

Containerized Water Treatment Systems

Water Technologies

Overview



- “Innovative Solutions” to Reduce Operating Costs for Clients.
- Toronto, **Canada**
- Offering infrastructure enhancement maximizing Technology for accelerated implementation.
- Specialize in Containerized Water Treatment Systems.

Strategic Infrastructure Solutions

Solutions

- Infrastructure Implementation
- Energy Cost Management
- Full System Integration

Results

- Energy Conservation
- CO2 Reduction
- Operational Efficiency Maximization
- Accelerated Implementation
- Budget Stabilization

What is a Container?

Containerization is a system of freight transport based on a range of intermodal containers (also 'shipping containers', 'ISO containers' etc). Containers are built to standardized dimensions, and can be loaded and unloaded, stacked, transported efficiently over long distances, and transferred from one mode of transport to another—container ships, rail and semi-trailer trucks—without being opened.



Containerized Shipping

- As of 2009, approximately 90% of non-bulk cargo worldwide is moved by containers stacked on transport ships;
- In 2005, some 18 million containers made over 200 million trips;
- Some ships can carry over 14,500 twenty-foot equivalent units (TEU).



Containerized Water Treatment Systems

- Typically Built Inside 20 ft and 40 ft Dry Cargo Containers
- Utilizing Only “One Trip” New Containers
- High Cube Containers Are Often Employed for Larger Systems
- Specialized Modifications Are Necessary



Treatment Technologies Typically Installed in Containerized Systems

- Reverse Osmosis (RO)
- Ultra-Filtration (UF)
- Conventional Filtration and Disinfection



Advantages of Containerized Systems

- Less Expensive than Site-Built Systems
- Fast Delivery Time
- Portable
- Small Footprint



Standard Features of Containerized Systems



- Single Point Electrical Connection
- Single Point Hydraulic Connections
- Interior Lighting
- Waterproof Floor Coating
- Raised Flooring to Cover Piping
- Corrosion-proof Structural Components

Optional Features of Containerized Systems



- Controls and Instrumentation Upgrade
- Energy Recovery (Desalination)
- High Performance Pre-Treatment
- Product Water Post-Treatment
- **Remote Monitoring, Local Maintenance**
- High Efficiency Motor Controls
- Insulation and Climate Control
- On-Board Generator/ Solar Power

Containerized Treatment Systems Project Examples

- 2,500 GPD Membrane BioReactor (MBR) for Domestic Wastewater (Sewage)
- 40,000 GPD Integrated Membrane System (IMS) Desalination
- 12,000 GPD Desalination Pilot
- 2,000,000 GPD Brackish Water RO
- 80,000 GPD Membrane Filtration



2500 GPD MBR - Entire system (including BioReactor tank) is mounted inside a 20 ft intermodal shipping container.



The personnel door allows access to the forward area of the container. Insulation allows operation in low temperatures.



Extensive Pre-Treatment is necessary where source has contaminated feed water.



The complexity of the system required careful design to allow adequate access for Operation and Maintenance (O & M).



12,000 GPD Desalination - System is housed in three 40 ft intermodal shipping containers.
Two (2) for Pre-Treatment, One (1) for the Reverse Osmosis (RO) system.



Pre-Treatment included Ultra-Filtration (UF) and Media Filtration (MF).



The Desalination RO system was comprised of Two (2) separate containers.



Each container housed a 500,000 GPD RO train.



Each train was equipped with 150% of pump capacity.



Each train is equipped with an extensive Instrumentation Package for System Monitoring.



Each container is equipped with Cartridge Filtration (CF) Pre-Treatment and a Clean-In-Place (CIP) system.



80,000 GPD Membrane Micro-Filtration System (MMFS) – This system is used for production of Potable Water from Raw River Water.



The system is Totally Automated and features State-of-the-Art Membrane Micro-Filtration (MMF) Technology.



Raw River Water with excessive Turbidity (left) is treated to provide quality productt

Water Technologies -Summary

- Shipping containers provide a sturdy, Convenient means of housing a portable water treatment system
- Containerized systems may utilize conventional as well as custom-built high performance treatment technologies
- Systems will be thoroughly tested before being installed
- Containerized systems are easy to ship and relocate
- These systems have a proven track record with containerized systems deployed worldwide for over several decades
- Local mace team will be deployed with help of instrumentation & remote monitoring ensuring continuous operation
- Water test report..