BIO-ORGANIC CATALYST
THE POWER IN NATURE®

Collection System Treatment with Bio-Organic Catalyst



AGROSOURCE GROUP

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A Comprehensive Technology Model

The use of a Bio-Organic Catalyst (BOC) offers a new green chemistry tool to solving the chronic and systemic challenges of nearly all collection systems, including:

- Slime Layers
- Noxious Odors
- Grease Blockages
- Dissolved Oxygen Levels in Sewage Wastewater
- Corrosion of Infrastructure

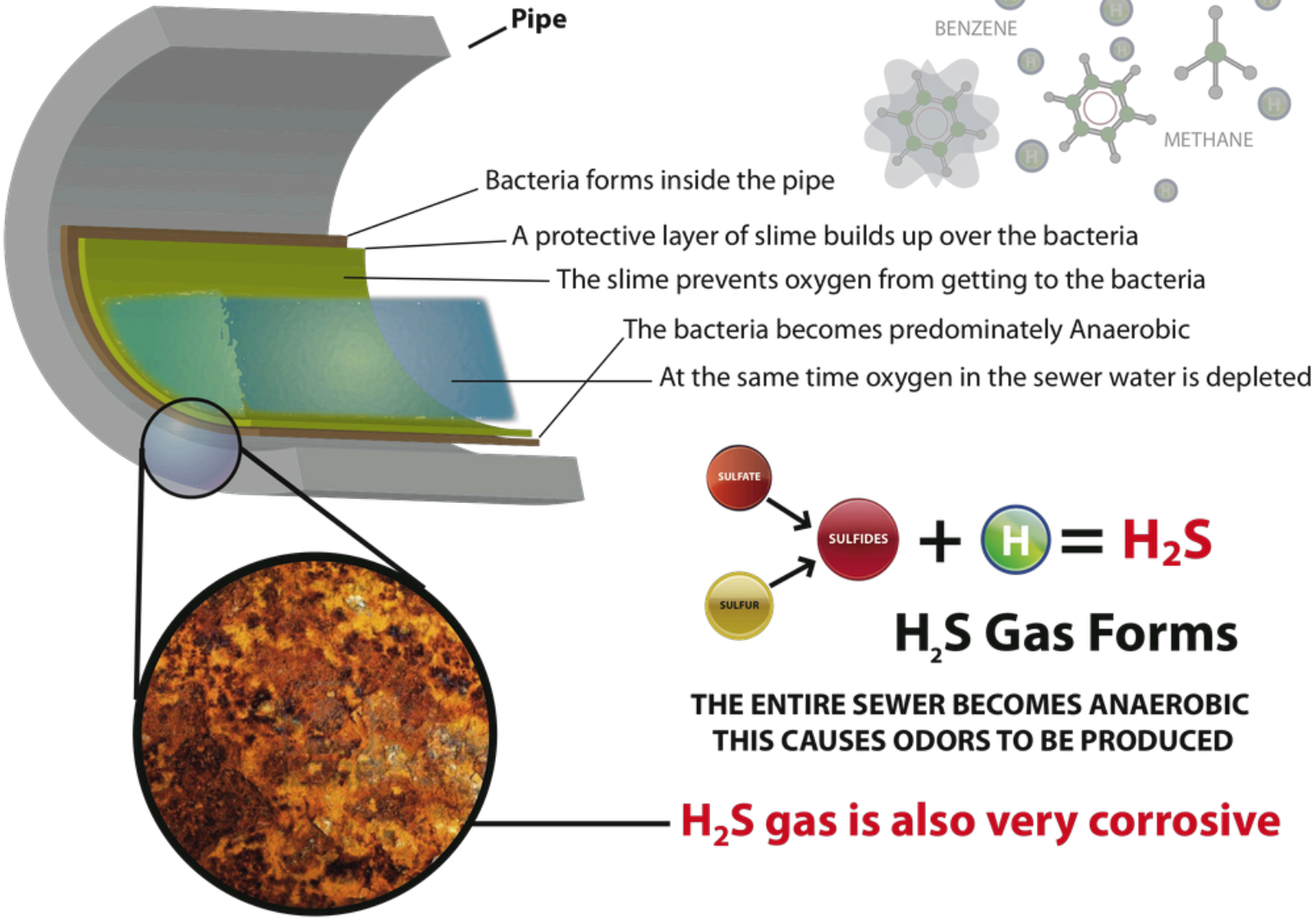
Collection System Maintenance

The formation of slime layers and grease blockages within collection systems is chronic in most drainage systems and sewers. The degree of severity will be determined by numerous factors, including; grease interceptors, system design and flow restrictions, pump stations, forced mains, and climate conditions.

- Changes in hydraulic dynamics, such as sewage water dropping into a well, will release noxious odors (H_2S), and eventually, cause corrosion within the collection system infrastructure.

- If dissolved oxygen (DO) levels can be maintained at greater than 1.0 mg/L, this H_2S gas release will be minimized.

Slime Layer Formation and Odor Generation



Traditional Treatment Agents VS. BOC

- Traditional chemical agents offer good performance in odor control, but have shown to contribute to slime layer formation, requiring increasing dosage rates over time. They do not address grease blockages.

- Bacterial/enzyme type formulations can offer some benefits to grease blockages under very restrictive limitations, but are expensive and very limited for use in higher flow systems. They do not address slime layer degradation.

- BOC will clean the collection system lines of slime layers and grease blockages, raise dissolved oxygen within the wastewater, and offer superior odor control. Clients also report significant savings over alternative chemical agents.

Green Chemistry – Bio-Organic Catalyst

- The BOC green bio-catalytic chemistry is a hybrid composition of bio-surface modifying agents combined with a fermentation intermediate that has exceptionally high enzymatic characteristics.

- This proprietary composition rapidly degrades the molecular structure of slime layers, fats, oils, and greases (FOGs) through a bio-catalytic degradation of their molecular structure.

- Simultaneously, BOC raises the dissolved oxygen content of the sewage wastewater through the formation of fine oxygen-rich micro-bubbles which allow greater biological oxidation potential in the wastewater.

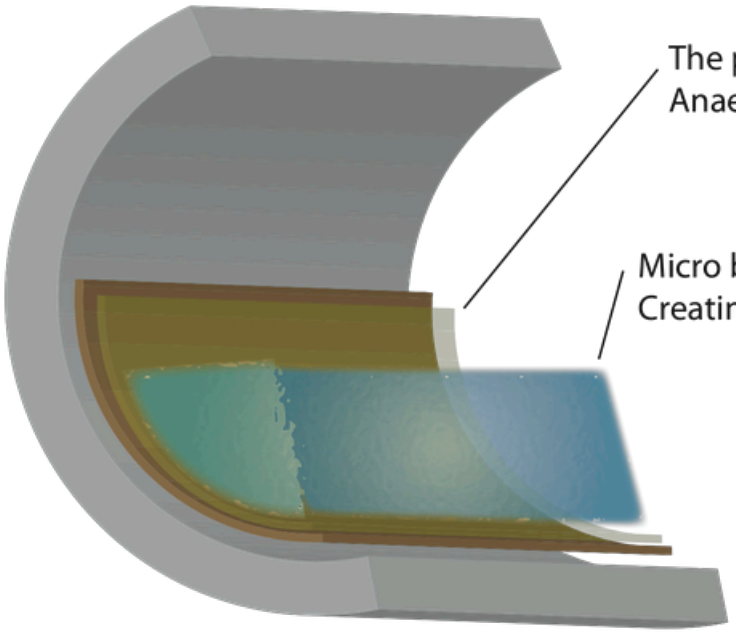
Air/Water Surface Dynamics in Odor Control and Slime Layer Degradation

- Spraying BOC directly onto the wastewater surface creates a highly enriched layer of dissolved oxygen that oxidizes noxious gases that are released out of solution. This exceptional bio-filter will immediately reduce noxious odors to minimum levels.

- This highly oxygenated zone of BOC acts as a scrubbing mechanism on the slime layers within the inside of the collection pipes. The constant agitation of the moving wastewater surface activates the degradation the slime layers.

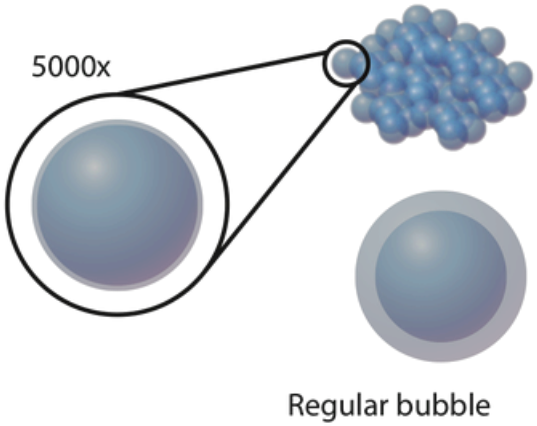
- This same scrubbing and degradation action also breaks down floating grease (Solubilization) which accumulates within the pipes or siphon boxes. The movement and turbulence of the wastewater will help rapidly break down grease blockages.

Degradation of Slime Layers with BOC



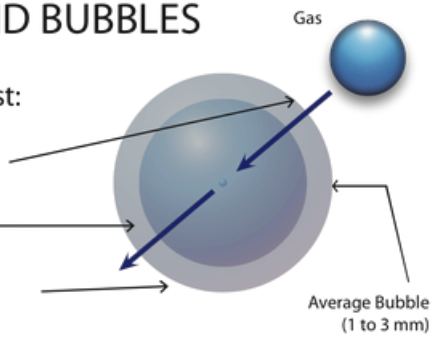
The protective slime layer is reduced exposing Anaerobic Bacteria to oxygen

Micro bubbles add oxygen to the sewer water Creating an aerobic environment



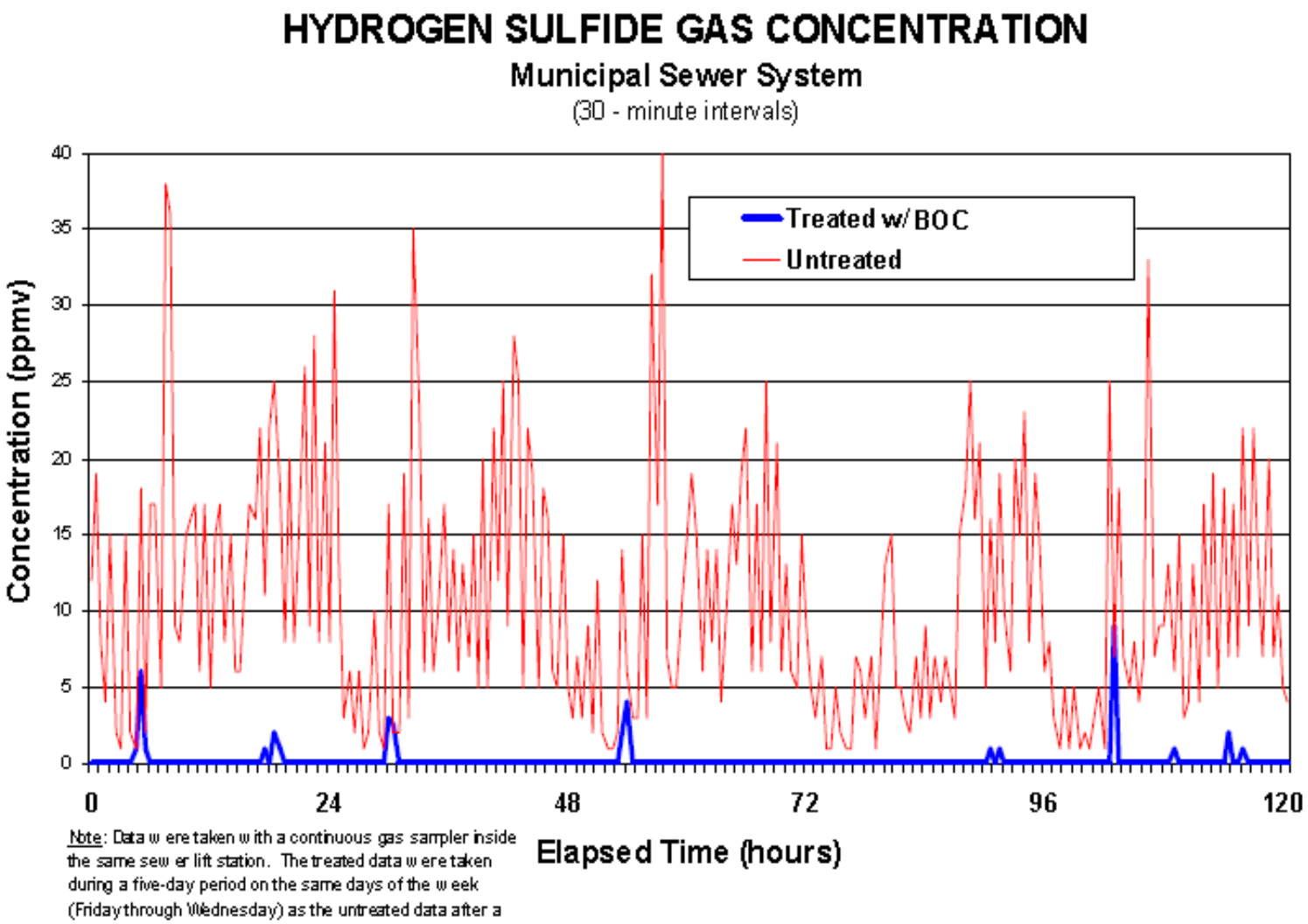
GAS TRANSFER RATE AND BUBBLES

Passing through a bubble, gas must:



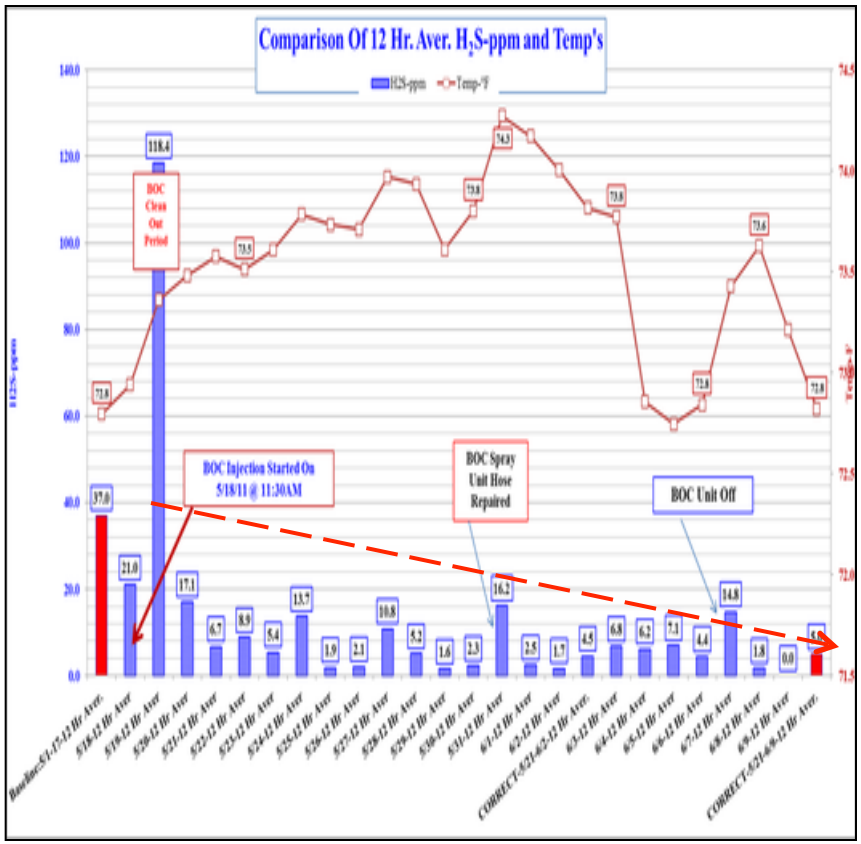
With continuous use of BOC the pipe is cleaned and flow is increased, eliminating the possibility of odor blooms at the same time preventing corrosion

Eliminating H_2S Gas Release

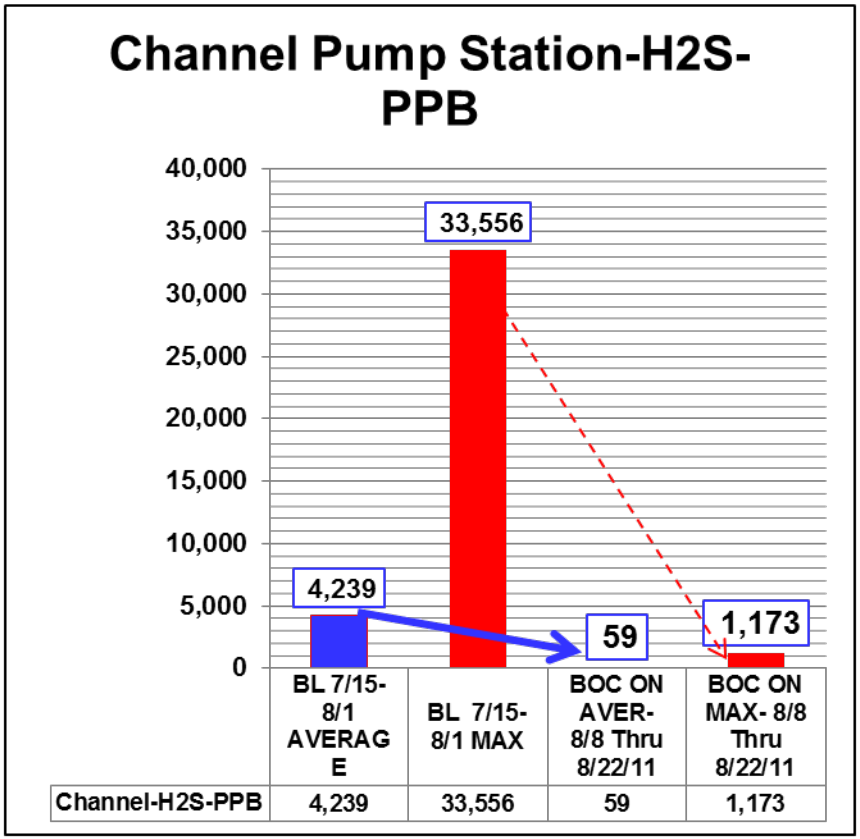


Example of H_2S Reduction in Sewers

BOC H2S Reduction Program For Kiewit Infrastructure West

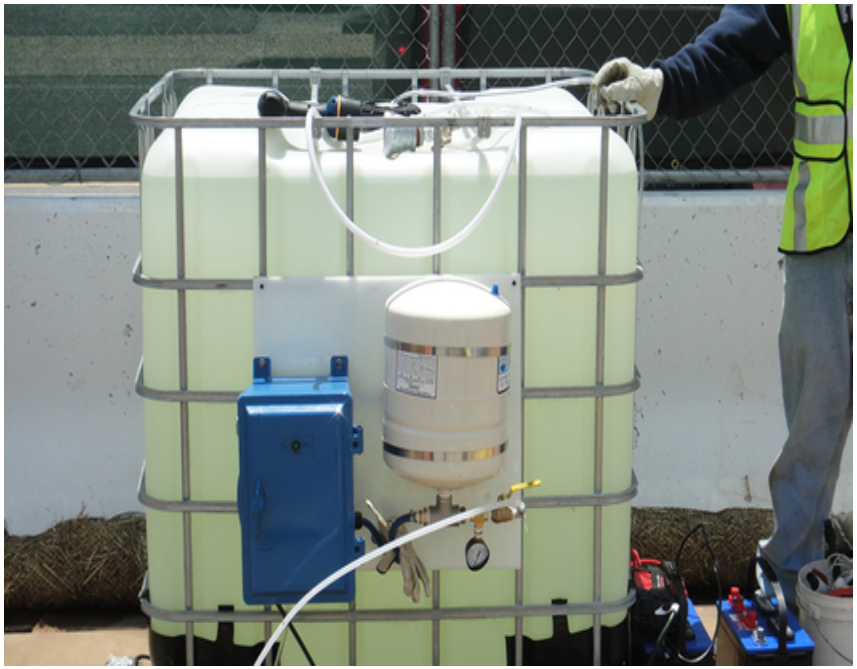


San Francisco - Pump Station (5 Miles from BOC injection point)

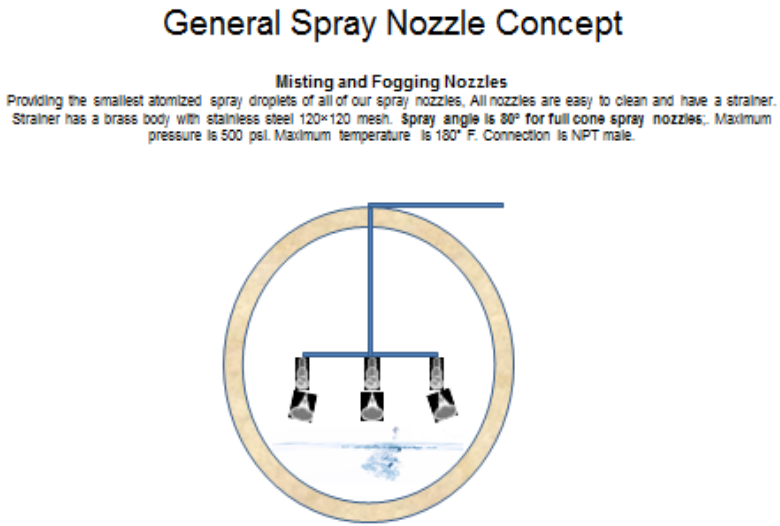


Portable Dispensing System For Sewer Odor Control

1,000 Liter ESP Solution Tote Bin



General Spray Nozzle Concept



Battery Powered Manhole Units

5-gal. Bucket Holder Installed On Manhole Rungs

5-gal. Bucket Holder Designed To Install On Manhole Rungs





A 5-gal. bucket holder designed to install on Manhole rungs. Made of welded steel with a black finish. 12" H x 13-1/2" W x 12-1/2" D. Fits maximum 12" dia. bucket.

BOC Battery Operated Manhole Dispenser

BOC Battery Operated Manhole Dispenser

DR-2000 (D-Cell Battery)- Clock-Based Chemical Feed System With Mist kit, plastic nozzle, with 0.125" ID neoprene tube



Contemporary Corrosion-Resistant Fiberglass (NEMA 6P/12)

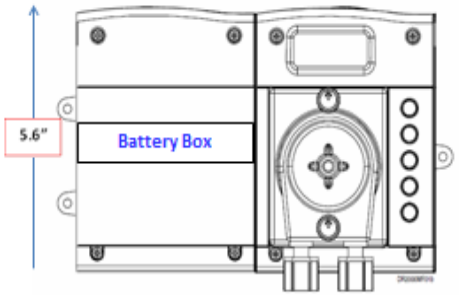
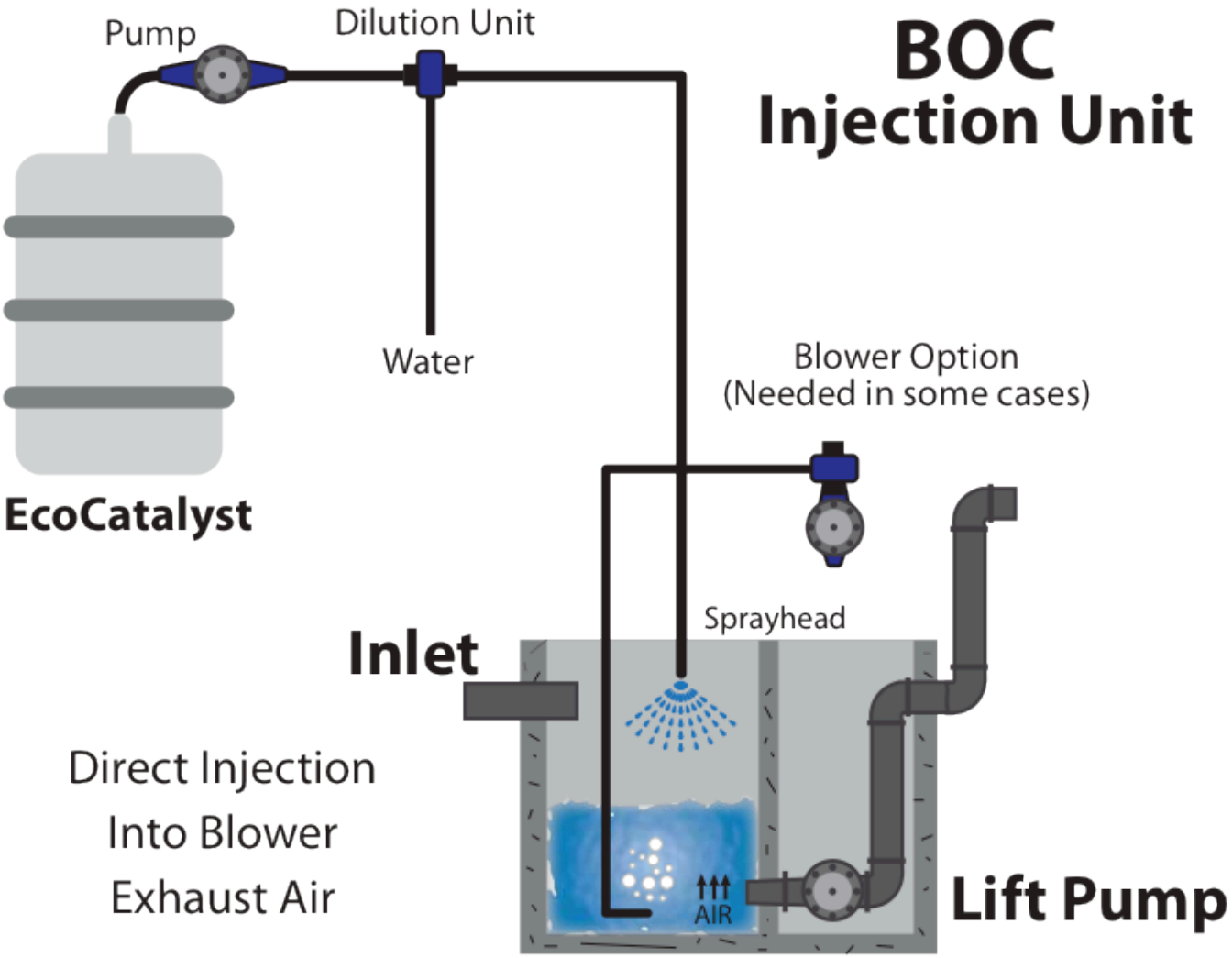


Figure 1b. DR-2000 D-Cell Battery Unit



BOCs Wet Well Hydrogen Sulfide Odor Control Program



Elimination of Grease Blockages in Siphon Boxes

- The challenge of siphon box grease clogging presents particular difficulties due to their locations and the inherent design configurations of siphon boxes. Entrapment of grease and debris is virtually assured from commercial constituent loadings.

- As grease discharges tend to float to the top of these discharges, BOC's technique of spraying onto sewage water surfaces proved to be extremely effective. Using the surging water discharges themselves as part of the solution, we were able to keep the entire pipe clean, including the grease that can accumulate at the upper section of the pipe.

- The turbulence action of the sewage discharge flowing into the siphon box accelerated BOC grease solubilization, and breakup of any grease and debris bundles which form blockages and odorous environmental conditions.

Examples of Current Collection System Installations

- City of San Francisco
- Kiewit Infrastructure West-Magnolia Trunk Sewer Rehabilitation Project
- Village of Ridgewood Regional Waste Water Facility, Ridgewood, NJ
- Brewster, NY WWTP
- Tri-Municipal WWTP Wappinger's Falls, NY, (Severn Trent)
- Carmel, NY WWTP, (Severn Trent)