2030
FOP DEVELOPMENT GROUP

DR-5™ WWT PLANT DESCRIPTION

EMERGENCY RESPONSE

PORTABLE WASTEWATER TREATMENT

Society of SAME American Military Engineers

www.USBF.com

"It's not a matter of if, it's a matter of when."

OVERVIEW

The threat of natural disasters or terrorists' attacks on America's water supply and wastewater treatment systems is real and would be extremely disruptive, even devastating, to the country in a variety of ways. In a matter of minutes, hurricanes, tornadoes, flooding or bioterrorism could severely affect hundreds if not thousands of unsuspecting citizens. In addition to the inconveniences created, unusable wastewater systems (caused by physical damage or intentional contamination) would have staggering effects on health, the environment and the ability to defend our country if these attacks were made on systems at military bases or critical locations. Without a reliable sanitation system, many defense functions would be paralyzed.

The system must also provide for treatment, recycling and re-use of the water used. Such an alternative system would be analogous to an alternative electrical power source that emergency generators routinely provide when the primary source is disrupted.

In the event that disasters destroy or poison water sources and wastewater treatment systems, communities must be able to carry on needed functions. As a minimum, the following concerns must be met:

1. Available independent wastewater treatment (decentralized) systems.
2. Treated wastewater or stormwater can be captured and re-used.
3. The system must be able to handle spiking, fluxuating flows and heavy loading.
4. Quantities of lost water during recycling must be replaced with make-up water from protected, independent sources to maintain a continuous system.
5. Wastewater systems must be designed so they cannot be totally disabled or contaminated from the outside.
6. Wastewater systems can operate perpetually.
7. All pumping requirements within the independent system can be powered with alternative power sources.
8. Any system must be operational immediately.

INTRODUCTION

The design utilizes award winning USBF™ process technology. In awarding the process the 2006 Technology Leadership Award, Frost & Sullivan included the following in their press release:

"The company's advanced plants based on the USBF™ process address the constant demand to produce high quality effluents. This single-sludge denitrification process incorporates all the processes required for biological treatment in a single reactor and circulation loop, using very little energy and no chemicals. While conventional processes such as SBR and extended aeration rely on the slow and inefficient sedimentation process, USBF™ technology utilizes a fluidized bed or 'counter current' movement. This is a dynamic method that continually removes pollutants. In this process,

the sewage that enters an anoxic compartment is drawn by gravity into an aeration compartment, and then to the bottom of the upflow sludge blanket filtration clarifier, from where it overflows. The remainder is then recycled from the bottom using airlift pumps, which require no power due to the internal loop configuration.

This way, the mixture is exposed to anoxic aeration three or four times a day, resulting in superior biological nutrient removal, even without the use of added chemicals. Phosphorous removal, through a process known as "biological luxury uptake", is another cost-free benefit. "USBF™ does not require primary clarification prior to biological treatment and offers hydraulic flexibility because it easily accommodates high peak flows," says Frost & Sullivan Research Analyst Shilpa Tiku. "In fact, as the flow becomes greater, the sludge blanket rises higher and the filtration area expands simultaneously."

The USBF™ technology is, therefore, ideal for use in municipal and domestic wastewater treatment, water reclamation, industrial wastewater, and existing plant retrofits. Industrial wastewater is highly organic by nature, and biological packaged wastewater treatment offers an attractive option for treatment plants that are looking at viable and low-cost options. The USBF™ process is a self regulated system and very little, operator attention is required."

DR-5™ Package Plant is designed to treat up to 5,000 gpd of 'municipal' type wastewater to advanced secondary treatment level of less than 10 mg/l for both BOD and TSS. Additional nutrient removal is available.

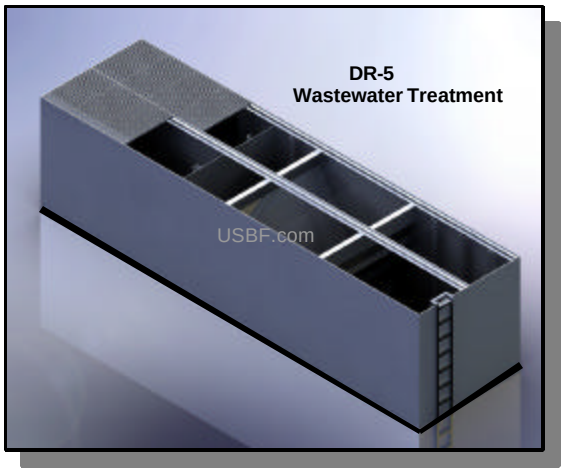
SHIPPING AND INSTALLATION

Shipping (FOB any US Port)

All DR-5™ equipment and components are shipped within the ISO container.

Installation

The DR-5™ is set on a concrete pad, compacted gravel or on a sand finished level ground bed. Crane or backhoe capable of lifting 15,000 lbs is required. Using the supplied equipment, components and shop prefabricated piping, the final site assembly is fast and uncomplicated.



DR-5 Rendering