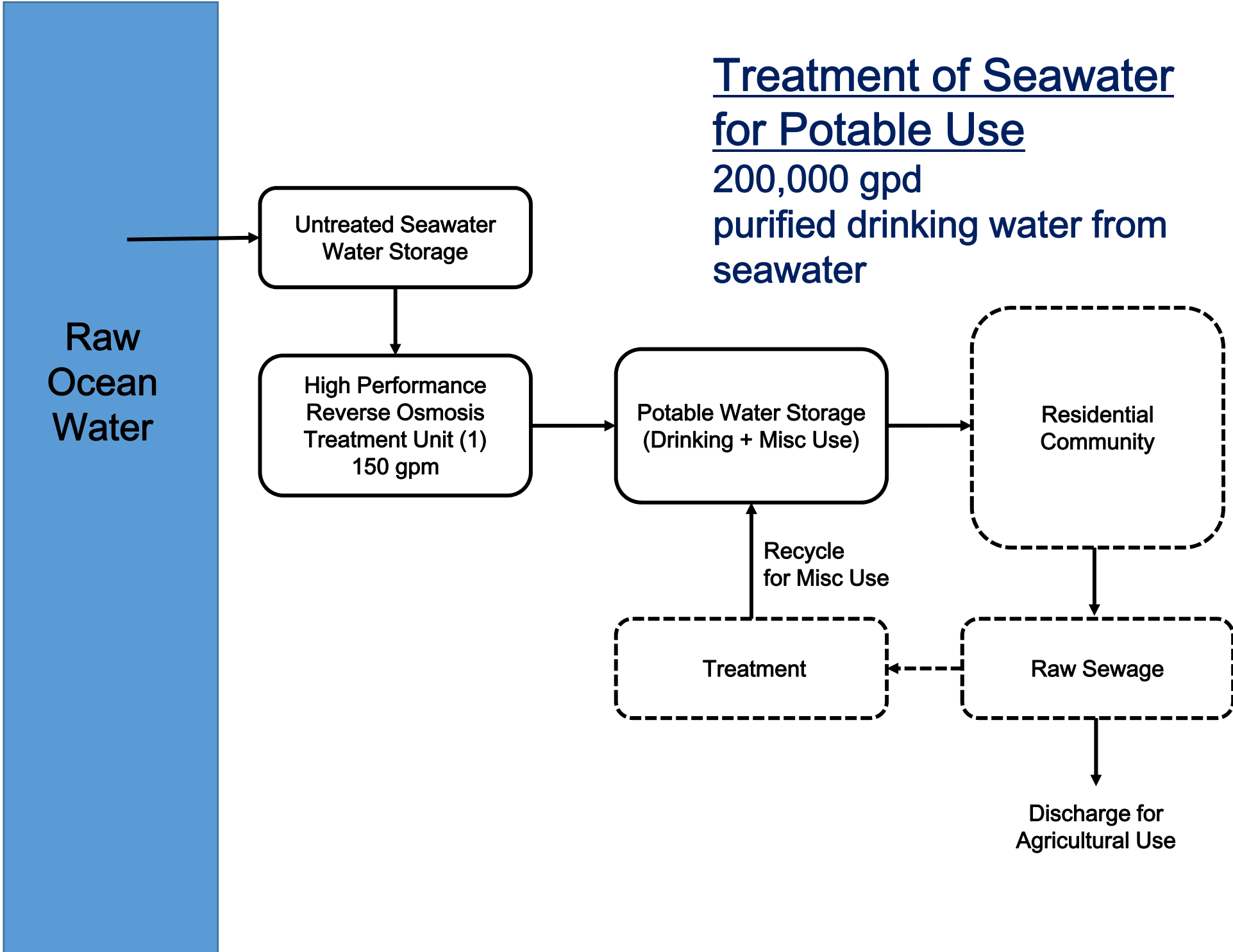
The RO Series high performance reverse osmosis systems can convert a wide variety of raw water into potable and drinking water. This includes raw seawater, river water, lake and pond water, and groundwater.

Seawater has a total salinity of about 33,000 mg/L of total dissolved solids, whereas fresh water can range from 100 – 2,000 mg/L. Either can be converted to drinking water using reverse osmosis. However, higher output yields are possible from fresh water sources due to the lower TDS loading.



Treatment of Seawater for Potable Use

200,000 gpd
purified drinking water from
seawater



Raw
Ocean
Water

Untreated Seawater
Water Storage

High Performance
Reverse Osmosis
Treatment Unit (1)
150 gpm

Potable Water Storage
(Drinking + Misc Use)

Residential
Community

Recycle
for Misc Use

Treatment

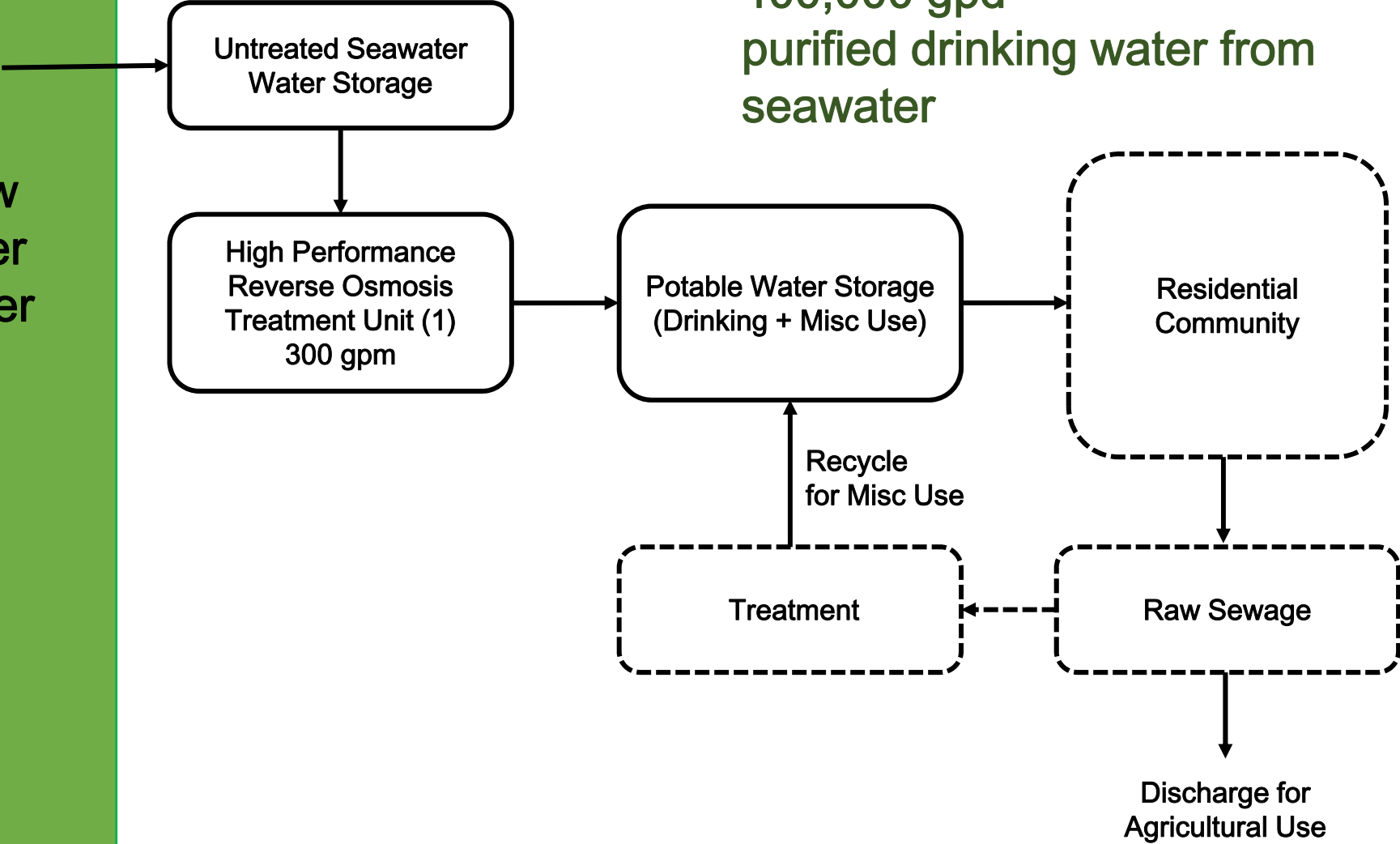
Raw Sewage

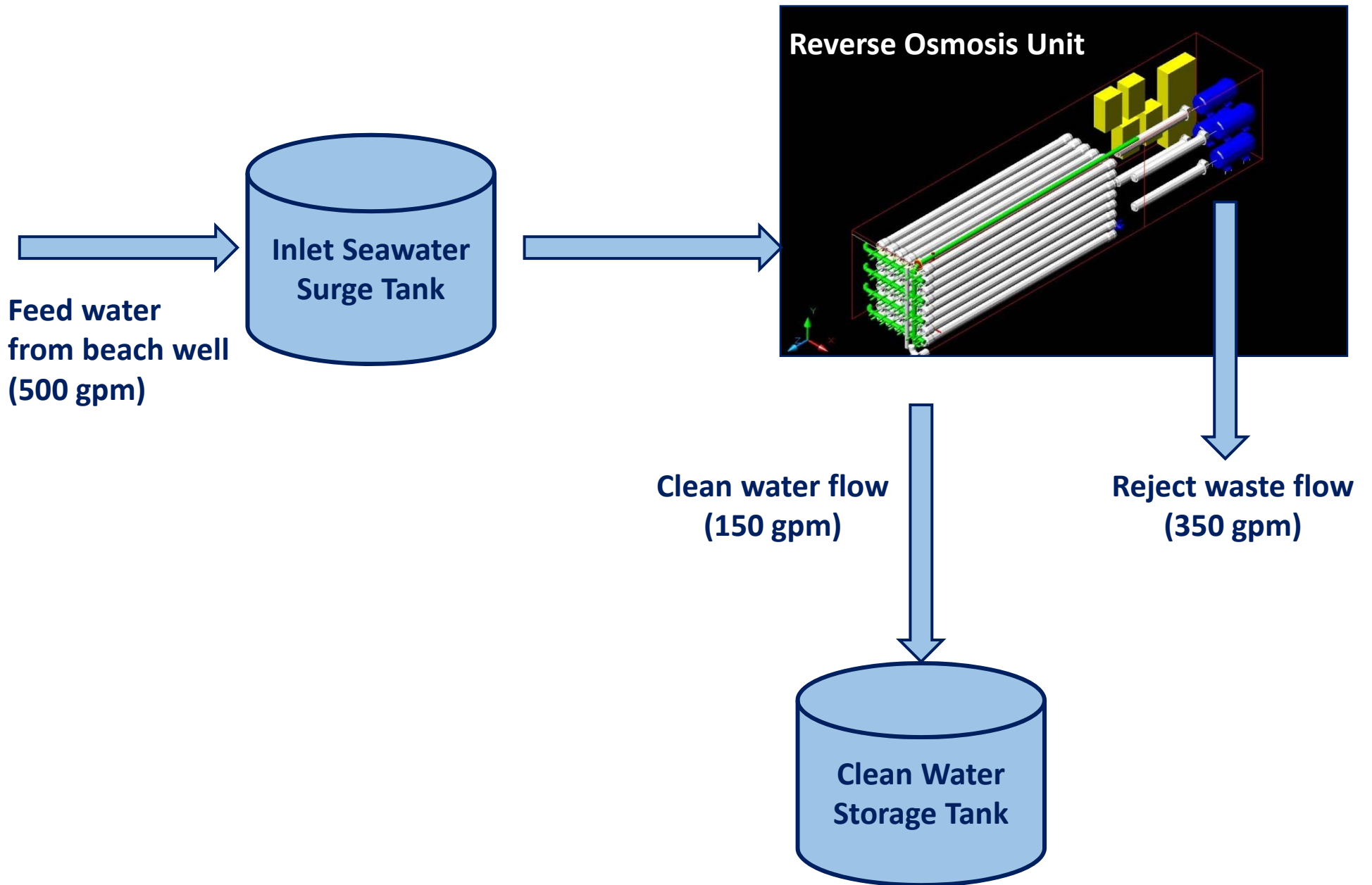
Discharge for
Agricultural Use

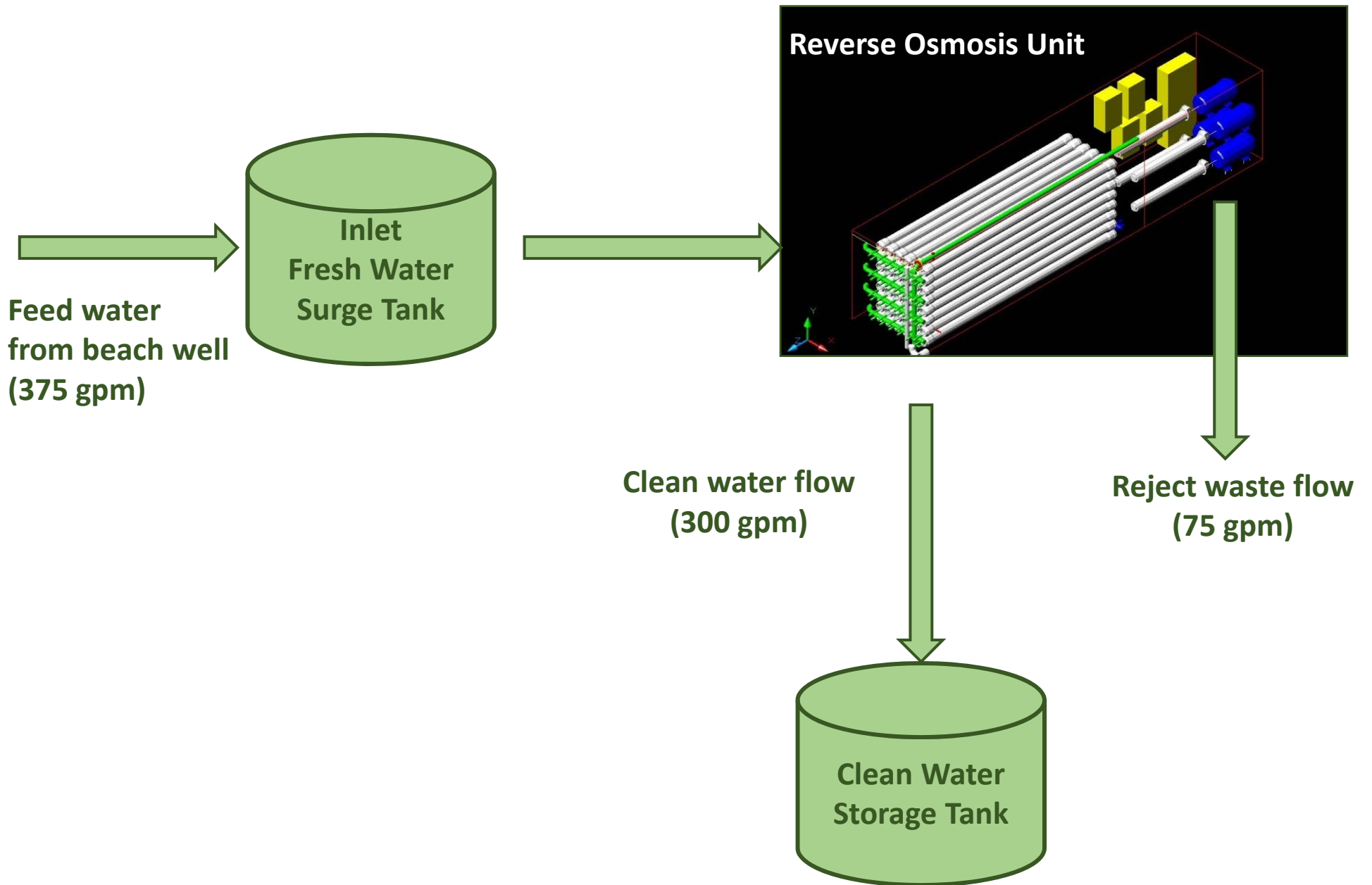
Treatment of River Water for Potable Use

400,000 gpd
purified drinking water from
seawater

Raw
River
Water







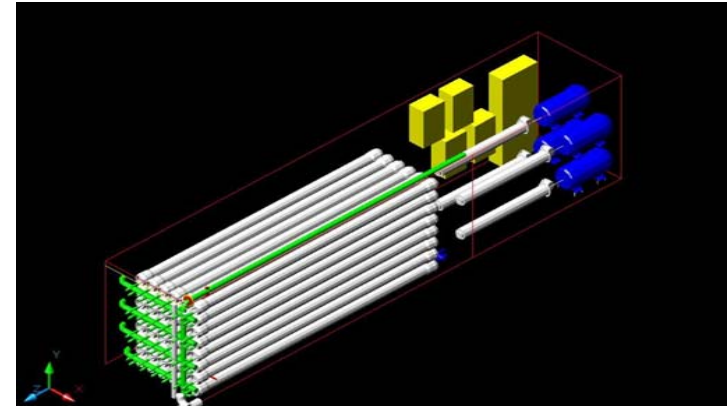


Unit comes in standard 40-foot shipping container with easy access ports

Unit comes ready to use



Internal process unit is fully fabricated with controls and internal piping, requiring only minimal hook-up to inlet water, outlet water, and electrical power



Reverse Osmosis Treatment Unit Specifications Using Seawater as Source of Inlet Water

Rated output: 150 gallons per minute of drinking water

Rated output: 75,000,000 gallons per year

Accepts 500 gpm feed rate at 60 psi from beach well

40-foot ocean-going high cube shipping container with easy access

Powder-coated skid steel frame construction

Complete with reverse osmosis modules and control system

UV sterilization system and anti-scalant injection system

Multi-stage centrifugal duplex stainless steel pump

Heavy duty 250 hp direct drive motor

Integrated variable drive system

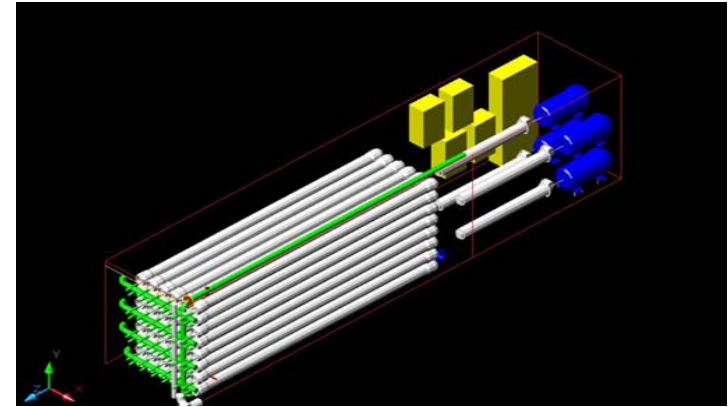
Pre-fabricated and pre-wired

Requires external piping connection and electrical power connection

Installation time: less than one week

Fabrication time: 12 weeks

Shipping weight: 40,000 pounds



Reverse Osmosis Treatment Unit Specifications Using Fresh Water as Source of Inlet Water

Rated output: 300 gallons per minute of drinking water

Rated output: 150,000,000 gallons per year

Accepts 375 gpm feed rate at 60 psi from water source

40-foot ocean-going high cube shipping container with easy access

Powder-coated skid steel frame construction

Complete with reverse osmosis modules and control system

UV sterilization system and anti-scalant injection system

Multi-stage centrifugal duplex stainless steel pump

Heavy duty 250 hp direct drive motor

Integrated variable drive system

Pre-fabricated and pre-wired

Requires external piping connection and electrical power connection

Installation time: less than one week

Fabrication time: 12 weeks

Shipping weight: 40,000 pounds



EC Series...

Treats commercial and industrial wastewater to acceptable non-potable levels

Can treat conventional and recalcitrant pollutants

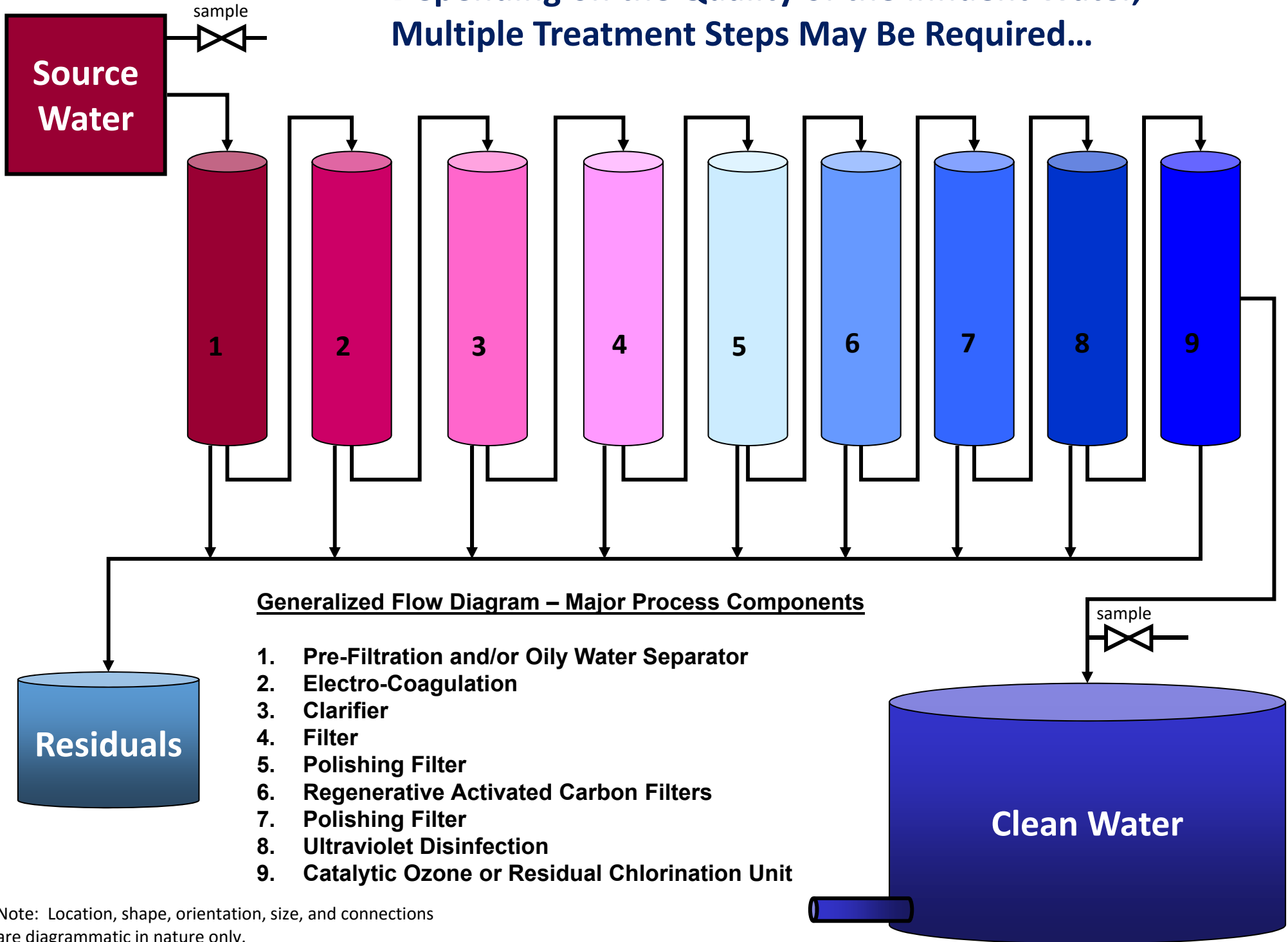
Ideal for commercial and industrial use



Technologies exist to treat any source of commercial and industrial water to a better use, including recycling, discharge to public water bodies, agricultural use, or even drinking water quality.

The treatment systems may include the integration of pre-filtration, electro-coagulation, filtration, reverse osmosis, and other systems. These are typically custom designs for specific applications.

Depending on the Quality of the Influent Water, Multiple Treatment Steps May Be Required...



Note: Location, shape, orientation, size, and connections are diagrammatic in nature only.

Recommended Applications

Using the correct combination of innovative modular treatment trains, we are capable of treating wastewater containing a wide variety of pollutants:

Petroleum hydrocarbons, volatile and semi-volatile organics

Toxic metals, arsenic, and metalloids

Chlorinated and polychlorinated solvents, PCBs, Dioxins

Pesticides and herbicides

High BOD and COD loading

Salinity, total dissolved solids, and chlorides

Radionuclides

Commercial and industrial applications include:

Oil and gas fields

Petroleum refineries, petrochemical and chemical plants

Agricultural runoff

Mining operations

Food processing, animal rendering plants

Metals processing and plating

Manufacturing with degreasing operations

Project Examples

The following photographs show some of the untreated influents and treated effluents following treatment using electro-coagulation and various treatment trains.

Treatment system design is a function of both site and contaminant criteria, and requires engineering analysis and design prior to providing a commercial system to the buyer.











TDU Series...

Treats raw human sewage to acceptable non-potable levels

Ideal for disaster preparedness and emergency response

Ideal for small community water supplies in remote locations



The TDU Series system is designed to treat raw human sewage. The system is pre-designed, fabricated, shop-checked, crated, and then shipped to the project site where it can be made operational in a few days.

**Influent Design Basis:
BOD (300 mg/L)
TSS (300 mg/L)
NH4-N (60 mg/L)**

**Effluent Design Basis:
BOD (10 mg/L)
TSS (15 mg/L)
NH4-N (3 mg/L)**



TDU Unit installed adjacent to conventional treatment plant (shown in background)

Recommended Applications

The TDU Series is an innovative modular, transportable wastewater treatment system that uses cutting-edge biofilm reactor technology and other features which are ideal for small applications such as:

- Municipal Utility Districts and residential subdivisions**
- Building complexes**
- Oil and gas exploration operations**
- Remote industrial operations and work camps**
- Emergency preparedness and disaster relief**
- Transportable systems**
- Treatment for cooling tower system makeup**
- Scalping plants (reuse)**

A key feature of the TDU Series is that modular units are fabricated inside either 20-foot or 40-foot standard shipping containers for easy transportation over land and sea. Standard module sizes range from 5,000 gpd to 100,000 gpd, but can be tailored to any size need. A 15,000 gpd module can serve approximately 300 people at a usage rate of 50 gallons per person per day. Depending on the needs, multiple small units can be configured to operate in parallel clusters or as decentralized systems. For example, five 50,000 gpd units can be arrayed to supply an overall capacity of 250,000 gpd.

Conventional sewage treatment plants represent huge capital investment costs, lengthy construction schedules, dedicated manpower requirements, high operational costs, and large land footprints. Many conventional portable treatment units are plagued with the same problems.

In contrast, the TDU Series represents a breakthrough in effective biological treatment technology. The result — lower capital costs, rapid treatment time, shortened construction schedule, greatly simplified operations, minimal maintenance, small land footprint, and low overall unit treatment cost (\$/gal).

The TDU System has a number of engineering features that allow for quick and easy installation and operation at an active operating site. These include:

- **Pre-Engineered Design**: The pre-engineered design for the process system, instrumentation and controls, and support structure is 95% complete for most applications. The remaining 5% reflects site-specific considerations for foundations, electrical power hook-up, influent and effluent piping connections, etc.
- **Pre-Fabricated System**: After final engineering design, the TDU system package is fabricated in the United States and shipped to the job site. The unit is functionally tested prior to shipment. This eliminates the need for field fabrication and assembly, which greatly shortens the overall project construction schedule. With a prepared site, the unit can be installed, connected, and fully operational in as little as one week.
- **Simplified Control System**: The units are designed to operate with minimal intervention as compared to conventional activated sludge plants. Additionally, the system can be equipped with sensors and configured for remote monitoring. Local regulations vary and may required mandatory “site walks” by an operator regardless of monitoring.
- **Simplified Maintenance and Repair**: The units are designed with non-proprietary components that are readily available in the public marketplace.

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